



# Education Through Video and Booklet Media Increases Knowledge and Skills of Breastfeeding and Infant Growth and Development in Mother and Toddler Classes

Hasmia Naningsi<sup>1\*</sup>, Endah Saraswati<sup>1</sup>, Kartini<sup>1</sup>

<sup>1</sup> Poltekkes Kemenkes Kendari, Kendari, Indonesia.

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Corresponding Author:

Hasmia Naningsi

[hasmiananingsih6@gmail.com](mailto:hasmiananingsih6@gmail.com)

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**Abstract:** The effectiveness of health education using video and booklet media in enhancing breastfeeding knowledge and skills as well as infant growth and development in mother and toddler classes was the main focus of this study. This study was motivated by the importance of nutrition education in improving mothers' understanding of good breastfeeding practices and their impact on child health. Quantitative methods were used, with a comparative analysis of knowledge and skills before and after the educational intervention. Data showed that participants who received the video and booklet intervention experienced a significant increase in breastfeeding knowledge ( $p < 0.001$ ), compared to the group that did not receive the media. The analysis indicated that the use of both types of media simultaneously was most effective in improving knowledge and skills, with the highest N-Gain score recorded in the group that received both media. Furthermore, the positive influence of audiovisual media in the learning process confirms that a multimodal approach can address various learning styles, promoting better information retention. The results of this study provide valuable insights for developing more effective health education methods in the community, particularly in supporting mothers in breastfeeding and childcare practices.

**Keywords:** Breastfeeding; Education; Infant growth and development; Mother and toddler classes; Video media and booklets

## Introduction

The idea that education can improve child health outcomes is supported by research showing that targeted nutrition education can effectively increase mothers' knowledge of local foods and promote better nutritional status in malnourished children aged 6 to 21 months (Katmawanti et al., 2023; Peran et al., 2024). Specifically, Katmawanti et al. demonstrated that the use of exclusive breastfeeding booklets significantly improved maternal understanding and practices related to breastfeeding (Katmawanti et al., 2023). This aligns with findings by Prastyoningsih et al., who noted that breastfeeding education bolstered mothers' self-

efficacy, encouraging longer periods of exclusive breastfeeding (Prastyoningsih et al., 2021). Additionally, a number of studies highlight the importance of easily accessible informative tools, including educational pamphlets, for promoting successful breastfeeding practices and filling up any knowledge gaps among moms (Agrina et al., 2022; Hayatiningrum et al., 2023).

Moreover, the effectiveness of audiovisual materials was underscored by Sari et al., who found that video-based education improved knowledge about weaning food among mothers with infants aged 6 to 24 months (Sari et al., 2024). This aligns with Krouse's findings regarding video modeling being beneficial for

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patient education and skill development, which reinforces the importance of multimedia in educational settings (Krouse, 2001). The combined auditory and visual learning modes enable better retention of knowledge and can be particularly engaging for mothers seeking to enhance their caregiving capabilities.

A systematic review by Glaser et al. suggests that even brief educational sessions can significantly elevate breastfeeding knowledge and intentions among students, highlighting the transformative power of well-structured educational interventions (Glaser et al., 2015). This is corroborated by findings from Omid et al., which emphasized the importance of educating not just the primary caregivers but also the extended support system surrounding mothers for successful breastfeeding practices (Omid et al., 2022).

In the context of highlighting low-resource settings, the insights by Kapti et al. reveal that a maternal support system, where fathers play a complementary role, can enhance mothers' knowledge surrounding exclusive breastfeeding (Kapti et al., 2023). Such frameworks are vital, as they not only inform but also empower mothers through psychosocial support. Furthermore, the ongoing need for health education continues to be significant, especially in the wake of challenges posed by the COVID-19 pandemic, as noted by Agrina et al., who observed that online health consultations offered essential breastfeeding support during this period (Agrina et al., 2022).

According to Hammond et al., integrating video-based learning is essential for improving healthcare professionals' knowledge of breastfeeding techniques. By facilitating the acquisition of knowledge and enabling healthcare personnel to apply it successfully in clinical settings, video-assisted educational initiatives improve breastfeeding assistance for mothers. According to research, video learning creates a reliable and stimulating learning environment that is essential for hectic healthcare settings. It has also been connected to improved clinical competence in nurses with regard to infant care (Ajmera et al., 2024; Walsh et al., 2023). Furthermore, evidence suggests that using video-based education can mitigate misinformation surrounding breastfeeding, ultimately reinforcing healthcare providers' competency in promoting exclusive breastfeeding (Meek et al., 2020; Till et al., 2023).

The definitive results of important educational interventions across numerous research that highlight the necessary skills and confidence required for mothers engaging in effective nursing also demonstrate the critical role that knowledge plays in influencing breastfeeding behaviors. Optimizing breastfeeding outcomes requires comprehensive programs that make use of both community support networks and

multimedia tools (Barnes et al., 2010; Kaiza & Joho, 2023; Tada et al., 2020).

This study aimed to evaluate the effectiveness of using video and booklet media in health education on improving breastfeeding knowledge and skills, as well as infant growth and development in mother and toddler classes. The novelty of this study lies in its multimodal approach, combining visual and written elements to convey important information about breastfeeding and child growth. This study sought to identify whether the use of these two media can improve mothers' understanding of optimal breastfeeding practices and skills in supporting healthy child development.

The exploration of education through video and booklet media in mother and toddler classes presents a novel approach to enhancing knowledge and skills regarding breastfeeding and infant growth and development. Traditional methods of imparting this critical information often rely on static resources, which may not engage learners effectively. In contrast, multimedia resources can leverage visual and auditory stimuli to cater to diverse learning styles, potentially improving retention and application of knowledge.

Numerous studies suggest that interactive and multimedia educational interventions significantly elevate participants' understanding of breastfeeding practices and infant developmental milestones (McMillan et al., 2019; Pankaj et al., 2020). This format encourages active participation and can facilitate real-time feedback, thereby enhancing skill acquisition (Jones & Aglaya, 2021). The integration of video and booklet media fosters a more holistic educational experience, potentially leading to improved breastfeeding rates and healthier infant development outcomes, marking a pivotal shift from conventional pedagogical approaches.

## Method

### *Research Design*

This study employed a quantitative methodological framework utilizing a quasi-experimental design. A comparative analysis was conducted to evaluate the effectiveness of health education interventions through video and booklet media on enhancing knowledge and skills related to breastfeeding and infant growth and development in mother and toddler classes. This design was chosen to allow for direct comparison between different educational media's impacts while controlling for external variables in a community setting.

### *Participants*

In this study, participants comprised mothers with toddlers enrolled in classes at the Soropia Community Health Center, Southeast Sulawesi, Indonesia. A convenience sampling strategy was employed, focusing on mothers aged 15 to 40 years who were either currently breastfeeding or had intentions to breastfeed. Those with infants diagnosed with medical conditions that could influence growth and development were excluded, as were individuals unwilling to partake in the educational intervention. The final sample consisted of 60 participants, stratified into four distinct groups to assess the impact of different educational media on breastfeeding practices. Patients were divided into four groups to evaluate the effectiveness of various educational media on maternal knowledge and attitudes about breastfeeding. The first group consisted of 15 participants who received a video intervention. The second group, also with 15 participants, used a guidebook as the educational medium. The third group, a combination of video and book media, involved 15 participants. Finally, the control group consisted of 15 participants who did not receive any educational media intervention. This structured approach aimed to provide a comprehensive evaluation of how various types of media can influence maternal understanding and attitudes about breastfeeding, thus providing valuable insights for the development of educational programs for mothers.

### *Randomization*

Randomization was systematically carried out by assigning participants to groups based on a pre-existing registry at the health center, ensuring equal representation from differing education levels and ages among the participants.

### *Educational Intervention*

The educational intervention encompassed four distinct sessions focused on enhancing knowledge and practices related to breastfeeding and infant growth and development. The first component involved video media, where participants viewed 20-minute videos showcasing effective breastfeeding techniques, proper latch demonstrations, and maintaining milk supply, guided by lactation consultants. The second element utilized booklet media, which provided comprehensive and illustrated resources on breastfeeding, nutritional requirements, and developmental milestones for infants, intended for ongoing reference. A combined intervention group received both media types to foster multi-modal engagement, promoting higher retention rates through auditory and visual stimulation. In contrast, the control group did not participate in this intervention and continued their usual activities,

allowing for comparative analysis of the educational impact on breastfeeding practices and infant care knowledge among the different groups. Research indicates that such multimodal approaches can enhance learning outcomes, particularly in health-related education

### *Data Collection*

Data was collected at two time points: pre-intervention (baseline) and post-intervention (four weeks following the completion of the educational sessions). The outreach team employed structured questionnaires and assessment tools designed to gauge maternal knowledge and skills related to breastfeeding and infant growth and development. Data collection involved the following key measures:

#### *Knowledge Assessment*

A validated questionnaire addressing several aspects of nursing practices and child developmental needs was utilized in this study to gauge breastfeeding expertise. Each participant was assessed using multiple-choice questions based on their pre-educational and post-intervention baseline knowledge levels. A clear image of the changes that took place after participants received more information regarding breastfeeding was provided by the calculation of knowledge scores, which were used to determine knowledge levels both before and after the intervention. It is anticipated that these findings will shed light on how well the educational intervention improved the participants' understanding of breastfeeding.

#### *Skills Assessment*

Practical demonstrations serve as an effective method for assessing breastfeeding skills among mothers, focusing on essential techniques such as latching, positioning, and handling. Trained evaluators utilize a standardized rubric to rate these skills across three critical domains: the latching technique, which evaluates the proper positioning of the infant at the breast; the duration of feeding, which assesses the mother's ability to recognize feeding cues and determine appropriate breastfeeding duration and handling techniques, which reflect the mother's comfort and skill in securely holding the infant throughout the breastfeeding session. This structured assessment helps identify areas for improvement and supports mothers in enhancing their breastfeeding practices, ultimately contributing to better infant health outcomes.

#### *Statistical Analysis*

In the analysis of the educational interventions, two statistical methods were employed to evaluate the data: the Wilcoxon Signed-Rank Test and the Kruskal-Wallis

Test. The Wilcoxon Signed-Rank Test, a non-parametric method, was utilized to assess changes in pre- and post-intervention scores within the same group, allowing for an effective evaluation of the impact of the interventions. Additionally, the Kruskal-Wallis Test served to compare knowledge and skills improvement across multiple groups, thereby identifying significant differences related to varying media forms used in the training. The threshold for statistical significance was established at  $p < 0.05$ , ensuring the rigor of the assessment of the interventions' efficacy. These methodologies collectively provided a robust framework to analyze the outcomes of the educational strategies implemented.

## Result and Discussion

Table 1 shows the distribution of respondents based on two variables: education and age. For the education variable, respondents were divided into those who used

both video and booklet, only video, only booklet, and neither material. The majority of respondents (93.3%) with education in the "Basic" category chose video, while 66.7% of respondents who did not use video or booklet came from the same category. In terms of age, respondents were grouped into different age ranges. For the 15-19 age category, records show that 33.3% of respondents who did not use either material were from this group. The 26-30 age group showed the highest proportion for all material categories, with 40% choosing a combination of video and booklet.

The results showed that all intervention methods (no media, booklets, videos, and a combination of both) produced significant positive ratings, indicated by p-values less than 0.05, with some interventions even reaching higher p-values (e.g.,  $p = 0.001$  for the combination of video and booklets). Interestingly, the group that received no media did not show significant positive results, although some improved.

**Table 1.** Respondent Distribution

Variables	Video		Booklet		Video and Booklet		Without Video and booklet	
	n	%	n	%	n	%	n	%
Education								
Base	3	93.30	14	80	12	80	10	66.70
Carry on	12	6.70	1	20	3	20	5	33.30
Age								
15-19	2	13.30	1	6.70	0	0	5	33.30
20-25	4	26.70	3	20.00	2	13.30	1	6.70
26-30	5	33.30	5	33.30	6	40	9	60
31-35	2	13.30	5	33.30	3	20	0	0
36-40	2	13.30	1	6.70	4	26.70	0	0

**Table 2.** Analysis of the Differences in Average Knowledge and Skills of Breastfeeding and Infant Growth and Development Before and After Interventions in the Form of Video Media, Booklet Media, Video Media and Booklets, and without Being Given Video Media and Booklets

Health Education Intervention			N	p
Breastfeeding Knowledge (Pre) – Breastfeeding Knowledge (Post)	Without Video Media and Booklet	Negative Rank	0	0.005*
		Positive rank	9	
		Ties	6	
		Total	15	
	Media Booklet	Negative Rank	0	0.002*
		Positive rank	12	
		Ties	3	
		Total	15	
	Video Media	Negative Rank	0	0.007*
		Positive rank	9	
		Ties	6	
		Total	15	
	Video Media and Booklets	Negative Rank	0	0.001*
		Positive rank	15	
		Ties	0	
		Total	15	
Fallen Knowledge (Pre) – Fallen Knowledge (Post)	Without Video Media and Booklet	Negative Rank	0	0.002*
		Positive rank	12	

Health Education Intervention			N	p
Breastfeeding Skills (Pre) – Breastfeeding Skills (Post)	Media Booklet	Ties	3	0.004*
		Total	15	
		Negative Rank	0	
		Positive rank	10	
		Ties	5	
		Total	15	
	Video Media	Negative Rank	0	0.002**
		Positive rank	12	
		Ties	3	
		Total	15	
		Negative Rank	0	
		Positive rank	15	
	Video Media and Booklets	Ties	0	0.001*
		Total	15	
		Negative Rank	0	
		Positive rank	15	
		Ties	0	
		Total	15	
	Without Video Media and Booklet	Negative Rank	0	0.001*
		Positive rank	12	
		Ties	3	
		Total	15	
		Negative Rank	0	
		Positive rank	13	
	Media Booklet	Ties	2	0.001*
		Total	15	
		Negative Rank	0	
		Positive rank	15	
		Ties	0	
		Total	15	
	Video Media	Negative Rank	0	0.001*
		Positive rank	15	
		Ties	0	
		Total	15	
		Negative Rank	0	
		Positive rank	15	
	Video Media and Booklets	Ties	0	0.001*
		Total	15	
		Negative Rank	0	
		Positive rank	15	
		Ties	0	
		Total	15	
Fall Skill (Pre) – Fall Skill (Post)	Without Video Media and Booklet	Negative Rank	0	0.000**
		Positive rank	15	
		Ties	0	
		Total	15	
		Negative Rank	0	
		Positive rank	1	
	Media Booklet	Ties	14	0.334**
		Total	15	
		Negative Rank	0	
		Positive rank	15	
		Ties	0	
		Total	15	
	Video Media	Negative Rank	0	0.001*
		Positive rank	15	
		Ties	0	
		Total	15	
		Negative Rank	0	
		Positive rank	15	
	Video Media and Booklets	Ties	0	0.000**
		Total	15	
		Negative Rank	0	
		Positive rank	15	
		Ties	0	
		Total	15	

\*Wilcoxon Test; \*\*Dependent T-Test

Table 3 presents an analysis of differences in knowledge and skills related to breastfeeding and infant growth and development based on four types of media interventions: video media, book media, a combination of video and book media, and the no-media condition.

The results indicate that the use of video media significantly improved breastfeeding knowledge (N-Gain Score = 38.56,  $P = 0.001$ ) compared to the no-media group. Similarly, the book media also improved knowledge, but not as effectively as the video media (N-

Gain Score = 33.56,  $P = 0.012$ ). For breastfeeding skills, the combined media had the highest N-Gain Score (70.55,  $P^* = 0.033$ ), indicating that the dual use of video and book media was more effective. However, the no-media group demonstrated lower results in all

categories, reflecting the need for more interactive and informative educational methods to improve knowledge and skills outcomes. Statistical analysis using the Shapiro-Wilk and Kruskal-Wallis tests demonstrated the significance of reliable results for this assessment.

**Table 3.** Analysis of Differences in Knowledge and Skills Regarding Breastfeeding and Infant Growth and Development between Video Media, Booklet Media, Video Media and Booklet, and Without Using Video Media and Booklet

Health Education Intervention		Elementary School		N-Gain Score	
		Mean		$P^*$	$P^{**}$
Breastfeeding Knowledge	Video media	38.56	34.76	0.001	0,000
	Booklet media	33.56	25.83	0.012	
	Video media and booklets	65.66	20.06	0.425	
	Without video media and booklets	20.22	19.85	0.009	
Knowledge Fall	Video media	33.33	23.45	0.149	0,000
	Booklet media	25.23	19.99	0.006	
	Video media and booklets	75.22	23.14	0.058	
	Without video media and booklets	22.89	14.11	0.070	
Breastfeeding Skills	Video media	57.56	15.86	0.056	0,000
	Booklet media	45.55	22.25	0.007	
	Video media and booklets	70.55	24.58	0.033	
	Without video media and booklets	22.55	12.92	0.011	
Falling Skills	Video media	40.33	8.62	0.078	0,000
	Booklet media	1.22	4.73	0,000	
	Video media and booklets	75.88	10.11	0.337	
	Without video media and booklets	31.99	6.60	0.509	

\*Shapiro Wilk Test (Normality Test); \*\*Kruskal Wallis Test

Analysis of the data table shows that respondents with primary education preferred using video media (93.3%) compared to booklets (80%) or a combination of both (80%). This is in line with research by Hoiroh and Isnawati, which noted that electronic booklets were well-received by students and were very effective in improving comprehension (Hoiroh & Isnawati, 2020). In addition, Yanti et al. showed that the use of video in health education can result in significant increases in knowledge (Yanti et al., 2022). This indicates that selecting the right educational media significantly impacts the effectiveness of delivering health information.

In terms of age, respondents aged 26-30 years showed a high level of interest in using video media

(40%) and booklets (40%). This may be due to this generation's connection to digital technology, making them more open to interactive learning methods. This view aligns with the research findings of Wulandari et al., which confirmed that innovative educational media can increase participant knowledge and engagement in the health education process (Wulandari et al., 2021). The ease of access and speed of information provided by video media are supporting factors in this regard (Susilawati et al., 2022). Furthermore, it was found that groups with advanced education and those who did not use media tended to have a higher proportion of distribution at lower levels of knowledge (Doyan et al. 2023). This indicates that educational media is very important in the learning process. As expressed by

Gasper and Haluruk, booklets used in health education can improve public knowledge and attitudes regarding disease prevention. (Gasper & Haluruk, 2021). When media is not used, low knowledge can be an obstacle to effective health education.

Further considerations regarding media selection should also be based on the educational and demographic context of the respondents. For example, in a study by Putri et al., which found differences in effectiveness between booklets and videos on knowledge of balanced nutrition, the results showed that the use of videos was more effective than booklets in certain contexts (Putri et al., 2024). This emphasizes the importance of selecting educational tools that are appropriate to the characteristics of each audience.

A structured comparison shows that each intervention type video media, booklet media, their combination resulted in significant positive changes in participants' breastfeeding knowledge and skills. Specifically, when comparing pre- and post-intervention scores pertaining to breastfeeding, a notable trend emerges across studies confirming the efficacy of both video and booklet media in enhancing maternal knowledge. For instance, Hayatiningrum et al. found that educational interventions using animated video media and leaflets significantly improved mothers' knowledge and skills, with p-values below 0.001 post-intervention (Hayatiningrum et al., 2023). Additionally, Rismayanti and Muniroh indicated that multimedia interventions positively impacted breastfeeding technique scores among postpartum mothers, highlighting the effectiveness of audiovisual materials (Rismayanti & Muniroh, 2023).

Conversely, participants who did not receive any form of media intervention exhibited less pronounced improvements in their knowledge and skills. The lower positive ranks in knowledge pre- and post-intervention for this group were considerably less than those in the media intervention groups. The significance of the interventions was illustrated by the consistent positive ranks across the board, with every group receiving educational materials showing statistical significance, thereby underscoring the advantage of structured educational content (Hayatiningrum et al., 2023). Particularly noteworthy is the combination of video media and booklets, which demonstrated the highest level of improvement in both breastfeeding knowledge and skills. This hybrid approach can be particularly effective in delivering health education by accommodating different learning styles and reinforcing both verbal and visual learning aspects (Hamidah et al., 2025). The dual modality may cater to a wider audience, thus enhancing retention and application of the material presented.

The interventions' effectiveness is further substantiated by Edafioghor et al., who found that structured educational programs significantly improved maternal knowledge regarding breastfeeding practices where there was initially a lack of understanding. The increase in knowledge observed after interventions, including multimedia support, suggests that targeted health education can counteract misinformation and improve awareness (Edafioghor et al., 2023). Moreover, examining the impact on infant growth and development indicators in conjunction with breastfeeding education presents a holistic view of the importance of maternal education. Disseminating knowledge through engaging and informative methods not only cultivates better breastfeeding practices but may also positively influence broader health outcomes for infants, fostering a nurturing environment essential for early development (Safitri et al., 2021).

The results indicate a pronounced increase in breastfeeding knowledge when utilizing video media, evidenced by a reported N-Gain score of 38.56, compared to 33.56 for booklet media, reflecting a statistically significant difference ( $P < 0.001$ ) (Maizuputri et al., 2024). This aligns with findings from Maizuputri et al., who illustrate that educational packages, particularly video tutorials focusing on exclusive breastfeeding management, significantly increase the knowledge and self-efficacy of mothers (Maizuputri et al., 2024). Conversely, when combining video media with booklets, the improvement in knowledge only reached a moderate level, with an N-Gain score indicating that this combined approach, while beneficial, did not outperform the video-only intervention.

Research has consistently highlighted the advantages of audiovisual media in enhancing knowledge retention and understanding. A systematic review by Lambert et al. emphasizes the effectiveness of video delivery in health education interventions, noting that such formats can be more beneficial than traditional methods in knowledge dissemination (Lambert et al., 2022). This scholarly consensus is further supported by evidence suggesting that video-based education leads to greater retention and engagement than other methods (Zhang et al., 2022). The data also reveals that video media contribute substantially to the enhancement of breastfeeding skills, with an N-Gain score of 57.56 compared to 45.55 for booklet media and a significant difference ( $P < 0.001$ ) (Maizuputri et al., 2024). Similar trends are noted in studies addressing skill acquisition through video instructions. Altabbaa et al. report significant improvements in knowledge and practical skills resulting from video-based educational interventions (Altabbaa et al., 2023). Skills development, particularly in clinical and practical

applications, emphasizes the qualitative aspects of learning that video media can capture, such as demonstrations and real-life scenarios.

Moreover, the effectiveness of video media in teaching complex skills is underscored in broader educational literature. Research by Lindner et al. indicates that immersive approaches, including video tutorials, yield higher retention rates of skills compared to traditional methods, highlighting the strengths of dynamic visual learning tools (Lindner et al., 2025). The current study corroborates this by indicating that the skills learned through video media remain significantly higher than those achieved by learners not utilizing video resources. The comparison of various media types reveals that groups employing audiovisual materials exhibit superior knowledge and skill acquisition, evidenced by significantly higher N-Gain scores compared to those lacking such resources. Specifically, Mashudi et al. highlight that audiovisual media's diverse visual elements engage students more effectively, facilitating better learning outcomes (Mashudi et al., 2021). Furthermore, research by Alsaïd et al. emphasizes that shorter video formats can enhance engagement; however, concerns about long-term retention of knowledge remain, as there were no significant differences in examination scores between groups utilizing different video lengths (Alsaïd et al., 2025). Additional findings from Moe-Byrne et al. suggest that video animations yield superior comprehension and application of knowledge compared to static formats (Krenn et al., 2024). While studies like that of Tang et al. indicate that multimedia tools can increase cognitive load, they still notably outperform traditional methods in fostering deeper understanding and skill development (Tang et al., 2021). Collectively, these perspectives underscore the necessity of integrating effective media in educational contexts to optimize learning outcomes.

The integration of multimedia approaches in health education is increasingly recognized as vital for enhancing health literacy. Evidence indicates that multimedia formats, such as animated videos, significantly improve understanding and retention of educational content among participants. For instance, studies have shown that preoperative animated videos facilitate better knowledge acquisition and retention compared to traditional methods, enhancing patients' comprehension of their medical conditions (Jin et al., 2024; Wang et al., 2022). Moreover, interventions leveraging the Health Belief Model through animated formats have effectively increased awareness regarding anemia prevention, particularly among adolescents (Aisah et al., 2022). Other research demonstrates that video-based educational interventions, especially when

delivered in an interactive manner, can promote positive health behaviors (Supady et al., 2023).

## Conclusion

The study's findings indicate that participants' knowledge and abilities about breastfeeding and the growth and development of infants differed significantly before and after they attended a mother-to-toddler session that included booklet and video materials. The video and booklet media intervention outperformed the other three intervention strategies, according to the data. These results offer valuable insights into teaching strategies that can enhance mothers' comprehension of nursing and the growth and development of infants. The Soropia Community Health Center should continue this program on a regular basis utilizing a variety of information sources, and suggestions center on how women can use the knowledge they have learned in their everyday life. Additionally, it is anticipated that this study will be used as a guide by future researchers when creating studies that examine the efficacy of other media as educational interventions for comparable target groups. Deeper understanding of the best approaches to assist moms with breastfeeding and newborn care can be obtained through ongoing study.

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## Author Contributions

Conceptualization, HN, ES, KK; methodology, HN, ES, KK; formal analysis, HN, ES, KK; investigation, HN, ES, KK; resources, HN, ES, KK; writing—preparation of original draft, HN, ES, KK; writing—reviewing and editing, HN, ES, KK; visualization, HN, ES, KK; project administration, IKN; obtaining funding, HN, ES, KK. All authors have read and approved the published version of the manuscript.

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## Conflicts of Interest

The authors declare no conflict of interest.

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