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Health Education Using E-Book Media and Maternal Literacy on Complementary Feeding in Children 6-23 Months

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Abstract: A mother's knowledge plays an important role in feeding behaviour in children. Complementary Feeding (CF) refers to foods or drinks that provide essential nutrients to babies or children aged 6–23 months and breast milk. Low exclusive breastfeeding rates contribute to undernutrition due to early and nutritionally inadequate Complementary Feeding. This study aimed to assess the impact of e-book media health education on CF literacy among mothers with children aged 6-23 months. This quantitative research uses a Quasi-Experimental design, with pre-test and post-test assessments in both intervention and control groups. The study involved 96 participants in the intervention group and 96 in the control group, all from the Sawah Lebar Community Health

Center area. Data analysis was performed using the Chi-square statistical test, McNemar test, Wilcoxon signed-rank test, and Mann-Whitney U test. The results showed that e-book promotion significantly improved CF literacy, with the intervention group showing a greater increase in literacy scores (15.0±5.89) compared to the control group (13.8±4.87). Health education through e-book media is effective in increasing CF literacy, particularly in improving mothers' understanding of the nutritional needs of their children. The study highlights the potential of digital platforms as an innovative tool for maternal education. It also emphasizes the importance of utilizing e-book media to enhance mothers' practices in providing appropriate CF, ultimately improving child nutrition. This research provides valuable insights for future studies on digital health education tools and their role in promoting better feeding practices.

Keywords: e-book media, health education, literacy, complementary feeding.

Introduction

Proper nutrition during infancy is essential for healthy growth and development. One of the most crucial aspects of infant nutrition is the provision of breast milk and complementary feeding. Breast milk is an essential food that must be given to babies aged 0–6 months without additional liquid or other food (Arikpo et al., 2018). Complementary Feeding (CF) is foods or drinks other than breast milk that contain nutrients provided during the complementary feeding period to meet the nutritional needs of babies, improving the baby's ability to chew, and introducing foods with various flavours and textures, as well as helping them adapt to foods that contain high energy. Based on WHO (World Health Organization) Guidelines, the provision of CF must meet four conditions, namely certainty of time, accuracy, cleanliness, and safety, and be given correctly. Data collected from 2015 to 2020 shows that about 56% of babies aged 0-6 months worldwide have been given supplements other than breast milk (Madhivanan et al., 2020).

The coverage of exclusive breastfeeding babies in Indonesia in 2020 was 67.96%, indicating that about 32% of babies received complementary feeding (CF) before 6 months. The coverage in 2022 decreased to 69.7%, with the Sawah Lebar (17.09%), Kandang (22.45%), and Kampung Bali (24.66%) Health Centers having the lowest rates in Bengkulu City (Dhoundiyal Badola & Gupta, 2024).

The impact of giving CF before 6 months can cause malnutrition due to low nutrient intake from CF, which usually decreases along with low nutrient density. Inappropriate Complementary Feeding (CF) can hurt children's health and nutritional status (Theurich et al., 2020). Children who receive CF too early or not because of their nutritional needs may experience deficiencies in essential macronutrients and micronutrients, affecting their growth and immune system (Naimah & Elfindri, 2024). Children who are introduced to CF too early are at risk of diarrhoea (Hamer et al., 2022), malnutrition such as stunting, and other health problems. Long-term effects related to

complementary feeding include trends in increased overweight and obesity among children. Therefore, mothers need to understand the proper CF guidelines well. Promoting Breastfeeding and Complementary Feeding Practices for Optimal Maternal and Child Nutrition (Ajmal, 2024).

Some of the causative factors that affect mothers in giving CF early are a low understanding of mothers' understanding of exclusive breastfeeding and CF and mothers not knowing the proper stages of CF. Cultural factors and the role of society also influence mothers in providing early CF (Flax et al., 2022). A low level of education will increase the mother's knowledge and understanding of CF (Gilano et al., 2023). One of the efforts made in overcoming early CF is to provide health education about CF, which includes the definition of CF, the benefits of CF, the impact of CF deficiency, guidelines for CF, and signs that children are ready to receive CF (Gizaw et al., 2023).

Health education aims to enhance community abilities through collaborative learning, self-help, community-driven activities, and support from health-oriented public policies, considering local socio-cultural factors. For this promotion, health messages must be conveyed through the right media (Handajani et al., 2021). Digital literacy is the definition and ability to use digital media, communication tools, or networks to acquire, evaluate, use, disseminate, and manage information wisely, intelligently, carefully, precisely, and law-abiding to foster communication and interaction in daily life (Muluye et al., 2020; Hosen, Pulok & Hajizadeh, 2023). E-books are interactive, color-formatted digital books accessible via electronic devices, offering convenience and practicality for reading anytime, anywhere. This education has the same concept as conventional books, only the electronic form is easier to use (Jannat et al., 2019). This study addresses the low understanding of mothers about Complementary Feeding (CF) for infants aged 6-23 months, which can lead to malnutrition. Factors like limited knowledge, low digital literacy, and lack of access to accurate information contribute to this issue. The study aims to explore the impact of e-books and leaflet media in improving CF literacy among mothers, particularly in areas with low exclusive breastfeeding coverage.

Research Problem

The research problem focuses on the insufficient understanding of complementary feeding (CF) among mothers, particularly those with children aged 6-23 months, which can lead to malnutrition and health issues such as stunting and overweight. Despite the global guidelines recommending exclusive breastfeeding for the first 6 months, many mothers introduce CF prematurely due to factors like low knowledge, limited digital literacy, and inadequate access to reliable information. This issue is particularly pronounced in regions with low exclusive breastfeeding rates, such as Sawah Lebar, Kandang, and Kampung Bali in Bengkulu City. This study explores how e-books and leaflet media can enhance CF literacy, providing an accessible, practical solution to improve mothers' understanding and practices regarding CF, thereby promoting better nutritional outcomes for infants.

Research Focus

The research focuses on evaluating the impact of health education through e-book media on improving maternal knowledge and practices related to proper Complementary Feeding (CF) in children aged 6-23 months, to address children's health issues such as malnutrition, stunting, and obesity. Using a quasi-experimental design, the study involves 96 mothers in the intervention group who receive health education through e-books and 96 mothers in the control group who do not receive this intervention. The study aims to assess whether the e-book media effectively enhances maternal understanding of CF guidelines, influences their feeding practices, and ultimately improves the health outcomes of their children.

Research Aim and Research Questions

This study aims to describe the results of the feasibility test for e-book media as a health education medium regarding Complementary Feeding (CF), describe the characteristics of mothers who have children aged 6-23 months, analyze changes in literacy before and after CF health education in the intervention and control groups, and test the effectiveness of health education on literacy in complementary breastfeeding. The research questions based on the study's objective:

1. What is the effect of health education through e-book media on the knowledge of mothers regarding Complementary Feeding (CF) for children aged 6-23 months?
2. How does the use of e-book media for health education influence maternal practices related to Complementary Feeding (CF) in children aged 6-23 months, particularly in addressing common health issues in children?

These questions aim to assess the knowledge improvement and practical application of CF guidance through e-book interventions.

Literature Review

The impact of introducing complementary foods before six months can lead to malnutrition due to the low nutritional intake from complementary foods, which are typically large in portion size but low in nutrient density. If complementary feeding (CF) is introduced before six months of age, short-term and long-term negative effects can occur. In the short term, feeding babies complementary foods before six months may result in loss of nutrition from breast milk, reduced sucking ability, increased risk of diarrhoea, and anaemia. Long-term effects of early introduction of complementary foods can lead to obesity (Hidayati et al., 2022). A mother must have digital literacy skills to select accurate information (Hariyanti et al., 2021).

The causes of early complementary feeding include low maternal knowledge about exclusive breastfeeding and CF, as well as a lack of understanding of the correct stages of complementary feeding. Cultural factors and the role of grandmothers also influence mothers to introduce complementary foods early (Zogara et al., 2021). Low levels of education affect mothers' knowledge

and understanding of proper CF practices. Some people believe that the introduction of CF is due to a child being fussy, working mothers, and strong adherence to ancestral traditions, with some mothers lacking the motivation to provide exclusive breastfeeding for their children aged 0-6 months, leading them to introduce CF. One effort to address early complementary feeding is by providing health education about CF, including the definition of CF, the benefits of CF, the impact of CF deficiency, CF guidelines, and signs that a child is ready for CF. However, exclusive breastfeeding coverage is still low, and there is limited education on digital literacy for CF practices. Health education is an effort to improve community capacity by learning from, for, and with them to help themselves and develop community-driven activities that align with local socio-cultural norms, supported by health-oriented public policies (Maramis et al., 2019). For this promotion, health messages must be supported by appropriate media (Safitri et al., 2022). Today, advancements in technology and the internet have made vast amounts of information accessible. Individuals can now input and access information without limits of time or space (Makin & Waningrum, 2023). The comparative effectiveness of digital platforms (e-books, apps) versus printed materials (leaflets, brochures) in influencing mothers' knowledge and behaviour has been a topic of interest in several studies. Research indicates that digital media often leads to more significant improvements in health knowledge and behaviours compared to traditional print media. For example, studies have shown that e-books, due to their interactive nature and the ability to present detailed, visually engaging content, are more effective at increasing maternal literacy on topics such as CF and breastfeeding practices (Novitasari & Fauziddin, 2022). The digital nature of e-books also allows for immediate feedback through quizzes and assessments, helping reinforce learning. In contrast, printed materials tend to provide static, one-time information, which might not be as engaging or accessible, especially in areas with limited literacy or technological access. Moreover, printed materials may not be as easily updated as digital resources, making them less adaptable to new research or health guidelines (Safitri et al., 2022). However, some studies suggest that printed materials may still be effective in regions where internet access or digital literacy is limited, highlighting the need for a tailored approach that considers local contexts and infrastructure (Kalsum & Ghita, 2022).

E-books have become important in health education, particularly for mothers with young children. By offering an interactive and accessible format, e-books can provide mothers with essential information about topics like complementary feeding (CF), exclusive breastfeeding, and child nutrition. The advantage of using e-books in health education lies in their ability to reach a wider audience, particularly in areas with limited access to traditional educational resources. E-books can be updated regularly, keeping health information current and relevant. Furthermore, e-books can incorporate multimedia elements such as videos, quizzes, and interactive features that enhance learning and retention. This format allows mothers to access information conveniently, which can be especially beneficial for those with busy schedules. In addition, the digital format of e-books helps eliminate the need for paper, making them an eco-friendly and cost-effective alternative to printed materials. An e-book is an interactive book with color-formatted text designed for electronic content and accessible through devices such as computers (Pratiwi & Rachmadiarti, 2021). An e-book, or

electronic book, is an electronic article or any more computerized object. E-books inherently have sophisticated object characteristics (more precisely, digital objects), and the main characteristic that supports the reproduction and distribution of digital objects is the ease of reproduction and distribution, especially with the rapid use of the internet.

E-books are useful for making it easier to search for information in reading materials, saving paper, and providing a substitute for traditional print texts. Additionally, digital books or e-books help create an unlimited collection of books, reducing costs (Adriani et al., 2022). This situation has created a scenario where the distribution of e-books now far exceeds printed books (Waruwu & Nadirah, 2023). Using e-books makes everything easier and more practical. They can be read anytime and anywhere. This educational format is similar to a conventional pocketbook, but in an electronic form, it is easier to use. This educational format can be accessed by mothers wherever they are, allowing them to access information anytime they wish. Easy access encourages people to read, allowing them to gain information more quickly and broadly (Lundy et al., 2022).

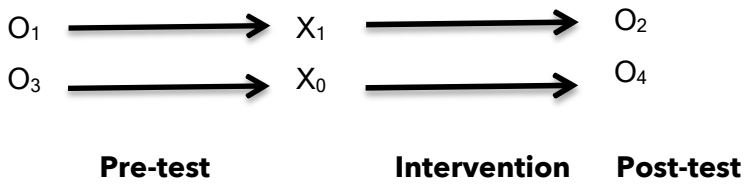
While the potential of digital technologies, such as e-books and mobile apps, in health education is immense, several barriers must be addressed to ensure widespread adoption, particularly in low-resource or rural areas. One significant challenge is the digital divide, where access to the internet and electronic devices is limited, particularly in remote areas. Even when digital tools are available, many individuals, especially older generations and those with lower education levels, may lack the digital literacy skills needed to navigate these platforms effectively. Additionally, cultural beliefs and practices can influence the acceptance and use of digital health resources. For example, in some communities, there may be a preference for traditional sources of health information, such as face-to-face consultations with health professionals or printed materials (Zogara et al., 2021). Overcoming these cultural and educational barriers requires targeted interventions that include training programs to enhance digital literacy and awareness campaigns to demonstrate the benefits of digital platforms for health education. Moreover, integrating cultural sensitivity into digital health programs is crucial to ensure the target audience's content is relevant and accepted (Makin & Waningrum, 2023).

Materials and Methods

The research journal uses the quasi-experiment with the design of a Pre-test and Post-test with the control group (Figure 1), that is, the research that simulates the treatment of the treatment group and the treatment of the control group. The treatment group receives health education through digital media in the form of E-Books, while the control group receives health education through leaflet media.

Figure 1

Research Design



Information:

O1: Measurement of pre-test on the intervention group

O2: Measurement of post-test on the intervention group

X1: Providing health education interventions using e-book media.

X0: Providing health education interventions using leaflet media.

O3: Measurement of pre-test on the control group.

O4: Measurement of post-test on the control group.

Sample and Participants

The research was conducted at the Sawah Lebar Health Center from January to May 2024. The population in this study consisted of mothers with children aged 6–23 months from the Sawah Lebar Health Center, Bengkulu City, Indonesia. A total of 96 mothers were selected for the intervention group and 96 for the control group through purposive sampling. Sampling was conducted based on specific inclusion and exclusion criteria. The inclusion criteria were mothers with children aged 6–23 months, in good physical and mental health, who owned gadgets, and who were willing to participate until the research was completed. The exclusion criteria included mothers with physical or mental health issues, those who refused to participate, or those unable to read or write.

Instruments and Procedures

The independent variable in this study is health education. The health education intervention group used e-book media, while the control group received leaflet media. The dependent variable is maternal literacy about Complementary Feeding (CF). Variables of maternal and child characteristics include maternal age, maternal education, maternal occupation, access to information, gender of the child, and nutritional status. Maternal characteristics, including maternal age, maternal occupation, access to information, and children's gender, were homogeneous between the intervention and control groups. To measure maternal literacy about Complementary Feeding using a 14-question questionnaire that has been tested for validity and reliability. Respondents were considered to have appropriate literacy if they answered 75%-100% of the

questions correctly. The e-book media used for health education was tested and revised to ensure suitability.

Data Analysis

Data processing included Editing, Coding, Entry, and Cleaning stages, and analysis was performed using univariate and bivariate methods. Univariate analysis described the characteristics of mothers and children. In contrast, bivariate analysis involved the McNemar U test for categorical data and the Wilcoxon Signed-Rank Test and Mann-Whitney U Test for non-normally distributed data. This study ensured respondents' rights were protected and participation was voluntary.

Results

Table 1 shows that the e-book media validity test showed that 80% of the Merdia e-book was valid, meaning it was worthy of being tested with revision. Table 2 shows that maternal age, sex, occupation, and information access were homogeneous between the intervention and control groups (p-values >0,05). However, maternal education and children's nutritional status (weight-for-age index) were not homogeneous.

Table 1

Results of Development Test of E-book Media

Media test subjects	Validity Results	Information
E-book media expert	80%	Worth trying with revisions

Table 2

Characteristics of Mothers and Children

	Intervention		Control		
	n	%	n	%	*p-value*[a]
Mother's Age					
<25 year	31	32. 3	38	39. 6	0. 259
26-35 year	53	55. 2	49	51. 0	
36-45 year	12	12. 5	9	9. 4	
Maternal Education					
Primary Education	26	27. 1	36	37. 5	

Secondary Education	48	50.0	48	50. 0	0. 037
Diploma/College	22	22. 9	12	12. 5	
Mother's Work					
Work	14	14. 6	12	12. 5	0. 674
Not Working	82	85. 4	84	87. 5	
Child Gender					
Man	53	55. 2	56	58. 3	0. 663
Woman	43	44. 8	40	41. 7	
Access Information					
Not Access	20	20. 8	29	30. 2	
Print Media	0	0.0	1	1. 0	0. 565
Electronic Media	29	30. 2	10	10. 4	
Health Officer	41	49. 0	56	58. 4	
Nutritional Status (WAZ)					
Underweight	29	30. 2	43	44. 8	0. 037
Normal Weight	67	69. 8	53	55. 2	

[a]Chi-Square Test

Table 3

Changes in Literacy before and after CF health education the Intervention group

		Post-test			***p-value***
Pre-test	**Literacy of CF**	True	Not Appropriate	Total	
	True	32	4	36	0,0001[a]
	Not Appropriate	56	4	60	
	Total	88	8	96	

[a] *Mc-Nemar Test*

Table 3 shows that before health education with e-book media, 60 mothers in the intervention group were incorrect in providing CF, while 36 were correct. After the intervention, 56 mothers

improved, and only 4 mothers who previously gave CF correctly changed to incorrect practices. The McNemar Test revealed a significant p-value of 0.0001, indicating the effectiveness of e-book media in improving maternal literacy on CF. Before the intervention, 37.5% of the 96 mothers in the group provided CF correctly, but this increased to 91.7% after the intervention, while incorrect CF practices decreased to 8.3%.

Table 4 shows that before being given health education with leaflet media in the control group, 74 mothers were inappropriate in giving CF changed to 60 people were right in giving CF after health education, but from 21 mothers who initially gave CF appropriately changed to 1 mother who gave CF inappropriately.

Table 4

Changes in Literacy before and after CF Health Education in the Control group

Literacy of CF		**Post-test**			***p-value***
		True	Not Appropriate	Total	
Pre-test					
	True	20	1	21	0,0001[a]
	Not Appropriate	60	14	74	
	Total	80	16	96	

[a] *Mc-Nemar Test*

Table 5

The Effectiveness of Health Education on Literacy in Complementary Feeding

Literacy of CF		**Intervention**	**Control**	***p-value***
Pre-test	*Min-Max*	28-53	30-53	0,025 [a]
	$\bar{x}$±*SD*	39,7±6,08	40,9±4,39	
Post-test	*Min-Max*	48-64	46-56	0,0001 [a]
	$\bar{x}$±*SD*	53,6±3,63	54,7±1,64	
p-value[b]		0,0001[b]	0,0001[b]	
Mean difference	*Min-Max*	00-31	2-26	0,0001 [a]
	$\bar{x}$±*SD*	15,0±5,89	13,8±4,87	

[a] *Wilcoxon Signed-Rank test* [b] *Man-Whitney U Test*

Table 5 shows that before health education, the intervention group had an average literacy score of 39.7 ± 6.08, while the control group had 40.9 ± 4.39. After health education, the intervention group's score increased to 53.6 ± 3.63, while the control group scored 54.7 ± 1.64. Both groups showed significant differences in literacy scores before and after promotion ($p < 0.0001$). The change in literacy scores (mean difference) was greater in the intervention group (15.0 ± 5.89) compared to the control group (13.8 ± 4.87), and this difference was statistically significant. This indicates that health education using e-books improved CF literacy more effectively than leaflets.

Discussion

The characteristics of the mother and child are almost the same between the intervention and control groups, the behavior of the mother's education, and the child's nutritional status based on the WAZ index, which is different (Lundy et al., 2022). Research suggests that a high maternal education level is positively correlated with good nutritional statistics for children. According to the research in Sawah Lebar Health Center, maternal education is improving the nutritional status of children (Mekonen et al., 2024). Another study looks at how mothers' work affects children's health in other countries (Mihretie, 2018). The results suggest that maternal work does not have a significant effect on children's nutritional status. This is in line with the research in Sawah Lebar Health Center, which states that the work of the mother does not suggest a significant difference between the intervention and control groups (Muluye et al., 2020). Previous research has shown that health education media is effective in spreading messages and education to the target. Good media for health education can help solve problems and convey messages that can be understood and applied by the community (Kartika et al., 2019). People can act better in the health sector if they understand this problem. The development of more accessible health education media, including health education media through social media, is in line with the findings of this study. When comparing the results of this study with those of similar research, there is notable agreement and disagreement. Our findings align with studies that have shown digital media (e-books and apps) to be more effective than traditional printed materials in enhancing health literacy. The results of this study state that the use of health education media can promote a better public understanding of diseases and how to prevent them, better use of health services, higher levels of treatment adherence, and increased community participation (Safitri et al., 2022). A similar study in Indonesia found an increase from 42% to 87% of mothers providing correct CF after e-book-based digital health education (Novitasari & Fauziddin, 2022). This is different from the results of previous studies that compared the effectiveness of print (leaflet) and digital media (e-book) interventions on the practice of giving CF (Kalsum & Ghita, 2022). The results of the research suggest that the literacy of the CF has improved from 35% to 80%, compared to the increase in digital education from 37% to 70% (Pratiwi & Rachmadiarti, 2021). The intervention group that received e-book health education demonstrated a remarkable improvement in CF literacy, supporting the idea that digital platforms provide greater accessibility, interactivity, and up-to-date content that can engage users more effectively than print materials. This is consistent with previous research highlighting the potential of digital tools to reach a wider audience, particularly in settings where internet access is prevalent

(Makin & Waningrum, 2023). However, there were discrepancies with the results of studies that compared the effectiveness of digital media versus print media on CF practices. The results show that health education with leaflet media was effective in increasing maternal literacy in giving CF. The control group consisted of 96 mothers, where before the intervention, 21 mothers (21.9%) gave CF appropriately, while 75 mothers (78.1%) gave CF inappropriately. After the intervention, the number of mothers who gave CF appropriately increased to 80 mothers (83.3%), while the number of mothers who gave CF inappropriately decreased to 16 mothers (16.7%) (Rahmawati et al., 2021). In a previous study that compared the effectiveness of some digital media (such as apps and e-books) and print media (such as leaflets) in CF education, the results showed that digital media was more effective, with an increase in CF literacy from 30% to 90%, compared to print media (only 30% to 70%) (Kalsum et al., 2022).

The results of the comparison between the two groups showed that the change in literacy in the intervention group was greater than in the control group. Health education through the use of e-books in the intervention group and leaflets in the control group was effective in increasing CF administration (Pratiwi & Rachmadiarti, 2021). However, there was a greater change in literacy in the group that used e-book media. This shows that CF literacy affects maternal literacy (Zogara et al., 2021). A previous study in rural India found that e-book interventions significantly improved CF literacy scores. Digital media proved to be more effective, leading to a greater increase in literacy compared to print media, which showed a more modest improvement (Setyawati, 2022). The results in Sawah Lebar Health Center showed a significant increase in the use of e-books and leaflets.

An unexpected result was the slight difference in maternal education and child nutritional status between the groups, which were not homogeneous despite initial expectations. Previous studies, such as Lundy et al. (2022) and Mekonen et al. (2024), have emphasized the importance of maternal education in influencing children's nutritional outcomes, which may have been expected to yield more substantial differences in the study population (Lundy et al, 2022; Mekonen et al., 2024). This inconsistency may reflect the complexity of factors influencing maternal knowledge and behavior, such as the roles of family, cultural beliefs, and economic challenges (Zogara et al., 2021; Muluye et al., 2020). Additionally, although digital literacy was an important criterion in selecting participants, it is possible that some mothers still faced barriers to fully utilizing e-books, such as technical issues or lack of motivation. These factors were not directly measured in this study, but they could account for some of the variation in literacy improvement across participants.

In conclusion, while the findings from this study support the hypothesis that e-books are more effective than leaflets in improving CF literacy, there remain variables, such as digital literacy and access to technology, that warrant further investigation. Future research should aim to address these limitations, particularly by incorporating a more diverse sample and examining the factors influencing the success of digital media in health education.

The generalizability of this study is limited by several factors. Firstly, the research was

conducted at a single health center in Sawah Lebar, Bengkulu City, which may not fully represent the broader population of mothers in other regions of Indonesia or internationally. As the sample is localized, cultural and regional differences may influence complementary feeding practices, which could affect how the results are interpreted in different contexts. Additionally, the study's sample was drawn from mothers who had access to digital devices and possessed a certain level of digital literacy, excluding those without these resources. This limits the applicability of the findings to populations with lower digital access or literacy, which may represent a significant portion of the target demographic. Lastly, the sample size of 192 mothers (96 in each group) is relatively small, and while statistically significant results were found, larger and more diverse samples would provide stronger evidence for generalizing the findings to a wider population.

Despite these limitations, this study contributes significantly to the field of maternal health education by exploring the use of e-books as an educational tool for improving complementary feeding literacy. While previous research has shown the importance of health education in promoting correct feeding practices, this study is one of the first to compare digital (e-book) and traditional (leaflet) media in this context. The novelty of this study lies in its application of modern technology to health education, offering valuable insights into how e-books can be effectively utilized to enhance maternal knowledge and behaviour. The findings show that e-book-based interventions are more effective than traditional printed materials in improving literacy on complementary feeding, marking an important advancement in the use of digital media for public health education. This study also highlights the potential for digital platforms to provide flexible, accessible, and scalable health education, especially in resource-limited settings.

One of the strengths of this study lies in its use of a quasi-experimental design with a control group, allowing the researchers to compare the effectiveness of digital media (e-books) and print media (leaflets) in improving maternal literacy on complementary feeding. The results indicate that the e-book intervention was more effective in enhancing CF knowledge and practices among mothers compared to leaflets, as evidenced by the significant improvement in literacy scores. The data analysis methods, such as the McNemar test, Wilcoxon Signed-Rank test, and Mann-Whitney U test, provide strong validity for the findings. Moreover, this study introduces a technology-based approach that can increase access and flexibility for mothers to obtain health information, which is highly relevant in today's digital age.

Conclusions and Implications

The study found that health education using e-book media effectively improved CF literacy among mothers in the Sawah Lebar Health Center area, with better results than leaflet media. Both methods increased maternal knowledge, but e-books had a more significant impact. Improved literacy can enhance CF practices, boosting children's nutritional status and reducing malnutrition and stunting risks. Interactive e-books also encourage mothers to frequently access child health information, improving awareness and adherence to proper CF practices.

Based on the study's findings, it is recommended that health policymakers prioritize the use of e-book media as a tool for health education, particularly in areas with low CF literacy such as the Sawah Lebar Health Center area. The effectiveness of e-books in enhancing maternal knowledge and practices related to Complementary Feeding (CF) suggests that integrating digital media into health education programs could lead to better nutritional outcomes for children. Policies should support the development and distribution of interactive e-books, ensuring they are accessible to mothers, particularly in rural or underserved communities. Additionally, training health professionals to effectively use digital tools and promoting digital literacy among mothers can further enhance the impact of these health interventions. By incorporating e-books into national and regional health campaigns, the government can contribute to reducing malnutrition, stunting, and other health issues related to improper CF practices.

Suggestions for Future Research

The study recommends using e-book media in CF health education programs for mothers, as it is more effective in increasing literacy. Health policies at regional or national levels could integrate e-books into maternal and child health programs, utilizing digital platforms to share educational content and train healthcare workers. Partnerships with NGOs could help expand access, particularly in remote areas. The government should also ensure affordable internet and digital devices for mothers and healthcare workers training. These measures will help integrate e-books into health policies, improving maternal knowledge and child nutrition.

Future research could explore the long-term effects of health education through e-book media on maternal practices and child health outcomes, particularly in terms of sustained improvements in nutritional status and the reduction of malnutrition or stunting over time. Additionally, studies could investigate the feasibility and effectiveness of e-books in different socio-cultural contexts, including areas with lower digital literacy or limited access to technology. Comparative studies could also examine the impact of various digital health interventions, such as mobile apps or online platforms, to determine which formats most effectively engage mothers and lead to better CF practices. Further research could include a broader sample size and explore how e-book content could be tailored to address specific regional or cultural needs for even more targeted health education. Further research could compare the effectiveness of different digital platforms with e-books in enhancing CF knowledge and practices and explore the potential of integrating e-books with community-based programs or health worker-led sessions to create more comprehensive health education strategies for improving CF practices and reducing malnutrition.

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Institutional Review Board Statement

This research was carried out by the applicable provisions at the Bengkulu Ministry of Health Polytechnic and was approved by the faculty to be published immediately. Each respondent involved in this study has received an explanation and signed a letter of consent as a respondent. The research protects the rights of the respondent to take advantage of self-assertion, and there is no compulsion to participate in this research. The ethical issues that should be paid attention to are *informed concerns,* anonymity (*Anonymity*), and confidentiality (*Confidentiality*) with the Etic Appropriate Number: KEPK.BKL/140/04/2024.

Conflict of Interest

The author stated that there was no conflict of interest in this study. The author always pays attention to ethical issues related to infringement in copyright publishing. So that this writing can be guaranteed to be authentic.

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