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The Effect of Counseling Using E-Booklets on The Knowledge of Mothers with Infants Aged 0-6 Months about Exclusive Breastfeeding

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Abstract

Globally, the rate of exclusive breastfeeding in the first six months is low. Exclusive breastfeeding is defined as feeding a baby breast milk from birth for six months, without adding or substituting any other food or drink (except medicine, vitamins, and minerals). Exclusive breastfeeding during the first six months of a baby's life is an important practice, but its coverage is still low in some regions. In West Kalimantan, exclusive breastfeeding coverage in 2023 reached 49.1%, while in Pontianak City it was only 38.7%, far below the national target of 80%. This study used a pre-experimental design with a one-group pretest-posttest approach to analyze the effect of health education through E-booklets on breastfeeding mothers' knowledge about exclusive breastfeeding. A total of 30 respondents, mothers with infants aged 0-6 months at PMB Marsini Karni, were selected using total sampling technique. Data were analyzed using the Wilcoxon test. The results showed a significant increase in knowledge after the intervention. Before the education was provided, the median knowledge score was 64, and after the E-booklet was provided, the median score increased to 86. Statistical testing yielded a p-value of 0.001 (< 0.05), indicating a significant improvement in breastfeeding mothers' knowledge following the intervention. In conclusion, health education delivered through E-booklets was effective in increasing breastfeeding mothers' knowledge about exclusive breastfeeding.

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1. INTRODUCTION

Exclusive breastfeeding during the first six months of life is a global health priority, as it provides complete nutrition and essential immunological protection for infants. Breast milk contains colostrum rich in antibodies and proteins that help protect newborns from infections and foster optimal growth and development (Kementerian Kesehatan Republik Indonesia, 2022). Exclusive breastfeeding is defined as providing only breast milk from birth to six months without additional food or drink, except for medicines, vitamins, or minerals. Its proven benefits include reducing infant morbidity and mortality, supporting digestive maturity, and shaping early childhood development in alignment with national health goals (Dewi, 2015; Febriyeni, 2020).

Despite these significant advantages, the rate of exclusive breastfeeding in Indonesia remains below national targets. In 2022, exclusive breastfeeding coverage reached only 67.96%, a decline from 71.58% in the previous year and far below the Ministry of Health's target of 80% (Kementerian Kesehatan Republik Indonesia, 2023). In West Kalimantan, the situation is even more concerning, with only 49.1% of mothers exclusively breastfeeding, and in Pontianak, the coverage drops to 38.7% (Tarmizi, 2024). Preliminary findings at PMB Marsini Karni reveal an even lower rate of 34.7% in 2023. Although early initiation of breastfeeding is routinely practiced at the facility, many mothers remain unaware of the importance and long-term benefits of exclusive breastfeeding, leading to frequent use of formula milk.

Low exclusive breastfeeding rates pose serious threats to infant health. Infants aged 0–6 months who are not exclusively breastfed are more likely to experience malnutrition and have a 3.94-fold higher risk of mortality from diarrheal diseases (Prihatini, Achyar, & Kusuma, 2023). One of the primary contributing factors is the lack of maternal knowledge regarding exclusive breastfeeding, which ideally should be established during pregnancy to ensure adequate preparation (Prasetio, Permana, & Sutisna, 2020). Strengthening maternal knowledge can be achieved through effective health education strategies delivered using appropriate media.

Digital and visual learning tools such as e-booklets have emerged as promising media for health promotion. E-booklets are portable, visually engaging, and designed to present evidence-based information in a clear and accessible format. Previous studies have demonstrated that e-booklets significantly improve maternal knowledge and attitudes about exclusive breastfeeding and enhance the effectiveness of health communication interventions (Sarik, Pratiwi, & Ajeng, 2022; Safitri, Hastuti, & Widyasih, 2018). However, despite this evidence, the implementation of e-booklet-based counseling remains limited in many primary maternity care settings, including PMB Marsini Karni. A preliminary study conducted in February 2024 revealed that mothers frequently discontinued exclusive breastfeeding because they perceived their breast milk supply as insufficient, leading them to rely on formula. This reflects a persisting gap in maternal understanding that could potentially be addressed through innovative, visually enriched educational media.

Given this gap, the novelty of this study lies in applying e-booklet-based counseling specifically within the context of PMB Marsini Karni, where exclusive breastfeeding rates remain significantly below regional and national levels. Unlike previous research that focused on broader community settings, this study targets mothers with infants aged 0–6 months who are at the most critical period for establishing exclusive breastfeeding practices. The e-booklet intervention is designed to address misconceptions regarding breast milk adequacy and to provide practical, evidence-based guidance in a format adapted to local needs.

This study aims to examine the effect of counseling using e-booklets on the knowledge of mothers with babies aged 0–6 months about exclusive breastfeeding at the Marsini Karni maternity hospital. This research is expected to contribute valuable insights into the effectiveness of digital health education tools in improving maternal knowledge and supporting national efforts to increase exclusive breastfeeding rates.

2. METHOD

This study employed a quantitative research approach with a pre-experimental design using a one-group pretest–posttest model. In this design, the researcher measured the mothers’ knowledge regarding exclusive breastfeeding before the intervention (pretest) using a structured questionnaire. Following the pretest, health education was delivered using an E-booklet, after which the same questionnaire was administered again as a posttest. This design was selected to assess the effect of counseling using an E-booklet on the knowledge of mothers with infants aged 0–6 months at the Marsini Karni Maternity Hospital.

The study sample consisted of 30 mothers who met the inclusion criteria and had infants aged 0–6 months at the Marsini Karni Maternity Hospital. A purposive sampling technique was used to recruit participants based on their eligibility and willingness to participate.

Data collection was conducted through interviews using a validated questionnaire as the primary research instrument. The questionnaire measured the level of maternal knowledge related to exclusive breastfeeding both before and after the intervention.

The collected data were analyzed using univariate and bivariate methods. Univariate analysis was used to describe the distribution of respondents’ knowledge scores based on the pretest and posttest results. Bivariate analysis was performed to determine the effect of the E-booklet intervention on maternal knowledge by comparing pretest and posttest scores. The processed data were analyzed descriptively to identify changes in knowledge levels following the counseling intervention.

3. RESULTS AND DISCUSSION

Table 1. Respondent Characteristics Based on Age, Education, and Occupation.

Characteristics	n	%
Age		
20-29	22	73.3
31-34	8	26.6
Education		
Low Education	4	20.6
Secondary Education	21	70
Higher Education Institutions	5	16.6
Occupation		
Civil servant/private sector/contract worker	3	10
Housewife	27	90
Total	30	100

Based on Table 1 shows the results of respondent characteristics according to age, education, and occupation. There were 30 breastfeeding mothers who had received education through an e-booklet with content about exclusive breastfeeding for 0-6 months at PMB Marsini Karni. Based on the age of the respondents, most respondents were aged

20 to 29 years, namely 22 people (73.3%), and respondents aged 31 to 34 years, namely 8 people (22.6%).

Based on the table of respondent characteristics according to education level, the majority of respondents had a low level of education, namely 4 people (20.6%), a medium level of education, namely 21 people (70%), and a small number had a high level of education, namely 5 people (16.6%). while the characteristics of respondents according to occupation show that 3 respondents (10%) are civil servants/private sector employees/temporary employees, and 27 respondents (90%) are housewives.

Table 2. Effect of knowledge level before and after health education using e-booklets.

Mothers' knowledge	n	Median	Min-Max
Pre-test	30	67	17-80
Post test	30	86	60-100

Based on table 2, the median knowledge score of breastfeeding mothers before counseling with *the E-Booklet* was 67, and the median score after counseling with *the E-Booklet* increased to 86.

Table 3. Mothers' Knowledge Before and After Receiving Health Education Using E-Booklets.

Knowledge Breastfeeding mothers	N	Median	Min	Max	p-Value*
Pre Test	30	67.0	17.0	80.0	0.001
Post Test	30	86.0	60.0	100	

*Description: *Wilcoxon*

Based on table 3, it can be seen that mothers' knowledge about breastfeeding after and before receiving health education using *the E-Booklet*, the results obtained were, with a p-value of 0.001, where a value less than 0.05 indicates that the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted. This indicates a significant difference in the knowledge of breastfeeding mothers before and after receiving education using the E-Booklet on exclusive breastfeeding for 0-6 months at the Marsini Karni Maternity Hospital.

DISCUSSION

The analysis of mothers' knowledge before and after receiving education through an e-booklet on exclusive breastfeeding shows meaningful changes. The characteristics of respondents indicate that most mothers (73.3%) were between 20–29 years old, while 26.6% were aged 31–34 years, with the overall age range between 20–35 years. This distribution reflects the productive age group, which, according to Lestari (2023), is generally more capable of understanding information and processing knowledge. As age increases, cognitive maturity develops, resulting in improved comprehension and decision-making abilities. However, at older ages, memory and cognitive abilities may naturally decline, which aligns with the theory that age influences a person's mindset and capacity for understanding.

The results in Table 2 show an increase in mothers' knowledge scores from 64 before counseling (pre-test) to 87 after receiving education through the e-booklet (post-test). Knowledge itself is shaped through processes of hearing, seeing, and understanding information. Education plays an important role in shaping a person's performance, where individuals with higher educational backgrounds tend to have broader insights and

stronger motivation to learn (Rachmawati, 2019). In this study, most respondents had relatively low education levels, which contributed to limited understanding of exclusive breastfeeding. Individuals with higher education typically have better capacity to absorb information and solve problems, including in matters related to maternal and child health.

These findings are consistent with the study by Hajifah, Dewi, and Immawati (2021), which states that education level influences attention toward health-related issues. Mothers with higher educational backgrounds tend to possess better knowledge about exclusive breastfeeding, while those with lower education often lack interest and understanding. In terms of employment status, most respondents were housewives (90%). Research by Olya, Ningsih, and Ovany (2023) as well as Timpoporok, Wowor, and Rompas (2018) shows that working mothers are less likely to provide exclusive breastfeeding compared to mothers who stay at home. This is consistent with Fatimah et al. (2024), who found that housewives have greater opportunities to successfully breastfeed because they spend more time with their babies. Moreover, Simanungkalit (2018) explains that non-working mothers still have equal chances to access information about exclusive breastfeeding, especially because they actively seek information related to their role as caregivers.

The study also found that knowledge scores increased from 65.7 before counseling to 86.8 after counseling. This improvement reflects the effectiveness of using e-booklets as educational media. E-booklets have advantages because they can be accessed anytime and present information in a more engaging and easy-to-understand format. Najahah and Mawaddah (2022) explain that e-booklets help bridge knowledge gaps by presenting visually engaging materials that provide up-to-date and practical information. Similarly, research by Nurfatimah, Sulaeman, and Kaparang (2023) shows that counseling using e-booklets increases knowledge about exclusive breastfeeding, while Mauluddina (2024) confirms that e-booklet content, which combines pictures and text, facilitates learning and retention among mothers.

Furthermore, the Wilcoxon test results demonstrated a significant increase in maternal knowledge with a p-value of $0.001 < 0.05$, indicating the positive effect of e-booklet-based counseling on mothers' understanding of exclusive breastfeeding. These findings are supported by Sarik, Pratiwi, & Ajeng, (2022), who reported a p-value of 0.000 ($p < 0.05$), showing that booklets on exclusive breastfeeding significantly improved mothers' knowledge at the Lorulun Community Health Center. Similarly, Putri (2024) found a significance value of $0.001 < 0.005$, concluding that e-booklet education influenced mothers' knowledge, particularly among postpartum mothers at the Romauli Zr Clinic in Medan Marelan District. These consistent findings highlight the role of e-booklets as effective educational tools for improving mothers' understanding of exclusive breastfeeding.

4. CONCLUSION

It can be concluded that education delivered through e-booklets effectively enhances breastfeeding mothers' understanding of exclusive breastfeeding, leading to a clear improvement in their overall knowledge after the intervention.

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