

The Effect of Providing E-Booklets about Exclusive Breastfeeding on Increasing the Knowledge and Attitudes of Postpartum Mothers in Pancur Batu Health Center Work Area

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Abstract. The purpose of the study is to determine the effect of providing e-booklets about exclusive breastfeeding on increasing the knowledge and attitudes of postpartum mothers in Pancur Batu Health Center work area. This study utilized a quasi-experimental design featuring a pre-test and post-test with a control group. A total of 40 postpartum women participated, selected through purposive sampling based on specific inclusion and exclusion criteria. To evaluate the effect of e-booklets on exclusive breastfeeding, bivariate analysis was conducted using the Wilcoxon and Mann-Whitney tests, with a significance threshold of $p < 0.05$. The results revealed that most participants were aged 20 to 35 years (22 participants, or 55.0%), held higher educational qualifications (28 participants, or 55.0%), had a parity of two or fewer children (27 participants, or 67.5%), and a significant portion were unemployed (21 participants, or 52.5%). The analysis showed that the distribution of e-booklets significantly improved the knowledge of postpartum mothers, indicated by a p-value of 0.003. Furthermore, the findings supported that providing e-booklets had a positive effect on knowledge levels, as shown by a p-value of 0.001. It is recommended that healthcare providers employ e-booklets to enhance the knowledge and attitudes of postpartum women.

Keywords: exclusive breastfeeding, e-booklet, knowledge, attitude.

1 Introduction

Exclusive breastfeeding plays an essential role in promoting the best health outcomes for infants in their first six months. It supplies vital nutrition, shields the baby from illnesses, and fosters a robust immune system. The World Alliance for Breastfeeding Action (WABA) highlights in its action folder that breastfeeding can lower the likelihood of overweight and obesity by 10% when compared to formula feeding [1].

The results of the Basic Health Research (2018) stated that the coverage of exclusive breastfeeding in Indonesia is still low (37.3%), the proportion of exclusive breastfeeding based on gender, in boys is 38.7% while in girls it is 35.9% [2]. Based on the 2022 Indonesian Health Profile, the coverage of exclusive breastfeeding in infants is 61.5%, this has increased compared to before, but there are still several provinces whose achievements are below the national target (45.0%). The highest percentage of exclusive breastfeeding achievement is in the province of West Nusa Tenggara (80.1%), while the province with the lowest achievement is West Papua Province (10.7%). There are 9 provinces that have exclusive breastfeeding achievements below the national target, one of which is North Sumatra Province (44.5%) and the other eight provinces are: West Sulawesi Province, North Maluku Province, North Sulawesi Province, Riau Province, Gorontalo Province, Maluku Province, Papua Province, and West Papua Province [3].

Several factors impact the success of exclusive breastfeeding, including maternal education, employment status, and family support, among others. Non-working mothers are 5.67 times more likely to engage in exclusive breastfeeding compared to those who are employed. Additionally, mothers with a solid understanding of breastfeeding are also 5.67 times more likely to successfully practice exclusive breastfeeding than those lacking that knowledge. This highlights the necessity for more effective initiatives aimed at improving the knowledge and attitudes of postpartum mothers regarding exclusive breastfeeding [4].

The knowledge and attitudes of postpartum mothers are critical to the success of exclusive breastfeeding. A lack of adequate information and unsupportive attitudes towards exclusive breastfeeding can hinder mothers from exclusively breastfeeding their babies. Research by Masitah (2022) [5] showed a significant increase in maternal knowledge scores related to stunting, exclusive breastfeeding, and complementary feeding (MPASI) after receiving nutritional education interventions. In addition to improving knowledge, nutritional education interventions have also been shown to influence changes in maternal attitudes towards exclusive breastfeeding [6]. Health promotion regarding exclusive breastfeeding education is one way to change maternal attitudes towards breastfeeding [7].

A solid understanding of the significance of exclusive breastfeeding can enhance mothers' motivation to offer breast milk exclusively for the first six months, without any additional food or drink. This knowledge encompasses awareness of the advantages of breast milk for infant health, the proper breastfeeding technique, and its role in boosting the infant's immune system. Mothers who possess better knowledge are more likely to consistently practice exclusive breastfeeding. Therefore, knowledge about exclusive breastfeeding is a crucial factor influencing a mother's choice to breastfeed her child. Adequate and accurate knowledge regarding the benefits, methods, and practices of exclusive breastfeeding can encourage mothers to implement it effectively [8][9].

In addition to knowledge, attitudes are also an important part of the practice of exclusive breastfeeding. The mother's attitude towards exclusive breastfeeding is a form of emotional evaluation or belief that is influenced by knowledge, experience, and social environment. A positive attitude will strengthen the mother's decision to provide exclusive breastfeeding, while a negative or doubtful attitude can hinder the breastfeeding process. This attitude is not only influenced by the mother herself, but also by the people around her and her social environment [10].

A mother's positive attitude towards exclusive breastfeeding is greatly influenced by her belief in the benefits of breast milk for the health of her baby and herself. If the mother believes that

breast milk is the best source of nutrition that cannot be replaced by formula milk or other foods, she will be more motivated to continue breastfeeding despite facing challenges. This belief can be obtained from education provided by health workers or from personal experience and a supportive environment [11]. Mothers who are open to new information and support from health workers and family tend to be more successful in providing exclusive breastfeeding. This openness includes the willingness to learn the correct breastfeeding techniques, seek solutions to breastfeeding problems, and listen to advice from experts [12].

Educational interventions specifically designed for certain groups, such as newly postpartum mothers, can significantly impact breastfeeding success. A study in the United Kingdom showed that educational interventions during pregnancy could influence breastfeeding behavior after birth, especially when tailored to the needs and concerns of pregnant women [13].

The challenges associated with the use of digital technology in supporting breastfeeding should not be overlooked. Some studies show that the lack of access to technology and low digital literacy among mothers in rural areas can hinder the effectiveness of such interventions. Therefore, a hybrid approach combining technological support with face-to-face interactions should be considered to address this gap [14].

Therefore, effective intervention strategies are needed to address these challenges. One increasingly popular approach is the use of digital media such as e-booklets, which are easily accessible and provide comprehensive information on the benefits of exclusive breastfeeding. This study aims to evaluate the impact of providing an e-booklet on exclusive breastfeeding on the knowledge and attitudes of postpartum mothers in Pancur Batu Health Center Work Area.

2 Methods

This study employed a quasi-experimental approach that included pre-tests and post-tests alongside a control group. The data collection focused on assessing the shifts in knowledge and attitudes of postpartum women before and after they were provided with the e-booklet. Participants comprised pregnant and postpartum women from the Pancur Batu Health Center region in 2024. A total of 40 individuals were included in the study, divided into an experimental group of 20 and a control group of 20. Purposive sampling was used to choose respondents based on defined inclusion and exclusion criteria.

The instruments used in this study were E-booklets and questionnaires. E-booklets were given to the experimental group after filling out the pre-test questionnaire to be read and understood by respondents. The questionnaire was utilized to gather pre-test and post-test data on mothers' knowledge and attitudes regarding exclusive breastfeeding, both prior to and following the distribution of the e-booklet. The research process commenced with an explanation of the study's objectives and procedures, followed by the respondents signing informed consent. Next, all participants completed the pre-test questionnaire. The e-booklet was then provided solely to the experimental group, allowing them time to read and comprehend its contents. The final step involved all respondents completing the post-test questionnaire.

Data were gathered through face-to-face interviews with participants and by having them complete questionnaires about their knowledge and attitudes toward exclusive breastfeeding. Univariate analysis was performed to analyze the distribution and frequency of the various variables. For the bivariate analysis, the Independent T-test was utilized to evaluate the impact

of the e-booklet on exclusive breastfeeding, concentrating on the knowledge and attitudes of postpartum mothers in the Pancur Batu Health Center area, with a significance level set at $p < 0.05$.

3 Results and Discuccion

Based on the research conducted, most of the postpartum mothers who were respondents in this study were aged 20-35 years, namely 22 people (55.0%), most of the postpartum mothers had a high education category, namely 28 people (70.0%), most of the postpartum mothers had a parity of ≤ 2 people, namely 27 people (67.5%), most of the postpartum mothers did not work and chose to be housewives, namely 21 people (52.5%). The data from the univariate analysis can be seen in the following table:

Table 1. Frequency Distribution of Respondent Characteristics

Characteristics	n	%
Age		
<20 years old	4	10.0
20-35 years old	22	55.0
>35 years old	14	35.0
Education		
Low	12	30.0
Hihg	28	70.0
Parity		
≤ 2 people	27	67.5
>2 people	13	32.5
Occupation		
Not working	21	52.5
Working	19	47.5
	40	100.0

In the intervention group, there was a notable improvement in attitude scores before and after the distribution of e-booklets on exclusive breastfeeding, with an average increase of 11.80 and a standard deviation of 1.54. In contrast, the control group experienced only a minimal rise in attitude scores, averaging 2.15 with a standard deviation of 2.18. Before performing the statistical analysis, a normality test was conducted, which showed that the attitude scores in the intervention group did not follow a normal distribution. Consequently, the Wilcoxon test was utilized, indicating a significant change in attitude scores before and after the intervention (p -value = 0.004), demonstrating a considerable improvement. Conversely, the control group showed no significant difference in scores from the beginning to the end of the study (p -value = 0.087). The Mann Whitney test was subsequently applied to compare the improvements in attitudes between the two groups, resulting in a p -value of 0.001. This supports the conclusion that the distribution of e-booklets on exclusive breastfeeding significantly improves the attitudes of postpartum mothers in the Pancur Batu Health Center area. The outcomes of the statistical tests are presented in the following table:

Table 2. The Effect of Providing E-booklets on Increasing Knowledge

The Knowledge Score	Intervention Group (n=20)		Control Group (n=20)	
	Mean±SD	p-value	Mean±SD	p-value
Before	10.90±2.61	0.0001	11.60±3.08	0,108
After	17.65±1.49		12.20±2.24	
Δ Knowledge	6.55±1.70		1.95±1.39	
p-value Δ Knowledge				0.003

In the intervention group, the attitude scores showed a significant increase before and after the distribution of exclusive breastfeeding e-booklets, with an average rise of 11.80 and a standard deviation of 1.54. In contrast, the control group only experienced a minor increase in attitude scores, averaging 2.15 and with a standard deviation of 2.18. Prior to conducting any statistical tests, a normality assessment was performed, which indicated that the attitude scores in the intervention group were not normally distributed. Following this, the Wilcoxon test was applied. The findings from the Wilcoxon test indicated a significant difference in attitude scores before and after the e-booklet intervention (p-value = 0.004), while the control group did not show any significant change between initial and final scores (p-value = 0.087). To further explore the differences in attitude improvements between the two groups, the Mann Whitney test was conducted, resulting in a p-value of 0.001. This suggests that distributing e-booklets on exclusive breastfeeding effectively enhances the attitudes of postpartum mothers in the Pancur Batu Health Center area. The outcomes of the statistical analysis are displayed in the following table:

Table 3. The Effect of Providing E-booklets on Increasing Attitude

Attitude Score	Intervention Group (n=20)		Control Group (n=20)	
	Mean±SD	p-value	Mean±SD	p-value
Before	45.85±4.18	0.004	46.00±3.74	0.087
After	55.70±2.58		48.25±3.59	
Δ Attitude	11.80±1.54		2.15±2.18	
p-value Δ Attitude				0.001

A mother's understanding of exclusive breastfeeding is crucial for ensuring that infants receive optimal nutrition during their first six months. Utilizing booklets, whether in print or digital format, that provide information on the significance of exclusive breastfeeding, its benefits for both babies and mothers, and guidelines for proper breastfeeding practices can greatly enhance the knowledge of postpartum mothers. Mothers who previously had low or moderate knowledge about exclusive breastfeeding showed significant improvement after accessing information from e-booklets. The information presented in e-booklets must be accurate, clear, and appropriate to the needs of postpartum mothers. Relevant content presented in an easy-to-understand manner can be more effective in increasing knowledge [15].

The findings of this study align with those of Prihartini et al. (2024), which identified a significant enhancement in knowledge among participants in the intervention group (who were provided with an e-booklet on exclusive breastfeeding) compared to the control group, with a p-value less than 0.05 [16]. Likewise, research conducted by Apriliyanti et al. (2022)

corroborates these results, demonstrating that the intervention group showed improvements in both knowledge and attitudes before and after the educational intervention, also with a p-value under 0.05. Additionally, there was a notable difference in knowledge and attitude scores between the two groups, highlighting that educational initiatives using e-booklets have a substantial impact on the knowledge and attitudes of expectant mothers (p-value < 0.05)[17].

E-booklet is one of the innovations in information and communication technology (ICT) applied in the health sector, including in education about exclusive breastfeeding. E-booklet is an alternative educational media that is efficient and effective compared to traditional print media because of several advantages. In terms of accessibility and practicality, E-booklet can be accessed anytime and anywhere by postpartum mothers via devices such as smartphones or tablets. This provides flexibility for mothers who may have difficulty attending face-to-face education sessions. In terms of visualization and interactivity, e-booklet content can be presented interactively with images, videos, and infographics that make it easier for mothers to understand the information better [18].

In addition to knowledge, the attitude of postpartum mothers towards exclusive breastfeeding is also important because it influences their decision to provide exclusive breastfeeding. A positive attitude about the benefits of breastfeeding and the mother's belief in her ability to breastfeed can be encouraged through appropriate education. According to research by Wulandari et al. (2023), postpartum mothers who received education through e-booklets showed more positive changes in attitude compared to mothers who only received information verbally or through printed leaflets. Mothers were more motivated to provide exclusive breastfeeding and felt more confident in the breastfeeding process after obtaining information from e-booklets [19].

4 Conclusions

The study conducted with postpartum mothers at the Pancur Batu Health Center revealed that the majority of participants were aged 20 to 35 years (55.0%), had a high educational attainment (70.0%), had two or fewer children (67.5%), and were primarily housewives (52.5%). Results showed a significant improvement in knowledge scores before and after the distribution of the exclusive breastfeeding e-booklet, with a p-value of 0.0001 ($p < 0.05$). In contrast, the control group did not demonstrate any notable change in knowledge scores between the initial and final assessments (p-value = 0.108). Furthermore, there was a significant difference in attitude scores pre- and post-intervention (p-value = 0.004), while the control group again did not show a meaningful difference (p-value = 0.087). These findings suggest that distributing the e-booklet on exclusive breastfeeding effectively enhances both the knowledge and attitudes of postpartum mothers in the Pancur Batu Health Center area ($p < 0.05$). It is advised that postpartum mothers in this area consistently engage with the e-booklet to further improve their knowledge, attitudes, and commitment to exclusive breastfeeding.

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