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Effectiveness of the Lactation Buddy Intervention Based on WhatsApp Group on the Success of Exclusive Breastfeeding

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Exclusive breastfeeding is the most effective nutritional intervention to prevent stunting. However, Lamongan Regency still records low exclusive breastfeeding coverage. This study aimed to analyze the effectiveness of the Lactation Buddy intervention through WhatsApp Group in supporting exclusive breastfeeding practice. This research employed a quasi-experimental design with a non-randomized control group pretest-posttest. The study was conducted in Deket Kulon Village, Deket Sub-district, Lamongan Regency, involving 60 mothers with infants aged 0–6 months who were recruited using purposive sampling and divided into intervention (n=30) and control (n=30) groups. The intervention group received three-month assistance through WhatsApp Group facilitated by health workers and lactation counselors, while the control group obtained standard care. Data were collected using structured questionnaires, interviews, and observations. Results indicated significant improvement in the intervention group: the average knowledge score increased from 65.3 to 85.7 ($p<0.001$), positive attitudes toward breastfeeding rose from 60% to 80% ($p=0.002$), and correct breastfeeding practices improved from 53.3% to 83.3% ($p<0.001$). Furthermore, exclusive breastfeeding success was achieved by 83.3% of mothers in the intervention group compared to 56.7% in the control group ($p=0.01$). The findings confirm that the Lactation Buddy intervention via WhatsApp Group is effective in improving maternal knowledge, attitudes, practices, and exclusive breastfeeding success, and may serve as a scalable strategy to support stunting prevention in Deket Kulon Village, Deket Sub-district, Lamongan Regency.

Keywords: Exclusive breastfeeding; Digital intervention; Lactation Buddy; WhatsApp Group

INTRODUCTION

Stunting continues to be a major public health issue in Indonesia, characterized by impaired linear growth and long-term negative consequences for health and productivity. According to the Ministry of Health, the prevalence of stunting in Indonesia was 21.6% in 2022, with several districts, including Lamongan Regency, still reporting rates above the national target of 14% by 2024 (Kementerian Kesehatan RI, 2022). The first 1,000 days of life are widely recognized as the "critical window of opportunity" for growth and development. Nutritional deficiencies and poor infant feeding practices during this period contribute significantly to stunting, which may cause irreversible physical and cognitive impairment (WHO, 2020). Addressing nutritional practices, particularly breastfeeding, is therefore essential in stunting prevention program (Muthoharoh, 2025).

Exclusive breastfeeding for the first six months of life is one of the most cost-effective interventions to promote optimal growth and prevent stunting. Breast milk provides complete nutrients, immune protection, and bioactive compounds necessary for infant survival and development (Victora et al., 2016). Despite this, the coverage of exclusive breastfeeding in Lamongan Regency was only 58% in 2023, far from the national target of 80% (Dinas Kesehatan Provinsi Jawa Timur, 2023). Several studies have reported that barriers to exclusive breastfeeding include insufficient maternal knowledge, misconceptions about breast milk adequacy, and lack of family and community support (Ogbo et al., 2020; Rachmawati et al., 2023). In many cases, mothers are pressured to introduce complementary feeding earlier than six months, which negatively affects breastfeeding outcomes.

This creates a research gap in understanding how a hybrid model combining peer-to-peer support with professional lactation counselling can influence exclusive breastfeeding behavior among rural mothers. Rural populations often face barriers such as limited access to lactation experts, misinformation from informal networks, and cultural norms discouraging prolonged breastfeeding.

To address this gap, the present study developed and tested the Lactation Buddy intervention, a WhatsApp-based program that integrates peer encouragement and professional guidance in a single platform. This dual approach aims to strengthen mothers' self-efficacy, correct misconceptions, and sustain breastfeeding practices within rural communities.

Digital peer support interventions have been proven effective in improving breastfeeding outcomes. For instance, Fan et al. (2022) demonstrated that WhatsApp-based peer counseling significantly increased exclusive breastfeeding in Hong Kong. Similarly, a randomized controlled trial in East Java revealed that a WhatsApp group intervention improved maternal practices and exclusive breastfeeding prevalence compared to standard care (Rachmawati et al., 2023).

The Lactation Buddy model combines peer-to-peer interaction with professional guidance in a digital platform. Mothers can share experiences, receive motivation, and consult health workers in real time. This dual approach fosters both emotional and technical support, making it more effective than conventional one-way education programs (Wang et al., 2021).

METHODOLOGY

This study employed a quasi-experimental design with a non-randomized control group pretest-posttest approach. The design was chosen to compare changes in maternal knowledge, attitudes, breastfeeding practices, and exclusive breastfeeding outcomes between the intervention and control groups before and after the program. The research was conducted in Deket Kulon Village, Deket Sub-district, Lamongan Regency, East Java, Indonesia, an area with relatively low exclusive breastfeeding coverage based on local health office reports. The study period lasted for three months, from June to August 2025, and was coordinated through the local community health center.

The study population consisted of breastfeeding mothers with infants aged 0–6 months living in Deket Kulon Village. A total of 60 respondents were recruited using purposive sampling and divided into two groups: the intervention group (n=30) and the control group (n=30). Inclusion criteria: (1) mothers with infants aged ≤6 months, (2) owning a smartphone with WhatsApp installed, and (3) willingness to participate for three months. Exclusion criteria: (1) mothers with infants having congenital anomalies, (2) infants with medical conditions that hinder breastfeeding, and (3) mothers who did not complete the intervention period.

Knowledge measured using 10 multiple-choice questions on exclusive breastfeeding. Scores 0–10 were converted to percentages and classified as good (≥80%), moderate (60–79%), or poor (<60%). Positive Attitude assessed with 5 Likert-scale items (score 5–25). A total score ≥20 indicated a positive attitude, while <20 indicated negative attitude. Breastfeeding Practice observed through a checklist covering positioning, frequency, nighttime feeding, and avoidance of bottle/teat use. Categorized as correct (≥75% items performed) or incorrect (<75%).

Quantitative data were analyzed using SPSS version 26. Descriptive statistics were used to summarize respondent characteristics. Paired t-tests were applied to compare pre- and post-intervention scores within each group, and independent t-tests were used to compare mean differences between groups. Chi-square tests were performed to assess differences in the proportion of exclusive breastfeeding success. Statistical significance was set at $p < 0.05$.

RESULT AND DISCUSSION

1. Characteristics of Respondents

A total of 60 breastfeeding mothers participated in this study, divided equally between the intervention group (n = 30) and the control group (n = 30). Table 1 presents the sociodemographic characteristics of the respondents.

Table 1. Characteristics of Respondents (n = 60)

Variable	Category	Intervention (n=30)	Control (n=30)	Total (%)
Age of Mother	<20 years	3 (10.0%)	2 (6.7%)	8.3
	20–35 years	24 (80.0%)	25 (83.3%)	81.7
	>35 years	3 (10.0%)	3 (10.0%)	10.0
Education	Primary–Junior High	7 (23.3%)	8 (26.7%)	25.0
	Senior High	15 (50.0%)	16 (53.3%)	51.7
	Higher Education	8 (26.7%)	6 (20.0%)	23.3
Parity	Primipara	12 (40.0%)	11 (36.7%)	38.3
	Multipara	18 (60.0%)	19 (63.3%)	61.7

Most respondents were between 20–35 years old (81.7%), indicating they were within the optimal reproductive age group. Only 8.3% of respondents were under 20 years, and 10% were above 35 years. Regarding education, the majority had completed senior high school (51.7%), followed by primary–junior high school (25%), and higher education (23.3%). In terms of parity, multiparous mothers (61.7%) outnumbered primiparous mothers (38.3%).

2. Knowledge, Attitude, and Practice

Table 2 shows changes in maternal knowledge, attitude, and practice related to breastfeeding before and after the intervention.

Table 2. Knowledge, Attitude, and Practice of Breastfeeding

Variable	Group	Pretest (Mean±SD / %)	Posttest (Mean±SD / %)	p-value
Knowledge (0–100)	Intervention	65.3 ± 8.1	85.7 ± 7.6	<0.001
	Control	66.1 ± 7.9	70.2 ± 8.5	0.072
Positive Attitude (%)	Intervention	60.0	80.0	0.002
	Control	63.3	66.7	0.314
Correct Practice (%)	Intervention	53.3	83.3	<0.001
	Control	56.7	60.0	0.428

In the intervention group, the mean knowledge score increased significantly from 65.3 to 85.7 ($p<0.001$), demonstrating the effectiveness of the WhatsApp-based education in enhancing maternal knowledge about exclusive breastfeeding. Positive attitudes also improved from 60% to 80% ($p=0.002$),

reflecting a stronger commitment to maintaining exclusive breastfeeding. Furthermore, correct breastfeeding practices increased from 53.3% at baseline to 83.3% after the intervention ($p<0.001$).

In contrast, the control group showed minimal improvements: knowledge only increased slightly from 66.1 to 70.2 (not statistically significant, $p=0.072$), while attitudes and practices remained relatively unchanged ($p>0.05$).

3. Exclusive Breastfeeding Achievement

Exclusive breastfeeding status was measured at the end of the intervention period.

Table 3. Exclusive Breastfeeding Achievement

Status of Exclusive Breastfeeding	**Intervention (n=30)**	**Control (n=30)**	**Total**	**p-value**
Successful (Yes)	25 (83.3%)	17 (56.7%)	42	0.010
Not successful (No)	5 (16.7%)	13 (43.3%)	18	

At the end of the study, 83.3% of mothers in the intervention group successfully maintained exclusive breastfeeding, compared to only 56.7% in the control group. The difference between the two groups was statistically significant ($p=0.01$). This finding indicates that the Lactation Buddy program via WhatsApp Group substantially increased the likelihood of exclusive breastfeeding success. Without additional intervention, nearly half of mothers in the control group discontinued exclusive breastfeeding before six months.

DISCUSSION

This study demonstrated that the Lactation Buddy intervention delivered via WhatsApp Group effectively improved maternal knowledge, attitudes, and breastfeeding practices, and resulted in a significantly higher prevalence of exclusive breastfeeding in the intervention group compared to the control group. These findings are particularly relevant for rural areas such as Deket Kulon Village, Lamongan Regency, where exclusive breastfeeding coverage remains below the national target. The significant improvement in knowledge among mothers in the intervention group underscores the importance of structured education. Knowledge scores increased by approximately 20 points after the intervention, reflecting that repeated, interactive, and context-specific messages can effectively correct misconceptions about breastfeeding.

This result is consistent with Rachmawati et al. (2023), who reported that WhatsApp-based peer support in East Java significantly enhanced maternal knowledge and exclusive breastfeeding prevalence.

Knowledge is a key determinant of breastfeeding success. A national study by Arief and Azizah (2023) emphasized that maternal knowledge is the dominant factor influencing EBF outcomes in Indonesia. Similarly, Gayatri (2021), using data from the Indonesian Demographic and Health Survey, found that maternal education and access to information were strong predictors of breastfeeding success. Our findings corroborate these studies, as mothers who received structured digital education were more likely to maintain exclusive breastfeeding. Beyond knowledge, the positive shift in maternal attitudes highlights the role of social support in building confidence and self-efficacy. In this study, attitudes toward breastfeeding improved by 20% in the intervention group, demonstrating that peer sharing and professional counseling fostered commitment. This is in line with the Cochrane review by McFadden et al. (2017), which concluded that peer and professional support increases the likelihood of exclusive breastfeeding continuation, especially in low- and middle-income settings.

Improved practices, such as correct latching, nighttime feeding, and avoidance of bottles, also confirm the effectiveness of the program. Practices improved from 53.3% to 83.3% in the intervention group. The interactive format of WhatsApp—allowing videos, images, and direct consultation—likely facilitated practical skill transfer. This mirrors findings from Fan et al. (2022) in Hong Kong, where WhatsApp peer counseling improved maternal breastfeeding self-efficacy and practical techniques. The marked difference in EBF prevalence (83.3% vs. 56.7%) between intervention and control groups highlights the effectiveness of digital peer support combined with professional counseling. This is consistent with the results of Ogbo et al. (2020), who emphasized that community-based and digitally mediated interventions significantly enhance EBF rates across diverse contexts.

Importantly, our study confirms that WhatsApp-based peer support is feasible in rural Indonesia. The intervention leveraged high smartphone penetration, low data costs, and local midwives as facilitators. This aligns with Wang et al. (2021), who reviewed digital health interventions globally and found that mobile-based counseling increased breastfeeding duration and exclusivity. Implementing the program in a local community context enhanced its acceptance. Local myths and cultural practices, such as early introduction of water, were actively addressed through group discussions. A qualitative study by Widiyanto et al. (2020) in Central Java revealed that cultural pressure and misconceptions were major barriers to exclusive breastfeeding. Our WhatsApp group helped counter such barriers by providing immediate support and evidence-based clarification.

Regional disparities in exclusive breastfeeding coverage across Indonesia have been reported in national studies. The Practice of Exclusive Breastfeeding by Region in Indonesia (2023) documented that rural communities often lag behind urban areas due to limited access to information and health services.

By providing digital support in a rural village, this study demonstrates a practical solution to bridging the rural–urban gap in breastfeeding promotion.

The success of the Lactation Buddy model lies in its hybrid structure. Professional facilitators ensured the accuracy of health messages, while peers shared lived experiences that normalized challenges. This approach reflects findings from Renfrew et al. (2012) and has been echoed in Indonesian contexts, where multi-source support from peers, family, and health workers proved most effective. While the intervention improved exclusive breastfeeding outcomes, engagement levels among participants likely influenced results. Mothers who were active in discussions and frequently read the materials likely benefited more. This dose–response pattern has also been reported by Rachmawati et al. (2023), where higher engagement with WhatsApp content was correlated with better breastfeeding outcomes.

This study relied on maternal recall, which may introduce reporting bias. However, cross-checking with KIA records reduced this limitation. Similar concerns have been noted in previous breastfeeding research, yet recall methods remain the standard due to their feasibility in community-based studies. The quasi-experimental design without randomization introduces potential confounding. However, baseline comparability between groups reduces this risk. Future research employing randomized controlled designs, as suggested by Fan et al. (2022), would strengthen the evidence base and reduce bias.

The intervention was limited to three months, which corresponds to a critical early postpartum phase. However, challenges such as maternal return to work typically occur after this period. Extending interventions beyond six months could provide insights into sustaining breastfeeding through the transition to complementary feeding. Generalizability is another consideration. Although the intervention was successful in Deket Kulon, factors such as internet access, literacy, and cultural practices vary across regions. Yet the modular structure of the program makes it adaptable to other rural settings with minimal modification.

Integrating the Lactation Buddy program into routine maternal and child health services could ensure sustainability. For example, recruitment could occur during antenatal visits, and monitoring could be linked with Posyandu activities. Embedding the intervention in existing systems has been recommended by Indonesian health authorities to strengthen stunting prevention strategies.

CONCLUSION

This study demonstrated that the Lactation Buddy intervention delivered through WhatsApp Group was highly effective in improving maternal knowledge, attitudes, and breastfeeding practices, and significantly increased the prevalence of exclusive breastfeeding in Deket Kulon Village, Deket Sub-district, Lamongan Regency. Compared to standard care, mothers in the intervention group achieved better

outcomes across all indicators, suggesting that a low-cost, scalable, and community-based digital support model can address persistent barriers to EBF in rural Indonesia.

The hybrid approach—combining peer-to-peer interaction with professional facilitation—proved particularly beneficial in enhancing mothers' self-efficacy and correcting breastfeeding misconceptions. Given Indonesia's national priority to reduce stunting, integrating WhatsApp-based peer support into maternal and child health services may serve as a promising strategy to strengthen exclusive breastfeeding practices at the community level.

Several limitations should be noted in interpreting the results: (1) The quasi-experimental, non-randomized design increases the risk of selection bias and unmeasured confounding, which may have influenced the observed outcomes; (2) The study involved a relatively small sample (n=60) limited to one rural village, which restricts the generalizability of the findings to other regions with different cultural and socioeconomic contexts; (3) The intervention lasted three months, and breastfeeding practices were assessed up to six months postpartum. Long-term sustainability beyond this period remains unknown; (4) Exclusive breastfeeding status was primarily assessed through maternal recall, which is subject to recall bias and social desirability bias, despite partial verification with Maternal and Child Health (KIA) records.

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