

## Model development of early breastfeeding initiation and exclusive preparation

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### ABSTRACT

The research was conducted in June-September 2022. The early breastfeeding initiation rate (EBI) in one of the districts in Indonesia in 2022 will only reach 8.74%, of the target of 42%. This study aimed to increase the percentage of EBI implementation in birthing mothers and the success of EBI in the first 30 minutes of labor through the development of EBI model. The research method uses a quasi-experimental control group design. The population is 96 people. The sample is the total population, consisting of 48 people closest to pregnant women plus 48 people in the control group. The effect of mentoring shows significant results on the success of EBI because of the value of  $p=0.002$ . The mother's educational contribution did not affect the success of EBI between the intervention group and the control group ( $p=0.774$ ). The family support factor resulted in a significant EBI win between the intervention and control groups ( $p=0.000$ ). The achievement of EBI provision was 100% of the target of 60%, the achievement of EBI >1 hour was 7.2%, and EBI <1 hour was 92.8%.

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## 1. INTRODUCTION

Exclusive breastfeeding (EB) is essential for children's growth and development from infancy to reaching the age of three years [1]. World Health Organization (WHO) strongly recommends breastfeeding babies one hour after birth were. WHO defines it as early breastfeeding initiation (EBI) [2], [3]. WHO recommendations are an effort to improve body development, infant immunity against disease attacks, and benefits to mothers to avoid the risk of breast, reduce the risk of bleeding after childbirth, diabetes, and ovarian cancer attacks in the future [4]–[7].

Despite various efforts to raise awareness of the importance of EBI, there are often still obstacles to its practice in the form of sociocultural aspects that cause the implementation of EBI to be hampered [8], [9]. As also happened in one district in Indonesia, the problem of low EBI rates in West Tulang Bawang Regency, Lampung Province, is reflected in the achievement of an EBI of 8.74%. At the same time, the target set by the Lampung Provincial Health Office is 42% [10]. Many studies have been conducted to increase awareness of the importance of implementing EBI, as reported by Omid *et al.* examining the causes of the low rate of EB [11]; Sanie *et al.* [12] explored the effectiveness of EBI-promoting interventions in the Philippines. A positive relationship between self-efficacy and duration of EBI administration [13], [14]; factors influencing the implementation of EBI in rural areas [15]; the impact of the application of the Thompson method on EBI administration [16]. Delphi methods to address problems related to breastfeeding

maternal behavior [17]. Secondary data analysis of Health Demographic Survey to determine the combined prevalence of EBI, the big picture of the phenomenon of EBI administration, and the relationship of the place of birth with EBI [18]–[20].

Support from social connections, a crucial element in social interactions, can be categorized broadly into four types: emotional (including empathy, affection, trust, and concern), practical (material assistance and direct services that aid someone in need), informative (guidance, recommendations, and knowledge used to tackle issues), and evaluative. Legal provisions affirm the entitlement to consistent assistance during childbirth, often provided by partners, mothers, siblings, or friends of the expectant woman. Support networks such as partners, family, and friends, along with healthcare practitioners, have demonstrated a favorable correlation with the practice of breastfeeding [21].

Seehausen *et al.* [22] revealed that 77% of women who initiated breastfeeding within the first hour after their baby's birth had the presence of a companion as a form of social support, while only 23% breastfed without such support. According to Almeida *et al.* [23] the presence of a delivery companion has significant implications for ensuring safety, high-quality care, and the preservation of women's rights within the healthcare context. This companion not only contributes to a positive childbirth experience for the woman but also plays a role in fostering positive outcomes related to the initiation and duration of breastfeeding. Denying women, the opportunity to have a support person during labor, delivery, and the postpartum period is identified as a form of obstetric violence. It is crucial for women to be well-informed in advance about their right to have a companion, thereby enabling them to choose and involve a suitable support person [24].

Based on the literature review, researchers still identify gaps in no research on EBI model development in West Tulang Bawang District, Lampung Province in Indonesia. This research is important because of the low number of EBI in the district due to sociocultural diversity, so the development of the EBI model that has been carried out has proven to increase awareness of breastfeeding mothers to implement EBI. Therefore, this study aims to increase the percentage of EBI implementation in birthing mothers and the success of EBI in the first 30 minutes of labor through the development of EBI model.

## 2. RESEARCH METHOD

The research was conducted from June to September 2022 using a quasi-experimental design. The population in this study consisted of 96 "companions" for pregnant women, where the "companions" are the husbands of each pregnant woman. The sample in this study represents the entire population and was divided into 2 groups. The first group comprised 48 individuals who received an "intervention," while the subsequent group was not given an "intervention" (as the control group). The term "intervention" here refers to providing tutorials to the husbands of each pregnant woman, where husbands were given training on skills in supporting their wives from early pregnancy to childbirth to carry out EBI. This method is based on similar research conducted previously [25].

To control for potential confounding variables that might influence the research outcomes, we implemented various strategies, including randomization. When dividing the sample into intervention and control groups, we employed randomization to ensure the even distribution of unexpected or unidentified confounding factors among both groups. This step was essential to ensure that the initial characteristics of both groups remained highly similar. To measure the effectiveness of the intervention, we employed a previously developed and validated questionnaire. The development of the questionnaire involved several stages, including design, content validation by experts in the field, including midwives and academics, and pilot testing before data collection. Pilot testing was conducted with 20 participants who were similar to the study's population to ensure the questionnaire's validity and reliability. The results of the pilot testing indicated that the observation sheet was valid and reliable for use [8], [9].

Furthermore, the detailed steps for developing the EBI model, as depicted in Figure 1, included training provided by the research team to nine midwives. This training encompassed knowledge related to lactation management, preparation for assisting the husbands of pregnant women, providing assistance to expectant mothers in carrying out EBI, as well as how to observe and evaluate the mentoring process. These trained midwives then proceeded to train pregnant women in the procedures for assisting them throughout their pregnancy, culminating in the provision of EBI. This mentoring activity spanned four months. The data collection process was facilitated by an enumerator, a midwife who served as a labor assistant and primary data collector through interviews and observations of each the mentoring process and the early breastfeeding initiation procedure. Mentoring was done third times. The collected data was subsequently processed and analyzed using descriptive and analytical statistical methods [26]. The ethical clearance number 008/KEPK-TJK/X/2022.

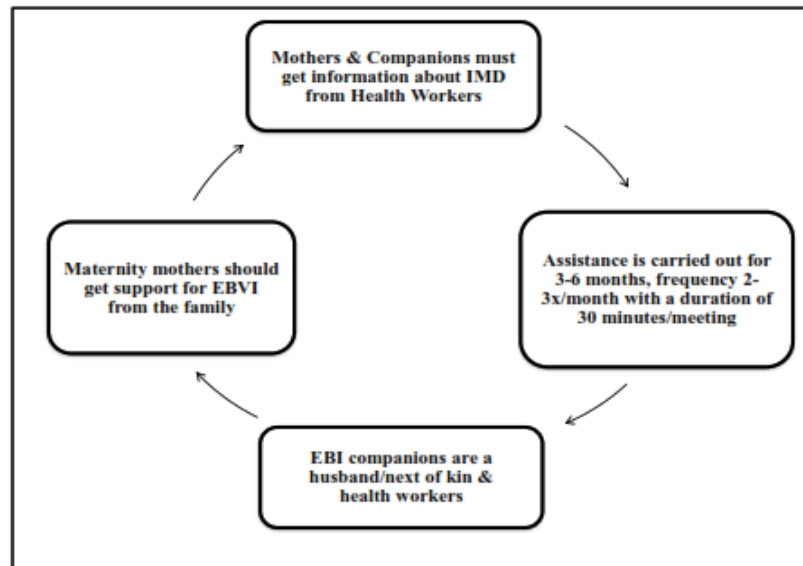


Figure 1. EBI development model

### 3. RESULTS AND DISCUSSION

Table 1 data informs Respondents with elementary school education were 52 people (54.2%), junior high school as many as 32 people (33.3%), and high school as many as 12 people (12.5%). Respondents with primigravida pregnancy status were 37.5%, and the rest (62.5%) were mothers with multigravida pregnancy status. The characteristics seen from the respondents' employment status were dominated by respondents who did not work as many as 79 people (82.3%), then respondents who worked only 17 people (17.7%). Table 2, Information EBI in the second and the third 30 minutes [27].

Table 1. Distribution of respondent characteristics

Characteristics of respondents		Frequency	Percentage
Age of respondents	<20 years old	3	3.1%
	20-35 years old	83	86.5%
	>35 years old	10	10.4%
Education	Primary school	52	54.2%
	Junior high school	32	33.3%
	High school	12	12.5%
Parity	Primi gravida	36	37.5%
	Multi gravida	60	62.5%
Employment status	Work	17	17.7%
	Not working	79	82.3%
Total		96	100%

Table 2. Distribution of EBI success in maternity mothers

Number	Group	N	Number of successful EBI	EBI success average (30th minute)
1	Intervention group	48	48	2
2	Control group	48	41	2.77
	Total	96	89	

#### 3.1. Influence of mentoring

The results in Table 3 obtained a value of  $p=0.002$ , so it was concluded that there was a significant influence of assistance carried out on childbirth companions on the success of EBI in maternity mothers. Here on average, respondents who were assisted three times succeeded in doing EBI in the first 30 minutes, while helping 1-2 times grew in stiffening EBI in the second 30 minutes. In comparison, on average, respondents who became the control group (not accompanied) managed to do EBI in the third 30 minutes. Information from Table 3 explains that the process of mentoring from the closest person to maternity mothers is strong support psychologically that can mentally awaken pregnant women to face anxiety and realize the importance of love to the baby who will be born in the form of awareness of carrying out EBI [28]–[30].

Table 3. Distribution of mentoring influence

Variable dependent	Influence of mentoring	Mean	SD	p-value	N
EBI success	No mentoring	2.77	1.403	0.002	48
	One time mentoring	2.20	0.676		15
	Two times mentoring	2.20	0.696		30
	Three times mentoring	1.46	0.660		12

### 3.2. Educational influence

Table 4 explains that maternal education had no significant effect on the moderate success of EBI between the intervention group and the control group. This situation can be seen from the average success of EBI in respondents given the intervention was at 30 minutes to 1.60 with a standard deviation of 0.765, while for the control group, the moderate success of EBI was at 30 minutes to 1.56 with a standard deviation of 0.649. The results of the statistical test obtained a value of  $p=0.774$ .

As the data from Table 4, it can be connected that higher education has an influence on the human mindset and increases awareness and ability to live healthy for mothers facing childbirth to realize an optimal degree of health. Knowledge is vital for the formation of one's actions. In other words, learning influences an initial motivation for someone to behave, where researchers get respondents to have high knowledge about EBI [31]–[33].

Table 4. Distribution of educational influence

Dependent variables	Group	Mean	SD	p-value	N
EBI success	Intervention	1.60	0.765	0.774	48
	Control	1.56	0.649		48

### 3.3. Effect of work

Based on the results in Table 5, it can be informed that there was no significant effect of maternal work on the moderate success of EBI between the intervention group and the control group. The information was supported by the moderate success of EBI in respondents given the intervention was at 30 minutes to 0.79 with a standard deviation of 0.410, while for the control group, the moderate success of EBI was at 30 minutes to 0.85 with a standard deviation of 0.357. The results of the statistical test obtained a value of  $p=0.428$ .

The study results in Table 5 explain that mothers' employment status is closely related. Generally, working mothers have difficulty implementing EBI in the first 30 minutes. Many succeed in the second 30 minutes because they must divide their time with their work in the mentoring process. Besides, the influence of family members also affects the practice of implementing EBI. A healthy maternal condition and a pleasant atmosphere will increase the physical stability of the mother so that the EBI implementation process is faster [34]–[36].

Table 5. Distribution of work influence

Dependent variables	Group	Mean	SD	p-value	N
EBI success	Intervention	0.79	0.410	0.428	48
	Control	0.85	0.357		48

### 3.4. Influence of family support

Table 6 shows a significant effect of family support on EBI success between the intervention and control groups. These results were supported by the average success value of EBI in respondents given the intervention was at 30 minutes to 0.75 with a standard deviation of 0.438, while for the control group, the moderate success of EBI was at 30 minutes to 1 with a standard deviation of 0.000. The results of the statistical test obtained a value of  $p=0.000$ . Based on the results data in Table 6, the success of EBI is influenced by several factors, one of which is the role of family support plays a significant role in the delivery process, culture and family support, especially the husband, to provide a boost of mental strength to pregnant women and their awareness to carry out EBI [37]–[39].

Table 6. Influence of family support

Dependent variables	Group	Mean	SD	p-value	N
EBI Success	Intervention	0.75	0.438	0.000	48
	Control	1.00	0.000		48

### 3.5. Influence of information

It can be seen from the information in Table 7. the average success of EBI in respondents given intervention was in 30 minutes to 0.90 with a standard deviation of 0.309, while for the control group, the moderate success of EBI was in 30 minutes to 1 with a standard deviation of 0.000. The results of the statistical test obtained a value of  $p=0.022$ , meaning that it can be concluded that there is a significant influence if there is information from health workers on the success of EBI between the intervention group and the control group.

The success of EBI programs, as detailed in Table 7, requires not only the role of mothers but also the role of midwives. Birth attendants such as midwives are the health workers who play the most part in implementing EBI because mothers cannot perform EBI without the help and facilitation of midwives or other birth attendants. In addition to midwives, lactation counselors' role is crucial because it is expected to foster maternal confidence and motivation to learn more about EBI [25].

Table 7. Influence of information

Dependent variables	Group	Mean	SD	p-value	N
Ebi success	Intervention	0.90	0.309	0.022	48
	Control	1.00	0.000		48

### 3.6. The Effect of the number of classes assisted by pregnant women

Table 8 shows the results of statistical tests obtained a value of  $p=0.000$ , meaning that it can be concluded that there is a significant influence on the number of coaching classes for pregnant women followed by mothers on the success of EBI between the intervention group and the control group. The moderate success of EBI in respondents given the intervention was in 30 minutes to 1.79 with a standard deviation of 0.771, while for the control group, the moderate success of EBI was in 30 minutes to 3 with a standard deviation of 0.000. One of the indicators of maternity health development is the percentage of health facilities that carry out classes for pregnant women. The results in Table 8 can be explained that through courses, pregnant women are expected to increase their knowledge, changes in attitudes and behavior of mothers in terms of pregnancy, body changes and complaints during pregnancy, pregnancy care, childbirth, postpartum care, postpartum birth control, newborn care, infectious diseases, and birth certificates [40].

Table 8. The effect of the number of classes for coaching pregnant women

Variable dependent	Group	Mean	SD	p-value	N
Ebi success	Intervention	1.79	0.771	0.000	48
	Control	3.00	0.000		48

### 3.7. Study limitation

However, it is important to acknowledge that the sample size in our study as limitation of our study, comprising 96 'companions' for pregnant women divided into two groups, with 48 individuals in each, may be considered small in conventional terms. Nevertheless, it's noteworthy that this sample represents the entire population of 'companions' for pregnant women in our study context. Moreover, the adequacy of this sample size was carefully considered in the context of our research question, and it aligns with similar studies in the field.

## 4. CONCLUSION

The application of the EBI model developed by the research team contributed to an increase in EBI achievement of 100% of the target of 60%, achievement of  $EBI > 1$  hour 7.2% and  $EBI < 1$  hour 92.8%, the increase shows that awareness of the implementation of EBI by breastfeeding mothers is increasing in the area of West Tulang Bawang Regency, Lampung Province, Indonesia. The research findings have some important implications. Firstly, they suggest that the health of mothers and infants in West Tulang Bawang Regency, Lampung Province, Indonesia, could improve significantly. This is because more mothers are now practicing EBI, especially by starting breastfeeding within one hour of childbirth. This is known to have many health benefits for both mothers and babies, like better nutrition and protection from diseases. Secondly, the research shows that when communities are involved, health programs like EBI can work well. This means that similar programs can be used to improve health in other areas too. So, the research has given us a good example of how to make communities healthier and reach broader health goals.

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