

## The Effectiveness of IMD Implementation on Infant Weight Gain at The Kolelet Health Center Lebak Banten in 2022

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**Abstract. Background:** The low level of breastfeeding in the first hour after birth and exclusive breastfeeding resulted in stunted growth of the baby, especially the weight and length of the baby. The government's first step in an effort to improve the health status of infants is to implement early initiation of breastfeeding (IMD). The results of a preliminary study on 4 infants who experienced an increase in body weight of 150-250 grams were previously carried out by IMD.

**Objective:** Knowing the effectiveness of the IMD implementation on infant weight gain at the Kolelet Health Center Lebak Banten in 2022.

**Methodology:** This research is quasi-experimental research with one-group pretest-posttest design method. The sample in this study were babies born at the Kolelet Health Center Lebak Banten in June 2022 as many as 30 respondents with a total sampling technique. The data were analyzed using the Paired sample t-test before the normality test was carried out.

**Results:** The results of the univariate analysis showed that the baby's weight before the IMD was done on average = 2,965.00 grams and after the IMD was done the average = 3,333.67 grams so that an average difference was found of 368.67 grams. The results of the bivariate analysis showed that there was an effectiveness of the IMD implementation on the baby's weight gain with  $p = 0.000$ .

**Conclusions and Suggestions:** The implementation of IMD is effective in increasing the baby's weight. Maternity mothers and their families are expected to increase their knowledge about the importance of IMD in order to increase their awareness in carrying out IMD to their babies and make mothers motivated to continue giving their breast milk without additional food so that the growth and development of babies can grow optimally and mothers avoid postpartum hemorrhage.

**Keywords:** Implementation of Early Breastfeeding Initiation (IMD), baby weight.

### INTRODUCTION

Babies are aged 0 to 12 months, each baby goes through a period of growth and development in his lifetime. At this time the baby becomes very sensitive / dependent on the environment to meet the needs of growth and development that takes place in a short time and cannot be repeated. Therefore, infancy is known as a critical and golden period (1).

According to the World Health Organization (WHO) growth and nutrition disorders result in 42% of infant and toddler deaths. The results of the WHO census show that 49% of the 10.4 million infant and under-five deaths in developing countries are related to weight disorders and malnutrition. It is recorded that around 50% of infants and toddlers in Asia 30%, in Africa 20% in Latin America suffer from weight problems and malnutrition. Meanwhile, cases of infants and toddlers with weight disorders in Indonesia also reached 19.6% (2).

According to the Indonesian health profile, the presentation of children aged 0-23 months in Indonesia in 2019 with poor nutritional status of 3.8% and undernutrition status of 11.4%, in 2020 poor nutritional status decreased to 1.2% and undernutrition status by 4.1%. Meanwhile, in Banten Province, children aged 0-23 months with poor nutritional status in 2019 amounted to 3% and undernutrition status of 10.6%, while in 2020 poor nutritional status decreased to 1.6% while undernutrition status was still fixed at 4.1% (3).

Meanwhile, Lebak Regency of 42 Baduta Health Centers with poor nutritional status of 0.66% and malnutrition status of 14.19%, while Kolelet Health Center located in Rangkasblitung District, Lebak Regency in 2020 obtained 0.63% with poor nutritional status and 17.56% with poor nutritional status in 2021 has increased to 0.69% with poor nutritional status and 17.86% with less nutritional status (4).

Good nutritional status can be achieved when the body receives adequate nutrients, thus allowing physical growth to occur. Through adequate nutrition, it can launch a balanced growth process for the transportation of oxygen and nutrients so that cells can grow to carry out their functions normally. The child's weight gain in the first year of life if the child gets good nutrition, namely from birth to the first 6 months of weight gain every week is 140-200 grams. Good body weight doubles birth weight at the end of the first 6 months (5).

The condition of the baby's weight and length of the baby's body that is not in accordance with the growth standards is one of the factors for the occurrence of disease in infants. The low level of breastfeeding in the first hour after birth and exclusive breastfeeding resulted in stunted growth of the baby, especially the weight and length of the baby. The condition of the baby's weight and length of the baby's body that is not in accordance with the growth standards is one of the factors for the occurrence of disease in infants (6).

The government's first step in an effort to improve the health status of infants is to implement early initiation of breastfeeding (IMD). The form of government support for the implementation of Early Breastfeeding Initiation is contained in Government Regulation no. 33 of 2012 Article 9 paragraphs 1 and 2. Paragraph 1 reads, "Health workers and providers of health service facilities are required to initiate early breastfeeding for newborns to their mothers for a minimum of 1 (one) hour". Paragraph 2 reads, "Early Breastfeeding Initiation as referred to in paragraph (1) is carried out by placing the baby face down on the mother's chest or abdomen so that the baby's skin is attached to the mother's skin." (6).

Skin to skin contact during IMD will help smooth the process of lactogenesis because with early breastfeeding there will be stimulation of the nipples which will help the formation of prolactin and oxytocin hormones which will accelerate the process of making and expelling breast milk so that it can optimize the baby's growth. The IMD process can also prevent hypothermia and hypoglycemia. Babies who have a history of hypoglycemia will experience failure to gain weight or gain weight that is not optimal(7).

Arsini, et al. in his research based on the Pearson Correlation calculation, the value of  $r$  was 0.474, meaning that BMI with body weight at the age of 14 days had a moderate relationship with a positive correlation. (8). The greater the value of early initiation of breastfeeding, the greater the baby's weight at the age of 14 days of neonatal. as well as the results of the Lepong study (2018) in his research the average weight of IMD infants

(1642.86 g) was greater than that of non-IMD infants (1462.96 g) so that there was an effect of giving IMD with an increase in infant weight.

Based on the results of a preliminary study conducted at the Kolelet Health Center, Rangkasbitung District, Lebak Regency, the IMD target achievement in 2019 reached 84.9%, it turned out to have decreased in 2020 to 79.4%. Even until 2021, it will also decline again, reaching 78.82%. So far, the IMD program has always been carried out, but there are also those that are not carried out because their families do not want to help them because they are afraid that the baby's nose will be covered by the mother's breast, there are also those who do not dare because the baby is silent. The results of a preliminary study on 10 infants who had 1 postnatal visit at the Kolelet Health Center found that 3 babies had a fixed weight, 1 baby lost weight, and 2 babies gained 50-100 grams of weight. Meanwhile, the 4 babies found their weight increased by 150-250 grams. Based on the mother's statement, she said that in the 4 babies who had an increase in body weight of 150-250-grams, IMD was previously carried out, while the others did not.

## LITERATURE REVIEW

### Baby Weight

Babies are the first stages of a human's life after being born from a mother's womb. At this time, the baby's brain and physical development is always a major concern. There are two periods in infancy, the first is neonatal and the second is postneonatal. The neonatal period is the period when the baby is 0 to 28 days old. In the neonatal period, adaptation to the environment occurs and changes in blood circulation occur, as well as the functioning of important organs in the baby's body (9).

Development is an increase in the function of the organs of the body that can be achieved through growing maturity and learning, consisting of the ability to move gross and fine, hearing, speaking, social-emotional, independence, intelligence and moral development. Growth is a change in the body associated with an increase in body size (10).

Body weight is the most important anthropometric measure and is most often used in newborns (neonates). Body weight is used to diagnose normal or LBW babies. It is said to be LBW if the weight of the baby-toddler, the baby's weight is born below 2500 grams or under 2.5 kg. In infancy-toddler, body weight can be used to see the rate of physical growth and nutritional status, unless there are clinical abnormalities such as dehydration, ascites, edema, and the presence of tumors. In addition, body weight can be used as a basis for calculating drug and food doses (11).

According to Kosim, birth weight based on body weight can be grouped into: (12):

- a. Low Birth Weight (LBW) Babies. Birth weight <2500 grams regardless of gestational age (Kosim, 2019). According to Prawirohardjo (2020), LBW is a neonate with a birth weight of less than 2500 grams (up to 2499 grams). In the past, this baby was said to be premature, then it was agreed to be called a low birth weight infant or Low Birth Weight (LBW) because the baby is not always premature or less months but can be full months or more months.
- b. Normal Birth Weight Babies. Normal newborns are babies born from pregnancy to 42 weeks and birth weight > 2500 - 4000 grams (13).

c. **More Birth Weight Babies.** Babies with excess birth weight are babies born with a birth weight of more than 4000 grams (12). Babies with more birth weight can be caused by the influence of post-term pregnancy, besides that the risk factor for babies with more birth weight is pregnant women with diabetes mellitus, mothers with DMG 40% will give birth to babies with excessive weight at all gestational ages. (14).

**Baby scale** It is used to measure the weight of babies when they are born until their weight reaches 20 kg. There are two types of baby scales, manual and digital. The baby scale consists of 2 units, one unit is for the measuring instrument or a weight measuring machine and the second unit is a baby place with a tub that serves to put the baby to sleep for easy weighing. (12).

### **Early Initiation of Breastfeeding**

According to the Big Indonesian Dictionary (KBBI), the notion of application is the act of applying (15), Meanwhile, according to Rizkianti, implementation is an act of practicing a theory, method, and other things to achieve certain goals and for an interest desired by a group or group that has been planned and arranged in advance. (16).

Early initiation Breastfeeding is the start of breastfeeding activities in the first hour after the baby is born with their own efforts, in other words, breastfeeding is not breastfed. The way the baby initiates early breastfeeding is called The Breast Crawl or crawling looking for breasts (17). Rosita explained that early initiation of breastfeeding is a newborn baby, after the umbilical cord is cut, it is cleaned so that it is not too wet with liquid and immediately placed on the mother's stomach or chest, leave for at least 30 minutes to 1 hour, the baby will crawl on its own looking for the mother's nipple to suckle. (18).

The form of government support for the implementation of Early Breastfeeding Initiation is contained in Government Regulation no. 33 of 2012 Article 9 paragraphs 1 and 2. Paragraph 1 reads, "Health workers and providers of health service facilities are required to initiate early breastfeeding for newborns to their mothers for a minimum of 1 (one) hour". Paragraph 2 reads, "Early Breastfeeding Initiation as referred to in paragraph (1) is carried out by placing the baby on his stomach on the mother's chest or stomach so that the baby's skin.

The basic principle of IMD is that without having to be cleaned first, the baby is placed on the mother's chest and the baby will instinctively look for the mother's breast, then start feeding. (18).

Roesli explained that the implementation of early initiation of breastfeeding begins by informing the mother and family about the care that will be provided (19). After the baby is born, dry the baby's entire body and head (except the hands) as soon as possible, leaving the white fat (vernix) to soothe the baby's skin. Cut and tie the umbilical cord then put the baby on the mother's chest or abdomen and let the baby's skin adhere to the mother's stomach, this skin-skin contact position is maintained for at least one hour or after the initial feeding is complete. Cover mother and baby, if necessary use a baby hat. Let the baby find the mother's nipple on its own, the mother can stimulate the baby with a gentle touch, but should not force the baby to the nipple. This can last for a few minutes or an hour, or even more.

Next, encourage the husband/family to support the mother and help the mother to recognize the signs or behavior of the baby before breastfeeding, because this support will increase the mother's self-confidence. Leave the baby in skin-to-skin contact with the

mother's skin for at least an hour, even if she has had her first feed before an hour. If you haven't found the mother's nipple within an hour, keep the baby's skin in contact with the mother's skin until the first feed is successful. The opportunity for skin-to-skin contact is also recommended for mothers who give birth by surgery, for example Caesarean section (20).

The baby should only be separated from the mother to be weighed, measured and stamped after one hour or after the initial feeding. Invasive procedures, such as vitamin K injections and baby eye drops can be delayed. Joined mother and baby are cared for in one room for one hour, mother and baby are not separated and the baby is always within reach of the mother. Avoid giving prelactal drinks (fluids given before breast milk comes out)(21).

## **METHOD**

This type of research is a quasi-experimental research with a one-group pretest-posttest design method. The research was conducted at the Kolelet Health Center in Lebak Banten. The population in this study were all babies born at the Puskesmas Kolelet Lebak Banten in June 2022. The sample used was 30 pregnant respondents.

In this study, the instrument used for research supporting data was an observation sheet. The instrument used to measure the baby's weight is a scale.

Data analysis was carried out by means of an average comparison test using the paired sample t-test. If the p value is less than 0.05 then the alternative hypothesis ( $H_a$ ) is accepted, meaning that there is an effectiveness of the IMD implementation on the baby's weight gain. On the other hand, if the p value is more than 0.05, the null hypothesis ( $H_0$ ) is accepted, meaning that there is no effectiveness of the IMD implementation on the baby's weight gain.

**RESEARCH RESULT**

**Characteristics of Respondents**

Table 1. Characteristics of Respondents

<b>Karakter</b>	<b>Kriteria</b>	<b>Jumlah</b>	<b>Persentase</b>
Gender	Man	14	46,7
	Woman	16	53,3
	<b>Total</b>	30	100
Age	< 20 tahun	3	10,0
	20-35 tahun	27	90,0
	<b>Total</b>	30	100
Mother's Education	SMP	12	40,0
	SMA	14	46,7
	PT	4	13,3
	<b>Total</b>	30	100
Mother's Parity	Primipara	11	36,7
	Multipara	19	63,3
	<b>Total</b>	30	100
Mother's Job	Working	11	36,7
	Doesn't work	19	63,3
	<b>Total</b>	30	100

The table above shows that most of the respondents in this study were female or more than male. Where babies with female sex are as many as 16 people (53.3%) and babies with male sex are as many as 14 people (46.7%).

Maternal age 20-35 years or more than maternal age < 20 years. Where babies with mothers aged 20-35 years were 27 people (90.0%) and babies with mothers aged <20 years were 3 people (10.0%).

Mother's education is SMA or more than Mother's education is SMP and PT. Where babies with high school mother education are 14 people (46.7%), babies with junior high school education are 12 people (40.0%), and babies with PT mother education are 4 people (13.3%).

Parity of multiparous mothers or more than parity of primiparous mothers. Where babies with multiparous mother parity are 19 people (63.3%) and babies with maternal parity primiparas were 11 people (36.7%).

The work of the mother does not work or is more than the work of the working mother. Where babies whose mothers do not work are 19 people (63.3%) and babies with working mothers are 11 people (36.7%).

**Hemoglobin levels (HB)**

Table 2. Baby's Weight before IMD is Done at Kolelet Health Center Lebak Banten 2022

<b>Baby weight</b>	<b>Average</b>	<b>Std. Deviasi</b>	<b>Max</b>	<b>Min</b>
before	2.965,00	187,612	2.700	3.400

The baby's weight before BMI was done on average = 2,965.00 grams with std. deviation = 187,612 minimum = 2,700gram and maximum = 3,400 gram.

Table 3. Baby's Weight after IMD is Done at Kolelet Health Center Lebak Banten 2022

<b>Baby weight</b>	<b>average</b>	<b>Std. Deviasi</b>	<b>Max</b>	<b>Min</b>
after	3.333,67	184,232	3.070	3.760

The baby's weight after BMI was done on average = 3,333.67gram with std. deviation = 184.232 minimum = 3.070gram and maximum = 3.760 gram.

**Data Normality Test Results**

The normality test is a requirement that must be met for the average comparison test through the Paired Sample Test. This test was carried out for data on Hb levels. Normality test was carried out through the Shapiro-Wilk test. The data is declared to meet the assumption of normality if the p value (asyp. sig.) is more than 0.05. On the other hand, the data is declared not to meet the normality assumption if the p value (asyp. sig.) is less than 0.05.

The results of the Shapiro-Wilk test showed a p value of more than 0.05 for both the Hb level data for the mother group given beetroot juice and the Hb level on the baby's body weight both before treatment (pretest) and after treatment (posttest). Therefore, it can be concluded that the group data meets the assumption of normality or is declared normally distributed.

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Table 4. The Effectiveness of IMD Implementation on Infant Weight Gain at Kolelet Health Center Lebak Banten 2022

<b>Stage</b>	<b>Baby weight</b>	<b>increase</b>	<b>p-value (sig.)</b>
Pretest	2.965,00		
Posttest	3.333,67	368,67	0.000

The results of a different test using the PairedSample Test before and after the IMD was obtained, the p value = 0.000 < 0.005, thus the results of the analysis can be seen

that there is an effectiveness of the IMD implementation on infant weight gain at the Kolelet Health Center Lebak Banten 2022.

## DISCUSSION

Based on the results of the study, it can be seen that the baby's weight before BMI was on average = 2,965.00gram with std. deviation = 187,612 minimum = 2,700gram and maximum = 3,400 gram.

Babies are the first stages of a human's life after being born from a mother's womb. Normal newborns are babies born with a gestational age of 37 weeks to 42 weeks and a birth weight of 2500 grams to 4000 grams (22). At this time, the baby's brain and physical development is always a major concern. In the neonatal period, adaptation to the environment occurs and changes in blood circulation occur, as well as the functioning of important organs in the baby's body (9). Factors influencing birth weight according to Kosim include maternal age, gestational distance, parity, hemoglobin levels, nutritional status of pregnant women, education, occupation, illness during pregnancy, external environment, social economic factors and ANC (12).

Based on the results of the study, it can be seen that the baby's weight after BMI was done on average = 3,333.67gram with std. deviation = 184.232 minimum = 3.070gram and maximum = 3.760 gram.

The government in an effort to improve the health status of infants by implementing early initiation of breastfeeding (IMD). The form of government support for the implementation of Early Breastfeeding Initiation is contained in Government Regulation no. 33 of 2012 Article 9 paragraphs 1 and 2 (6). Early initiation of breastfeeding is the beginning of breastfeeding activities in the first hour after the baby is born with their own efforts, in other words, breastfeeding is not breastfed. The way the baby initiates early breastfeeding is called The Breast Crawl or crawling looking for the breast (17).

According to Aprilia, the benefits of early initiation of breastfeeding for mothers and babies include being calmer, having affection, stimulating the hormone oxytocin, warming the baby, increasing the baby's immunity, reducing hypoglycemia, releasing meconium (baby droppings) earlier, resulting in a decrease in intensity. jaundice (yellow) in BBL (23).

Eka et al found that in the baby's mouth there are muscles that stimulate the swallowing reflex to activate and push breast milk into the baby's stomach, the baby's sucking stimulates the anterior pituitary to release the hormone prolactin, prolactin helps gland cells to secrete breast milk, the more sucking it is. baby then a lot of mother's milk is produced and vice versa (24).

The results of 30 respondents with an average baby weight before IMD = 2,965.00gram with a minimum = 2,700gram and a maximum = 3,400 grams, while the baby's weight after IMD was done on average = 3,333.67gram with a minimum = 3,070gram and a maximum = 3.760gram so that the average difference is found to be 368.67gram. The results of the different test using the Paired Sample Test before and after the IMD was obtained, the p value = 0.000 < 0.005, thus the results of the analysis can be seen that there is an effectiveness of the IMD implementation on infant weight gain at the Kolelet Lebak Banten Health Center in 2022.



According to the Indonesian Pediatrics Association, the baby's weight generally drops in the first 5 days after birth and can even go down to 1/10 (10%) of birth weight. (25).

The weight will go back up after that and usually on the 10th day the weight will return to birth weight. Average weight gain is 20-30 grams per day. Weight growth will increase every week around 140-200 grams and his weight will be twice his birth weight at the end of the 6th month.

IMD will help smooth the process of lactogenesis because with early breastfeeding there will be stimulation of the nipples which will help the formation of prolactin and oxytocin hormones which will accelerate the process of making and expelling breast milk so that it can optimize the baby's growth. (7).

The motion of the suckling reflex in the baby will be tight during the main 20-30 minutes, so that if there is a delay in the suckling reflex, the level of the baby's ability to suckle will decrease and return until a few hours later. (26).

Roesli et al argue that the implementation of early breastfeeding initiation must be carried out appropriately, the mother's physical and psychological condition is a major role in preparing from the first pregnancy and seeking information about early breastfeeding initiation procedures. (27).

Asrini, et al. in his research based on the Pearson Correlation calculation, the value of  $r$  was 0.474, meaning that BMI with body weight at the age of 14 days had a moderate relationship with a positive correlation. The greater the value of early initiation of breastfeeding, the greater the baby's weight at the age of 14 days (8). Likewise with the research of Hamranani et al. through the suckling reflex (IMD) the volume of breast milk increases from 1 cc to 14 cc (28).

## CONCLUSION

1. The baby's weight before the IMD was carried out at the Kolelet Health Center in Lebak Banten in 2022 was on average = 2,965.00 grams.
2. The baby's weight after the IMD was carried out at the Kolelet Health Center in Lebak Banten in 2022 on average = 3,333.67 grams.
3. The results of the bivariate analysis with different tests using the Paired Sample Test before and after the IMD were obtained, the  $p$  value =  $0.000 < 0.005$ , thus the results of the analysis can be seen that there is an effectiveness of the implementation of the IMD on infant weight gain at the Kolelet Health Center in Lebak Banten in 2022.

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