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The Effect of Giving Banana Heart Nuggets on Breast Milk Production in Breastfeeding Mothers in Kelumpang Village in 2022

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Abstract
Introduction: *Mother's milk (ASI) is a very important food and drink for babies. In exclusive breastfeeding given for 6 months without any additional food. One of the efforts made to obtain children with good growth and development is to provide exclusive breastfeeding until the baby is 6 months old and continued until 24 months old baby.* ***Objective:*** *This researchers want to provide interventions to increase breast milk production in mothers breastfeeding* ***Methods:*** *This type of research is a quantitative study with a quasi-experimental research method (quasi- experimental) with a research design that is pre-test post-test non-equivalent control group. Observation sheet measuring instrument. Data analysis using paired t test and independent test.* ***Results:*** *There is no significant difference in the average of respondents' breast milk expenditure between the intervention group and the control group at the pretest p-value of 0.033 ($p < 0.05$) and there is a significant difference on the average respondent's milk expenditure between the intervention group and the control group at the posttest the p value was 0.000 ($p < 0.05$).* ***Discussions:*** *Banana heart contains calories, protein, fat, carbohydrates, vitamin A, vitamin B1, vitamin C and minerals such as phosphorus, calcium and Fe and stimulates the oxytocin and prolactin hormone which will greatly assist the process of breast milk production.* ***Conclusion:*** *Giving banana hear nugget has an effect on breast milk production*

Keywords: Breast Milk Production; Postpartum Mother; Banana Heart;

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Introduction

Breast milk (breast milk) is a very important food and drink for babies. In exclusive breastfeeding given for 6 months in the absence of additional food (Hutabarat et al., 2021) One of the efforts made to acquire children with growth and good development is to give exclusive breastfeeding until the baby is 6 months old and continued until the baby is 24 months old (Prafitri et al., 2020)

In 2025, the *World Health Assembly* has a target to increase the rate of exclusive breastfeeding in the first 6 months by 50% because currently the breastfeeding rate is only 37% (WHO, 2017).

The Infant Mortality Rate (AKN/AKB) reached 20,244 people. Among the causes of neonatal death are BBLR as many as 7,150 people, asphyxia as many as 5,464 people, tetanus neonatorum as many as 56 people, sepsis as many as 703 people, congenital abnormalities as many as 2,531 souls, and others as many as 4,340 people ("Health Profile of East Kalimantan Province," 2019)

In 2019, the coverage of exclusive breastfeeding in Indonesia reached 67.74% of the total population of 1,994,097 people. The scope of exclusive breastfeeding in East Kalimantan province reaches 78.53% of the total population of 24,480 people. In West Kutai Regency, the coverage of exclusive breastfeeding reached 66.5% of the total 1,074 people. This is still less than the target from the Ministry of Health, which is 80%. (Profile Health Kaltim, 2019)

The problem caused by breastfeeding mothers is that breast milk production is not optimal, so that the baby's nutritional needs are not optimal. Some suggestions that need to be considered by mothers who are breastfeeding their babies, namely consuming vegetables and fruits that can increase the volume of breast milk. The amount of breast milk can be overcome by consuming long beans, chickpeas, star gooseberry, papaya leaves and banana heart (Harismayanti et al., 2018)

Banana heart is a type of food that contains lacteous, which is a nutrient that can increase and accelerate breast milk production, especially in mothers who experience problems in breast milk production. The content of lacteous compounds found in banana heart has the potential to stimulate the hormones oxytocin and prolactin such as alkaloids, polyphenols, steroids, flavonoids and other effective substances in increasing and facilitating breast milk production (Suharmasn et al., 2021).

West Kutai Regency is one of the areas in East Kalimantan that has the potential for natural, human, and physical resources. The area of West Kutai Regency is 16,313.70 km2 divided into 16 sub-districts and 194 villages (Karmini, 2015) Kelumpang Village is located in Mook Manaar Bulatn District, Regency West Kutai. There are 19 types of fruit plants that have been developed by the local community, one of which is the banana plant which is the largest fruit production after durian fruit, which is as large as 13,839.00 kwt. Data on the coverage of exclusive breast feeding for babies aged 0-6 months in Kelumpang Village is 4.34% (Integrated Healthcare Center Data for Kelumpang Village, 2020).

There are still many mothers who lack awareness to give exclusive breastfeeding to their babies in Kelumpang Village, so researchers want to provide interventions to increase breast milk production in mothers breastfeeding.

Method

This type of research is quantitative research with research methods using pseudo-experiments (*quasi-experimental)* with research *designs*, namely *pre-test*, post-test, *non-equivalent control group* where in both groups the initial measurement (*pre-test*) of the final measurement (*post-test*) was carried out to see the results after being treated. (Rukminingsih, M. Pd et al., (2020) This study was conducted in Kelumpang Village, Regency West Kutai for 2 weeks, namely in June to early July the population in this study was all mothers who feeds the baby to 0-6 months of age. The intervention given in this study was to consume 6 pieces (50grams/piece) of banana heart presented in the form of nuggets consumed regularly for 7 days. The collection of data and research instruments uses observation sheets from breast milk cultivation.

Univariate analysis was carried out to describe descriptively the presented variables studied. The data normality test uses the *Shapiro Wilk* test with the provision that the p-value is >0.05, then the data is considered normally distributed. Furthermore, if the homogeneity test is met, the researcher can proceed at the T Test stage *(independent/unpaired)*

Results and Discussion

Table 1
Characteristics of Respondents

Characteristic	Intervention		Control	
	f	%	f	%
Mother's Age				
<20 years	0	0	1	15,4
20-35 years	11	84,6	10	77
>35 years old	2	15,4	1	7,6
Total	**13**	**100**	**13**	**100**
Baby Age				
1 month	1	7,6	0	0
2 months	2	15,4	1	7,6
3 months	3	23,1	2	15,4
4 months	1	7,7	3	23,1
5 months	3	23,1	3	23,1
6 months	3	23,1	4	30,8
Total	**13**	**100**	**13**	**100**
Mother's Education				
ES	1	7,7	0	0
JHS	0	0	1	7,7
SHS	12	92,3	12	92,3
Colleges	0	0	0	0
Total	**13**	**100**	**13**	**100**
Mother's Work				
Not Working	10	76,9	10	76,9
Work	3	23,1	3	23,1
Total	13	100	13	100
Total	**13**	**100**	**13**	**100**

Source: *Primary Data, 2022*

Data in table 1 shows that the maternal age in the intervention group was mostly 20-35 years as many as 11 people (84.6%), the infant age of 6 months as many as 4 people (30.8%) in the control group, education the majority of high school mothers were 12 people (92.3%), all mothers did not work in the control and intervention group as many as 10 people (76.9%).

The results of this study are in line with the Timporok research (2018) which states that most respondents do not provide exclusive breastfeeding, namely 44 respondents (61.1%). This is due to the factor of the mother's employment status, causing exclusive breastfeeding not to be carried out. Because mothers work less time to care for their babies, thus allowing mothers not to give exclusive breastfeeding to their babies.

The results of this study are in line with Hubaya et al. (2015) which stated that most of the respondents of the study had completed the level of high school education, totaling 22 people (36.7%). The level of education of the mother will affect the knowledge and ability to understand a condition, this will also affect the attitude and decision-making of the mother in breastfeeding cubs.

Table 2
Differences in Intervention Group Breastfeeding Expenditures

Test	Average	Difference	*p-value*
Pretest	102,31	22,308	0,000
Posttest	124,62		

Source: *Primary Data, 2022*.

Based on table 2, it shows that the paired t-test results in a p-value of 0.000. This means that there is a significant difference in the average breast milk expenditure of intervention group respondents from pretest to posttest ($p<0.05$). The statistical difference can be influenced by the interventions carried out by researchers, namely, respondents received treatment by consuming banana heart nuggets every day.

The results of this study are in line with the research of Rosita et al. (2020) which stated that there was a significant influence of kapok banana heart decoction consumption on breast milk production in breastfeeding mothers at the Saketi Health Center Pandeglang District. Meanwhile, Rustina (2019) mentioned that the results of the Odds Ratio analysis of mothers who consumed banana heart had a 4,750 times greater effect on experiencing an increase in breast milk production.

This is supported by Tjahjani (2014) who stated that the results of the analysis showed the influence of banana heart consumption on the smooth running of breast milk. After banana heart consumption, 80% of respondents were postpartum mothers fluent in breast milk production and obtained a p-value of 0.001. Similar to Noviana's research (2019) in Sampang, East Java which states that there is a difference in breast milk production after consuming banana heart with a p-value of 0.002 ($p<0.05$).

The research conducted by Armin et al. (2021) with the title Nugget heart of Banana in Breast Milk Production and Improving the Performance of Integrated Healthcare Center Cadres in the working area of the Mekar Mukti Health Center developed other products from banana heart by processing banana heart into nugget form of integrated Healthcare Center cadre is trained by health workers so that it can improve the degree of health in the community, especially in nursing mothers. It was concluded that banana heart can increase breast milk production and the demonstration of making banana heart nuggets was well carried out. Breast milk is influenced by food, one of which is banana heart which is useful for increasing breast milk production in postpartum mothers who are breastfeeding.

The chemical content contained in the heart of bananas such as calories, proteins, fats, carbohydrates, vitamin A, vitamin B1, vitamin C and essential minerals such as phosphorus, calcium, and Fe (iron) as well as stimulating the hormones oxytocin and prolactin which will be very helpful in the process of breast milk production.

Table 3
Differences in Control Group Breast Milk Expenditure

Test	Average	Difference	*p-value*
Pretest	93,85	10,77	0,000
Posttest	83,08		

Source: *Primary Data, 2021*.

In table 3, the paired t-test results produce a *p-value* of 0.00 0. This means that there is a significant difference in the average breast milk expenditure of control group respondents from pretest to posttest ($p<0.05$). These statistical differences can be influenced by other factors that affect the smooth production of breast milk in postpartum mothers.

The results of this study are supported by research that analyzes factors that affect the smoothness of breast milk, the research of Dewi Ayu et al., (2019) there is a relationship between the smooth production of breast milk and peace of mind (0.035), nutrition (0.006), rest (0.027), suction of the baby with (0.011), contraceptive use (0.004), breast care (0.000). And according to the results of multivariate or the most dominant factor that tests breast milk production, namely nutrition with the result of OR value = 8.142

One of the factors that can affect breast milk production is the baby's birth weight at birth, this is related to sucking strength, frequency, and duration of breastfeeding. The suction of the baby's mouth will stimulate the hypothalamus gland on the anterior and posterior pituitary parts. The anterior pituitary produces prolactin stimulation to increase the production of the hormone prolactin . This hormone acts on the mammary glands to produce breast milk (Putri & Utami, 2020).

According to the results of observations, the factors that inhibit the production of oxytocin are feelings of fear, anxiety, sadness. If the mother is anxious, there will be obstacles from *the let-down reflex.* This is due to the release of epinephrine which causes vasoconstriction from the blood vessels of the alveoli, so that oxytocin is inhibited to reach the target organs of myoepithelium. As a result of *letting down* imperfect *reflexes*, the flow of breast milk is not optimal, causing breast milk dams and inhibiting oxytocin production.

According to the results of observations, there are several factors that affect the lack of breast milk production; the first, the mother does not carry out early breastfeeding initiation (IMD) resulting in reduced suction reflexes that stimulate expenditure milk production. Secondly, many mothers do not give breast milk and tend to prefer to give formula milk at night, because mothers feel tired so they really mind if they have to breastfeed in at night. In fact, it is at night that the hormone prolactin in the mother's body is quite active. It is this hormone that can trigger the production of breast milk to be much better. Those mothers who tend to refuse to breastfeed their own babies especially in working mothers on the grounds that the milk has little or no discharge at all, And thirdly,

mothers who lack knowledge in routine breast care and cause problems when breastfeeding.

Table 4

Differences in Breast Milk Expenditure of the Two Groups during *Pretest*

Group	Milk production	*p-value*
Intervention	102,30	0,033
Control	93,84	

Source: *Primary Data, 2022*.

In table 4, the results of the independent t-test produce a p-value of 0.033. This meant that there was a significant difference in the average breast milk expenditure of respondents between the intervention group and the control group during pretest ($p < 0.05$).

The absence of differences in breast milk expenditure during the *pretest* between the two groups, one of which can be caused by the similarity of the mother's work, namely as a housewife. Research by Riksani (2011) explains that mothers who do not work have a lot of time to rest, so that mothers are not too tired and will affect hormone production oxytocin and prolactin.

In fact, the more often the baby is smoked, the more milk production will always be produced. If breast milk is not smoked in a day, then its production will temporarily decrease. If the nipple is sucked by the baby, the stimulation will be passed on to the hypothalamus to remove prolactin and oxytocin. Mothers who are not working will find it easier to give breast milk directly to their babies and mothers no longer need to pump breast milk.

The food consumed by nursing mothers greatly affects breast milk production. If the food that the mother eats contains enough nutrients and a regular diet, then breast milk production will run smoothly. In the mother's body there are various substances food necessary to produce breast milk. However, if the mother lacks nutrition for a long period of time, breast milk production will also decrease and eventually stop (Deswita Sari, 2018).

Table 5

Differences in Breast Milk Expenditure of the Two Groups during *Posttest*

Group	Milk production	*p-value*
Intervention	124,61	0,000
Control	83,07	

Source: *Primary Data, 2022*.

Based on table 5, the results of the independent t-test produce a *p-value* of 0.000. This means that there was a significant difference in the average milk expenditure between the intervention group and the control group at the time of *posttest* ($p < 0.05$).

The results of this study are in line with the research of Adayani Boang et.al (2020) which states that there is an influence of banana heart consumption on increasing breast milk production in breastfeeding mothers in Candirejo Village, Regency Deli Serdang. Yusni Igrisa et.al (2021) research explained that banana heart processed into meatballs which is a national food that is much loved by all circles of society gets an average The production of breast milk after giving meatballs increased by 24 ml.

This is supported by Indah Permatasari (2019) which states that the results of the analysis seen from 7 characteristics of; baby tub frequency, baby tub characteristics, baby defecation frequency, baby defecation characteristics, length of time the baby sleeps after feeding, feeding frequency in a day and increase in BB Babies showed the influence of banana heart consumption with a variety of foods in the form of banana heart nuggets, banana heart and banana heart stir-fry. Before being given processed banana heart, the average mother's milk production has not been smooth with a score of 4 out of 7 characteristics and after being given processed banana heart the average milk product of breast milk with The highest score is 7 with a scoring system of >4 from 7 indicators.

Banana heart is a plant that contains lacteous which can stimulate oxytocin and prolactin hormones such as alkaloids, polyphenols, steroids, flavonoids, and other substances that have effectiveness to increase production breast milk. Prolactin reflexes hormonally produce breast milk such stimulation occurs when the baby sucks the mother's breast, will be passed on to the pituitary through the vague nerves, then to the lobe anterior then comes to the glands that make breast milk (Rilyani & Wulandasri, 2020).

Technically, the smoothness of breast milk is influenced by food, one of which is the banana heart which is useful for increasing breast milk production in postpartum mothers because in addition to containing a lot of vitamins banana heart also contains lacteous which serves to stimulate the hormone oxytocin to produce breast milk. When the baby sucks the nipple of the mother's breast, there will be stimulation in the nipple and the mother's areola to produce breast milk.

According to researchers' observations, the use of banana heart in the community has been widely encountered, such as healing wounds, providing a longer feeling of fullness, being used to make vegetables because protein and vitamin content, and can be eaten to facilitate and increase breast milk production. Banana heart processing can be done by boiling, absorbing, steaming

Conclusion

There were significant differences between the intervention group and the control group before and after the intervention of banana heart nugget consumption

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