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The Effect of Giving Carrot Juice and Honey to Pregnant Women in the Third Trimester on the Time of Colostrum Excretion to Increase Breastfeeding Success at Susiani Independent Midwife Practice, Banyuwangi in 2025

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Abstract

Breast milk production should be prepared from pregnancy, especially in the third trimester. Many pregnant women in their third trimester have not yet produced colostrum. This impacts breast milk production in the first week postpartum, thus triggering the use of formula milk. One effort to stimulate colostrum production is by consuming carrot juice and honey. This study aims to determine the effect of giving carrot juice and honey to pregnant women in their third trimester on the timing of colostrum production as an effort to achieve successful breastfeeding at Susiani Independent Midwife Practice Banyuwangi in 2025. This research method uses *a quasi-experimental two-design.* The study used a post-test only with a control design. The population of this study was 60 respondents, 30 of whom were in the intervention group and 30 in the control group, with consecutive sampling as the sampling technique. The intervention was administered and consumed for 7 days, twice a day. The control group was given basic IEC (Information, Education, and Communication) care for the Third Trimester. Normality and homogeneity tests were carried out, and the Levene test obtained normal values , so data analysis used the Independent Samples T-Test. The results showed that the average time for colostrum release in the intervention group was 4.87 days, with the fastest time on day 2 and the longest on day 7. In contrast, in the control group, it was 8.10 days, with the fastest time for colostrum release on day 4 and the longest on day 12. The results of the Independent Samples T-Test with a p value = 0.000 (<0.05), which means that there is an effect of giving carrot juice and honey to pregnant women in the THIRD TRIMESTER on the time for colostrum release as an effort to achieve successful breastfeeding. The results of this study will enable midwives to provide IEC on carrot juice and honey and to implement it as support for successful breastfeeding.

Keywords: Carrot Juice, Colostrum, Excretion, Honey and Pregnancy,

INTRODUCTION

Pregnancy is a condition that occurs when there is fertilisation and fetal development in the uterus. Pregnancy is divided into three stages: I, II, and III. During the third stage of pregnancy, one of the processes that occurs is the process of breast milk production, where the milk produced is called colostrum. Irregular or no breast milk production during the third stage of pregnancy will affect colostrum production. This problem with breast milk production will impact the newborn, as the baby will be deprived of its first food, colostrum. The nutrients contained in colostrum can protect babies and children from pain and infectious diseases, such as otitis media, diarrhoea, and acute lower respiratory tract infections, thus helping to ensure optimal nutritional status. If a newborn is not given colostrum, it may experience problems with its naturally formed immune system.

The World Health Organisation **(**WHO) states that giving colostrum to babies can minimise infant mortality by up to 22% thanks to increased immunity and infection prevention. Breastfeeding that begins within the first hour after birth is important to reduce malnutrition problems worldwide (Kementerian Kesehatan RI, 2019). According to UNICEF (2023), in 2018, less than half of babies in Indonesia were breastfed in the first hour of life, with a percentage of 48.6%; in 2021, it increased to 58.2% 2020. According to Kemenkes (2018), referring to data from the 2018 Basic Health Research (RISKESDAS), it can be seen from the proportion of Early Initiation of Breastfeeding (EIB) colostrum given to babies aged 1-7 days in Indonesia, which is 37.3%.

According to East Java Provincial Health Office data, 78.7% of newborns received EIB in 2023. According to the Banyuwangi Regency Health Profile, 75.9% of 6-month-old babies received exclusive breastfeeding.

Preliminary results at Susiani Independent Midwife Practice showed that many mothers did not experience colostrum during the third trimester. This was reinforced by information provided by the Susiani Independent Midwife Practice, which said that many mothers, especially primiparous mothers, were still in the third trimester without colostrum.

Breast milk production during pregnancy, especially during the third trimester, should be prepared by pregnant women; however, many pregnant women in their third trimester experience little or no milk production. The release of colostrum during the third trimester is one way to prepare for lactation. A baby should get enough breast milk if they nurse every 2-3 hours, or at least 8-10 times a day, during the first two weeks after birth.

According to Aulia Zain's research (2023), carrots (Daucus carota L.) are known as root vegetables, commonly used as soup vegetables, cap-cay, and others. Although apart from being a vegetable, carrots also have health benefits. Carrots are plants believed to contain compounds in beta carotene (provitamin A), alkaloids akonitina, benzoilakonina, akonina

and neopelina. Vitamin A is very helpful for the anterior pituitary glands to stimulate the secretion of the hormone prolactin in the brain epithelium and can activate epithelial cells in the alveoli to store milk in the mammary glands.

Pure honey is a collection of flower nectar. Honey is usually found in hexagonal honeycombs. [8]Honey is a natural, typically sweet liquid produced by bees from the nectar of flowers or other plant parts and the excretions of beneficial, nutrient-rich insects. One substance in honey that can stimulate breast milk production is acetylcholine. [9]Honey has many benefits for humans. Consuming it can also increase breast milk production, driven by its glucose content, a key ingredient in breast milk production. Other benefits for breastfeeding mothers include boosting stamina and providing nutrition.

This study aimed to determine the effect of giving carrot juice and honey to pregnant women in their third trimester on the time of colostrum excretion as an effort to achieve successful breastfeeding at Susiani Independent Midwife Practice Banyuwangi in 2025.

RESEARCH METHODOLOGY

This research was conducted at Susiani Independent Midwife Practice Sukowidi on April 23, 2025 – May 28, 2025, Banyuwangi, using the research method*, quasi-experimental two* with a post-test only research design with control design. The population of this study is all pregnant women in the third trimester with a gestational age of more than 37 weeks, totalling 60 respondents, 30 intervention and 30 control, with the sampling technique using consecutive sampling. Intervention provision was consumed for 7 days, twice daily, at a 200 ml/glass dose. The control group was given basic IEC care for the third trimester. Data collection using the observation sheet method. Normality and homogeneity tests were carried out, and the Levene test obtained normal values , so data analysis used an Independent Samples T-Test.

RESULTS

Table 1 Characteristics of respondents based on age and parity

Characteristics	Mean	Median	Std	Min	Max
Age					
Intervention	27.00	26.00	5,233	17	41
Control	26.07	26.00	4,382	18	36
Parity					
Intervention	2.10	1.00	1,668	1	5
Control	1.73	2.00	1,015	1	5

Source: Primary Data 2025

Table 1 shows that the average age characteristics in the intervention group were 27 years old, with the youngest being 17 years old and the oldest being 41 years old. In the control group, the average age was 26, with the youngest being 18 and

the oldest being 36. Furthermore, regarding parity characteristics, the intervention group had an average of 2 children, and in the control group, one child, with each group having a minimum of 1 child and a maximum of 2 children.

Table 2 Characteristics of respondents based on education and nutritional status

Characteristics	Intervention N: 30 (%)	Control N: 30 (%)
Education		
Base	4 (14%)	1 (3%)
High Intermediate	25 (84%)	27 (90%)
	1 (4%)	2 (7%)
Nutritional status: Thin, Normal		
More Obese	3 (10%)	1 (3%)
	16 (54%)	20 (67%)
	8 (27%)	8 (27%)
	3 (10%)	1 (4%)
Total	30 (100%)	30 (100%)

Source: Primary Data 2025

Regarding educational characteristics, almost all respondents in both groups had secondary education, namely 25 respondents (84%) in the intervention group and 27 respondents (90%) in the control group. The lowest education level was in elementary school, and the highest was in S1 (Bachelor). The final characteristic of nutritional status, in normal nutritional status, was observed in most of them in both groups, namely 16 respondents (54%) in the intervention group and 20 respondents (67%) in the control group. The lowest nutritional status score was 17 and the highest was 40 in the intervention group, while in the control group, the lowest was 17.8 and the highest was 31.3.

Table 3 Normality and Homogeneity Tests

Indicator	Normality		Homogeneity
	Sig.	Information	
Intervention	0.180 > 0.05	Normal	0.053 (homogeneous)
Control	0.200 > 0.05	Normal	

Source: Primary Data 2025

Table 3 shows that the normality test for the intervention group data has a Sig value of 0.180, which means ≥ 0.05. Referring to the intervention group data, it is said to be normal. The homogeneity test is normal if the p-value is ≥ 0.05; then the data from two or more groups are said to be homogeneous. The table above shows the data results with a Sig value of 0.053 ≥ 0.05; therefore, the two groups are said to be homogeneous because the requirement for a T-test is a Sig value ≥ 0.05, so this study uses the T-test.

Table 4: Independent T-test

Characteristics	Mean	Median	Std	Min	Max
Age					
Intervention	27.00	26.00	5,233	17	41
Control	26.07	26.00	4,382	18	36
Parity					
Intervention	2.10	1.00	1,668	1	5
Control	1.73	2.00	1,015	1	5

Source: Primary Data 2025

Table 4 indicates that most respondents experienced colostrum discharge on the fourth day for more than 8 hours. With the fastest colostrum discharge on the second day and the longest on the seventh day. While in the control group, the average colostrum discharge time was 8.10 days, indicating that most respondents experienced colostrum discharge on the 8th day for more than 10 hours, with the fastest colostrum discharge on the 4th day and the longest on the 12th day. The results of the T-test obtained a Sig value of 0.000 ≤ 0.05, a significant difference was found between the control and intervention classes, so giving carrot juice and honey to pregnant women in the third trimester can accelerate the time of colostrum discharge after delivery.

DISCUSSION

1. **Excretion Time in the Third Trimester Pregnant Women to Increase Breastfeeding Success at Susiani Independent Midwife Practice, Banyuwangi, in 2025, in the Intervention Group**

Referring to the results of a study on the intervention group with 30 participants at Susiani Independent Midwife Practice Banyuwangi in 2025, data was obtained that the average time for colostrum production in the intervention group was 4.87 days indicating that most respondents experienced colostrum production on the 4th to fifth day, with the fastest colostrum production on the second day and the longest on the seventh day. Carrot juice and honey were administered for 7 days, drunk in the morning and evening, as much as 200ml per glass.

Breast milk production in mothers under 35 tends to be higher than in older mothers. However, breast milk production in young mothers under 20 years of age is also considered lower because it is based on their level of maturity. This is consistent with research results, where age characteristics show that younger women of reproductive age (20–35) tend to experience faster colostrum production than older mothers. At reproductive age, a woman's body is physically and hormonally mature for pregnancy and breastfeeding. Mammary gland function and response to lactation hormones such as prolactin and oxytocin are optimal, resulting in faster colostrum production and release.

Meanwhile, metabolic efficiency and nutritional status are generally better at a young age, so colostrum production and release occur more efficiently. Conversely, undernutrition or being overweight can slow this process in older age. A mother's education can influence colostrum production; the higher the education level, the more likely the mother is to care about how she will try to produce her milk. Multigravida and grand multigravida mothers also affect colostrum production. Where mothers already have previous breastfeeding experience, it is hoped that mothers with repeated pregnancies can be stimulated and care about breastfeeding preparation. This also applies to primiparous mothers; they may produce colostrum faster than mothers with repeated pregnancies, supported by the interventions provided by researchers. The nutritional status of pregnant women or BMI can be seen when the mother has her first ANC. Mothers with a normal BMI (18.5-24.9) are more likely to produce colostrum quickly. This is because the mother has sufficient nutrition during pregnancy, so the mother's nutrition is good and can trigger colostrum to come out quickly.

2. **1. Colostrum Excretion Time in the Third Trimester Pregnant Women to Increase Breastfeeding Success at Susiani Independent**

Midwife Practice, Banyuwangi, in 2025 in the Control Group

Referring to findings on the control group at Susiani Independent Midwife Practice Banyuwangi in 2025, it was 8.10 days. In the control group, the average colostrum production occurred on the eighth day after giving informed consent. This average figure indicates that, in general, mothers who did not receive intervention took more than a week to begin producing colostrum after giving birth. Collusm production occurs as early as the 4th day and as late as the 12th day, which indicates a significant difference between individuals in the colostrum production process.

Primigravida mothers have never experienced lactation before, which is due to their first pregnancy, and they are less confident in their breastfeeding abilities compared to multigravida and grande multigravida mothers. Previous breastfeeding experience in mothers with repeated pregnancies strengthens their confidence and skills. This is in line with the results of the researcher's study, which found that the control group of 14 respondents (47%) were primigravida with the longest delivery on the 11th day, indicating mothers with first pregnancies lack experience. Breast milk production in multigravida and grande multigravida mothers tends to be smoother because the mammary glands have been trained from previous pregnancies. In contrast, the mammary glands in primiparous mothers are still untrained in their first pregnancy, so support is needed to produce colostrum. One way to accelerate colostrum production is by fulfilling nutrition during pregnancy by consuming foods that can stimulate the mammary glands to produce breast milk. Carrot juice and honey are among the foods that can stimulate colostrum production due to their various ingredients.

3. **Giving Carrot Juice and Honey to Pregnant Women in the Third Trimester to Increase Breastfeeding Success at Susiani Independent Midwife Practice, Banyuwangi, in 2025**

Based on the findings in Table 5.2, a significant difference was found between the intervention and control group regarding the time of colostrum excretion in pregnant women in the third trimester at Susiani Independent Midwife Practice Banyuwangi in 2025. In the intervention group, the average time of colostrum excretion was recorded at 4.87 days, with the fastest colostrum excretion on day 2 and the longest on day 7. This shows that most mothers who received the intervention of carrot juice and honey could excrete colostrum on days 4 and 5. In contrast, in the control group, the average time of colostrum excretion was 8.10 days, with the fastest colostrum excretion on day 4 and the longest on day 12.

The statistical analysis results using the Independent Samples T-Test found a p value = 0.000 (<0.05), indicating a significant

difference between the two groups. The average colostrum production time between the intervention and control groups was -3.233 days with a 95% confidence interval ranging from 4.231 to -2.236. This negative value indicates that the intervention group needed a shorter time to start producing colostrum than the control group. The intervention group showed significantly better results than the control group, with a longer average time. Giving carrot juice and honey has been proven effective in accelerating the process of colostrum production, which is supported by a lower average time and a faster time span. Therefore, providing nutritional education and interventions to pregnant women in their third trimester is highly recommended to increase the success of early breastfeeding and support the exclusive breastfeeding program.

In a study by Mei Winarni et al. (2021), the intervention involved administering carrot juice mixed with honey to breastfeeding mothers experiencing problems with breast milk flow. This juice was administered for 7 days, with each mother consuming two glasses daily, 200 ml each in the morning and evening. To make the juice, 200 grams of carrots, 100 ml of boiled water, and honey to taste were used. This research is supported by a study by Gusti Ayu et al. (2020) in which an intervention in the form of extracted and filtered carrot juice was given to postpartum mothers breastfeeding their babies aged 0-6 months. The content of carrots is suitable for breast milk production. This shows that the content of carrot juice is excellent for pregnant women to accelerate colostrum production.

One of the benefits of carrot juice for pregnant and breastfeeding mothers is that it can increase breast milk production and facilitate breast milk production. The vitamin A content in carrots is beneficial in stimulating the anterior pituitary to stimulate the secretion of the hormone prolactin in the brain epithelium. It can activate epithelial cells in the alveoli to store milk in the mammary glands. The content of honey is very beneficial for humans. Honey can also increase breast milk production because glucose can be used as a basic ingredient in forming breast milk. Giving carrot juice and honey to the intervention group for 7 days with regular consumption twice daily, drunk in the morning and evening as much as 200ml/glass, is expected to produce colostrum before pregnancy.

Based on the research results and analysed data, the researcher concluded that regular and appropriate carrot juice and honey doses are beneficial. This is supported by the fact that pregnant women in their third trimester are of reproductive age, parity, high maternal education, and normal nutritional status. The results indicate that giving carrot juice and honey to pregnant women in their third trimester affects the timing of colostrum production, an effort to achieve successful breastfeeding at the Susiani Independent Midwife Practice in 2025.

CONCLUSION

1. The average colostrum output in

the intervention group was 4.87, with the fastest on the second day and the longest on the seventh day.
2. The average colostrum output in the control group was 8.10, with the fastest colostrum output on the 4th day and the longest on the 12th day.
3. There is an effect of giving carrot juice and honey to pregnant women in the third trimester on the time of colostrum excretion as an effort to achieve successful breastfeeding at Susiani Independent Midwife Practice Banyuwangi in 2025, with a Sig value of p=0.00<0.05.

SUGGESTION

1. For Pregnant Women

   It is recommended that pregnant women in their third trimester consume carrot juice and honey during their subsequent pregnancies. They can also inform other pregnant women about this to speed up colostrum production and facilitate the breastfeeding process.
2. For Susiani Independent Midwife Practice

   Susiani Independent Midwife Practice recommends that the results of this study be used as a reference in providing counselling to pregnant women in their third trimester, especially in preparing for breastfeeding during the postpartum period and breastfeeding, regarding the consumption of carrot juice and honey to accelerate the production of colostrum to facilitate the breastfeeding process.
3. For the Banyuwangi Health College Institution

   Campuses are advised to develop a curriculum that includes postpartum midwifery and breastfeeding care or complementary care that can be provided to pregnant women in their third trimester regarding the consumption of nutritious foods that can accelerate the production of colostrum to make the breastfeeding process easier.

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