

THE EFFECT OF CONSUMPTION OF MORINGA LEAF EXTRACT ON INCREASING BREAST MILK PRODUCTION IN POST PARTUM WOMEN

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ABSTRAK

Latar Belakang: Produksi ASI yang sedikit dan tidak lancar dapat membuat bayi mendapat nutrisi yang kurang optimal. Hal ini dipengaruhi oleh nutrisi ibu. Salah satu nutrisi yang dapat dikonsumsi ibu yaitu tanaman kelor karena mengandung senyawa fitosterol yang berfungsi meningkatkan dan memperlancar produksi ASI (efek laktogogum). Cakupan ASI eksklusif berdasarkan hasil data yang didapatkan dari Kesgazi Puskesmas Pakuan Aji pada persalinan tahun 2022 yaitu hanya mencapai 45,5% dari standar pelayanan minimal kabupaten sebesar 50%.

Tujuan: Tujuan penelitian untuk mengetahui pengaruh konsumsi ekstrak daun kelor terhadap peningkatan produksi ASI pada ibu post partum di Wilayah Kerja Puskesmas Pakuan Aji Lampung Timur tahun 2023.

Metode: Jenis penelitian ini adalah kuantitatif, rancangan penelitian Quasi Eksperimental dengan pendekatan post test only with control group design. Populasi pada penelitian ini adalah seluruh ibu post partum di wilayah kerja Puskesmas Pakuan Aji sebanyak 53 orang. Teknik sampel yang digunakan purposive sample dengan jumlah responden sebanyak 32 orang (16 kelompok kontrol dan 16 kelompok intervensi). Analisis data yang digunakan yaitu analisa univariat dan bivariat dengan uji T independen.

Hasil: Rata-rata jumlah ASI pada kelompok kontrol sebelum intervensi sebanyak 19,238 dan sesudah intervensi sebanyak 23,369 ml. Rata-rata jumlah ASI pada kelompok intervensi sebelum intervensi sebanyak 19,913 dan sesudah intervensi sebanyak 26,594 ml.

Kesimpulan: Hasil uji t Independen mendapatkan p-value 0,000 yang berarti ada pengaruh konsumsi ekstrak daun kelor terhadap peningkatan produksi ASI di Wilayah Kerja Puskesmas Pakuan Aji Lampung Timur tahun 2023.

Saran: Diharapkan dengan dilakukan penelitian ini dapat meningkatkan pengetahuan dan kesadaran bagi ibu dalam meningkatkan kualitas ASI eksklusif dan meningkatkan produksi ASI dengan ekstrak daun kelor.

Kata Kunci: Produksi ASI, Ibu Nifas, Ekstrak Daun Kelor

ABSTRACT

Background: Production of breast milk that is small and not smooth can make the baby get less than optimal nutrition. This is influenced by the mother's nutrition. One of the nutrients that can be consumed by mothers is the Moringa plant because it contains phytosterol compounds which function to increase and facilitate milk production (lactogogum effect). Exclusive breastfeeding coverage based on the results of data obtained from Kesgazi Pakuan Aji Public Health Center at delivery in 2022, namely only reaching 45.5% of the district minimum service standards of 50%.

Purpose: The aim of the study was to determine the effect of consuming Moringa leaf extract on increasing breast milk production in post partum mothers in the Working Area of the Pakuan Aji Public Health Center, East Lampung, in 2023.

Methods: This type of research is quantitative, a quasi-experimental with a post test only with control group design. The population in this study were all post partum mothers in the working area of Pakuan Aji Public Health Center, totaling 53 post partum mothers. The sample technique used was a purposive sample with a total of 32 post partum mothers divided into 16 control groups and 16 intervention groups. The data analysis used was univariate and bivariate analysis with the independent T test.

Results: The mean of amount of breast milk in the control group before the intervention was 19,238 and after the intervention was 23,369 ml. The mean of amount of breast milk in the intervention group before the intervention was 19,913 and after the intervention was 26,594 ml.

Conclusion: Independent t test obtained p-value $0.000 < \alpha (0.05)$, which means that there was an effect of

consumption of Moringa leaf extract on increasing of breast milk production in the Pakuan Aji Public Health Center East Lampung in 2023.

Suggestions: It is hoped that this research can increase knowledge and awareness for mothers in improving the quality of exclusive breastfeeding and increasing breast milk production with Moringa leaf extract.

Keywords: Breast Milk Production, Postpartum Mothers, Moringa Leaf Extract

INTRODUCTION

Exclusive breastfeeding, based on Government Regulation Number 33 of 2012 concerning exclusive breastfeeding, is breast milk given to babies from birth for six months without adding or replacing it with other foods or drinks (except medicines, vitamins, and minerals). Breast milk contains colostrum, which is rich in antibodies because it contains high amounts of protein for immunity and germ killers, so exclusive breastfeeding can reduce the risk of death in infants. Nationally, the coverage of exclusive breastfeeding in 2020 will be 66.06%. This figure has exceeded the 2020 Strategic Plan target of 40% (Ministry of Health of the Republic of Indonesia, 2021).

Breast milk is a source of nutritional intake for newborns and is exclusive breastfeeding because it is given to babies aged 0-6 months. In this phase, proper attention must be paid to the provision and quality of breast milk so that it does not interfere with the developmental stages of your little one during the first six months from the first day of birth, considering that this period is the golden period of child development until the age of second years. Nationally, the coverage of babies receiving exclusive breastfeeding in 2021 will be 56.9%. This figure has exceeded the 2021 programme target of 40% (Ministry of Health of the Republic of Indonesia, 2022).

According to Basic Health Research 2018, 52.5%-or only half of the 2.3 million babies aged less than six months, are receiving exclusive breastfeeding in Indonesia, or a decrease of 12% from the 2019. The rate of initiation of breastfeeding also decreased from 58.2% in 2019 to 48.6% in 2021. Early and exclusive breastfeeding is very important for a child's survival and to protect them from various diseases to which they are susceptible and which can be fatal, such as diarrhoea and pneumonia. Evidence shows that children who receive breast milk have higher intelligence test results (WHO, 2022).

According to data from the World Health Organization and UNICEF, in 2013–2018, 48% of newborns started breastfeeding within one hour of birth. Only 44% of babies under six months of age are exclusively breastfed. While 68% of women

continued to breastfeed their babies for at least one year, by age two, the breastfeeding rate had fallen to 44%. The collective targets for this global level by 2030 are 70% for initiation within the first hour, 70% for exclusive breastfeeding, 80% for one year, and 60% for two years. Therefore, countries' efforts to meet the target level of breastfeeding should be strengthened (UNICEF, 2021).

Based on the performance report of the Lampung Health Office (2021), the analysis of the failures that caused the achievements of 6-month-old babies to receive exclusive breastfeeding, namely: 1). There are still trained staff who have not carried out breastfeeding counselling and socialised it with their colleagues in their work area. 2). It is difficult to change habits and dispel myths in society. 3). There is still formula milk for babies 0–6 months available in health facilities, both government and private. 4). There are still government and private health facilities that have not implemented 10 Steps to Successful Breastfeeding. 5). There is no supervision regarding Regional regulations regarding breast milk number 17 of 2016 and the governor's regulation regarding exclusive breastfeeding number 10 of 2016 (Lampung Health Office, 2021).

Factors that cause breastfeeding failure include misunderstandings about colostrum, which can cause diarrhoea in babies, the perception that breast milk is insufficient or has not come out in the first few days, and other factors, namely that small breasts are considered to produce less milk (Pollard 2016). Fitria (2012) and Sinaga (2015) stated that a mother's nutrition and fluids also affect milk production. These factors can result in a decrease in stimulation of the lactation hormone and inhibit milk production.

One of the nutrients that can be consumed by postpartum mothers is the Moringa plant, that is a local food ingredient that has the potential to be developed by breastfeeding mothers. It contains phytosterol compounds that function to increase and facilitate milk production. Theoretically, compounds that have a lactagogue effect include sterols (steroid group) (Zakaria, 2016).

The production of breast milk for each mother is different, this is because it is not only

influenced by the consumption of Moringa leaf extract but also caused by other factors, such as the different nutrients consumed by mothers, which affect milk production in the postpartum. It is recommended for breastfeeding mothers to increase milk production by consuming Moringa leaf extract in addition to daily food such as clear vegetables, ointment, or other menus according to the needs of the mother, so that it is expected to increase exclusive breastfeeding until the baby is 6 months (Safarringga & Putri, 2021).

According to previous research by Sormin (2018), Moringa leaves are one of the green vegetable trees that grow a lot in Asia, including in Indonesia. Moringa leaves contain macro and micronutrients such as protein, Fe, vitamin A, vitamin C, and beta-carotene, which are in accordance with the WHO's recommended daily intake to meet the nutritional needs of the body. The content of 100 grammes of dried Moringa leaves contains vitamin A (10 times more than carrots), vitamin C (12 times more than oranges), calcium (17 times more than bananas), iron (25 times more than spinach), a and protein (9 times more than yoghurt).

Based on the results of the data obtained from Kesgazi Pakuan Aji Public Health Centre, the number of postpartum was 53 mothers. There were 32 postpartum mothers who experienced problems with non-fluent breastfeeding. In the working area of the Pakuan Aji Public Health Centre, there are many Moringa trees growing, so that postpartum mothers already understand that Moringa leaves can

increase milk production, but not all understand that Moringa leaves can be made into capsule-shaped extracts that make it easier for mothers to consume them. It is also useful for increasing the production of breast milk for mothers whose milk is not smooth.

Based on the phenomena that occur above, the author wants to conduct research on "The Effect of Consumption of Moringa Leaf Extract on Increasing Breast Milk Production in Postpartum in the Working Area of the Pakuan Aji Public Health Centre, East Lampung in 2023.

RESEARCH METHODS

This type of research is quantitative, used quasi-experimental with a two-group pre-test and post-test group design. The population in this study was all post partum mothers, totaling 53 postpartum mothers. The sample in this study were 32 post partum mothers who experienced non-fluent breastfeeding problems which were divided into 2 groups, namely 16 postpartum mothers in the intervention group and 16 postpartum mothers in the control group used an accidental sampling technique. In the intervention group, they were given the consumption of Moringa leaf extract at a dose of 500 mg/capsule for seven days. Repeated measurements were carried out on the eighth day. In the control group, the same treatment was carried out before and after, namely measuring breast milk volume. The research was conducted in the working area of the Pakuan Aji Public Health Centre East Lampung in July 2023. Data analysis used univariate and bivariate with independent t-test.

RESEARCH RESULTS

Table 1
Characteristics of Intervention Group in the Working Area of Pakuan Aji
Public Health Centre East Lampung 2023

Characteristics	Frequency (n)	Percentage (%)
Mother's Age		
21-29 years	10	62,7
32-35 years	6	37,3
Mother's Job		
Housewife	13	81,3
Government employees	3	18,8
Mother's Education		
Bachelor	3	18.8
Elementary School	4	25.0
Senior High School	4	25.0
Junior High School	5	31.3
Parity		
Multipara	6	37.5
Primipara	10	62.5

Child Gender		
Male	6	37.5
Female	10	62.5

It can be seen majority in the control group based on mother's age postpartum with the most age categories, namely 21-29 years of age, as many as 10 respondents (62.5%), housewives as many as 13 respondents (81.3%), junior high school

as many as 5 respondents (31.3%), primipara as many as 10 respondents (62.5%), the sex of the most children, namely women, as many as 10 respondents (62.5%).

Table 2
Characteristics of Intervention Group in the Working Area of Pakuan Aji Public Health Centre East Lampung 2023

Characteristics	Frequency (n)	Percentage (%)
Mother's Age		
21-29 years	10	62,7
33-35 years	6	37,3
Mother's Job		
Housewife	13	81.3
Government employees	3	18.8
Mother's Education		
Bachelor	3	18.8
Elementary School	3	18.8
Senior High School	5	31.3
Junior High School	5	31.3
Parity		
Multipara	5	31.3
Primipara	11	68.8
Child Gender		
Male	6	37.5
Female	10	62.5

lit can be seen majority in the intervention group based on mother's age, namely 21-29 years as many as 10 respondents (62.5%), housewives as many as 13 respondents (81.3%), junior and senior high school as many as 5 respondents (31.3%), primipara as many as 11 respondents (68.8%) and the sex of the child the most were

women as many as 10 respondents (62.5%).

Univariate Analysis

It can be seen that the mean volume of breast milk expenditure in the control group before was 19,238 ml and after was 23,369 ml.

Table 3
Mean Score of Volume of Breast Milk Expenditures in the Control Group in the Working Area of Pakuan Aji Public Health Centre East Lampung 2023

Group Control	N	Mean	SD	SE	Min	Max
Before	16	19,238	1,0984	0,2746	17,0	21,2
After		23,369	1,9458	0,4865	20,0	25,6

Table 4
Mean Score of Volume of Breast Milk Expenditures in the Intervention Group in the Working Area of Pakuan Aji Public Health Centre East Lampung 2023

Group Intervention	Mean	SD	SE	Min	Max
Before	19,913	1,1575	0,2894	18,0	22,5
After	26,594	0,9007	0,2252	23,4	26,7

It can be seen that the mean volume of breast milk expenditure in the intervention group before was 19,913 ml and after was 26,594 ml.

Normality Test

It can be concluded that the data for the two groups, namely the intervention group and the control group, were both normally distributed.

Table 5
Normality Test

Group	p-value	Information
Control (before)	0,888	Normal
Control (after)	0,456	Normal
Intervention (before)	0,215	Normal
Intervention (after)	0,128	Normal

Bivariate Analysis

Bivariate analysis used a dependent sample t-test, and then an independent test was carried out to determine the effect of consuming Moringa leaf

extract on increasing breast milk production in postpartum and to determine the differences between the control and intervention groups.

Table 6
The Effect of Consumption of Moringa Leaf Extract on Increasing Breast Milk Production in Postpartum in the Working Area of the Pakuan Aji Public Health Centre East Lampung 2023

Intervention	Mean	SD	SE	t	p-values	CI-95%
Before	19,913	1,1575	0,2894	-16,111	0,000	-6,4329-4,9296
After	26,594	0,9007	0,2252			

It can be concluded that there was an effect of consumption of Moringa leaf extract on increasing breast milk production in postpartum.

It can be concluded that there was difference

between before and after control on breast milk production in postpartum mothers in the working area of the Pakuan Aji Public Health Centre East Lampung 2023.

Table 7
Breast Milk Production in Post Partum Mothers in Control Group in the Work Area of Pakuan Aji Public Health Center East Lampung 2023

Control	Mean	SD	SE	t	p-values	CI-95%
Before	19,238	1,0984	0,2746	-13,488	0,000	-4,7841-3,4784
After	23,369	1,9458	0,4865			

Table 8
Effect of Monitoring (Control Group) and Consumption of Moringa Leaf Extract (Intervention Group)
on Increasing Breast Milk Production in Postpartum Mothers in the Work Area
of the Pakuan Aji Public Health Center East Lampung 2023

Breast milk production	N	F	P value
Before – After Control Group	16	4,131	0,000
Before – After Intervention Group	16	6,681	

It can be concluded that the mean difference of 4.131 ml in the intervention group and 6.681 ml in the control group. The results of a p-value of 0.000, which means that there was a difference in the consumption of Moringa leaf extract on increasing breast milk production in postpartum mothers and in groups that are only given monitoring. It can be concluded that there was a difference in volume of breast milk in the control and intervention group after treatment.

DISCUSSION

The results of a p-value of 0.000, which means that there was a difference in the consumption of Moringa leaf extract on increasing breast milk production in postpartum mothers and in groups that are only given monitoring. It can be concluded that there was a difference in volume of breast milk in the control and intervention group after treatment.

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Based on the characteristics of the respondents, the results showed that in the control and intervention groups, the production of breast milk produced by several mothers was dissimilar because there were several factors that caused breast milk production to decrease. This factor was mother's age, where in mother's age those who gave birth were more than 30 years old. This is because the mother says there is a lack of nutritional intake and she has given birth several times, so the production of breast milk produced is less than optimal. Education and mother's job factors also influence breast milk production, where working mothers will feel more tired, so the breast

milk they produce is disrupted, and sometimes after a 3-month leave period, the mother stops giving breast milk exclusively for the reason that she forgot to pump breast milk and the availability of breast milk, which is lacking when not yet working. Mother's education is also able to influence breast milk production, where education is a forum or source of mother's knowledge about how to consume food to increase breast milk production or how to breastfeed her baby properly and correctly. The increase in breast milk volume occurs more frequently in postpartum mothers in the first and second weeks. Apart from that, parity also affects breast milk production, with primipara mothers producing less breast milk than multipara. Multipara usually produce more breast milk than primipara. This is influenced by personal breastfeeding experience, which is the main source of knowledge and the development of breastfeeding skills.

Based on the results of the control group research that was carried out, it showed that there was a difference in the average breast milk production before and after the control monitoring, where the average volume of breast milk excretion before was 19,238 ml and the average after was 23,369 ml. From these results, it can be seen that the difference in results before and after is not too high, which shows that if the mother does not consume enough nutrition, which can increase breast milk production, the breast milk produced will decrease and will not be enough for the baby's needs.

. Based on the results of the intervention group, it showed that there was a difference in the mean of breast milk production before and after consuming Moringa leaf extract. Where the mean of volume of breast milk production before was 19,913 ml and after was 26,594 ml. These results showed that there was an optimal increase after being given Moringa leaf extract can help breast milk production.

The results that has been carried out showed differences in the control and intervention group, which was less than optimal, where the control

group, which was not given Moringa leaf extract, also experienced an increase in breast milk production. This could be due to not monitoring or not limiting food consumption, so that in the control group there was some mothers consumed foods that stimulated breast milk production so that milk production increased, but the increase was greater than in the intervention group.

According to researchers' assumptions, each mother's breast milk production is different. This is because it is not only influenced by the consumption of Moringa leaf extract but also caused by other factors such as the nutrition consumed by breastfeeding mothers. So mothers who are breastfeeding their babies must receive additional food to avoid deterioration in the production of breast milk. If the mother's diet consistently does not meet adequate nutritional intake, of course the milk-making glands in the mother's breasts will not work perfectly and will ultimately affect breast milk production.

According to researchers' assumptions, giving Moringa leaf extract can increase breast milk production in postpartum, with an increase before and after treatment. It can be concluded that consuming Moringa leaf extract has been proven to increase breast milk production in breastfeeding mothers. This means that regular consumption of Moringa leaves for one week has been proven to increase breast milk production in breastfeeding. Moringa leaves contain alkaloids, flavonoids, steroids, terpenoids, tannins, saponins, carbohydrates, glycosides, and sugar. Moringa also contains phytosterols, which function to increase and facilitate breast milk production.

According to the researcher's assumption, breast milk production is greatly influenced by the food the mother eats. If the mother's food is regular and contains enough of the necessary nutrients, it will affect breast milk production. The glands that make breast milk cannot work perfectly without sufficient food. To produce good breast milk production, the mother's diet must contain sufficient calories, protein, fat, vitamins, and minerals. Apart from that, postpartum mothers must know how to overcome the problem of adequate breast milk, namely by using local plants such as Moringa leaves because they contain phytosterol compounds including campesterol, stigmasterol, and sitosterol, which are lactogogum and can increase breast milk production. Moringa leaves, which can be made into powder or Moringa leaf extract, are galactagogues that are effective in increasing the volume or production of breast milk and are able to meet the adequacy of breast milk.

RESEARCH LIMITATIONS

In the research that has been carried out, there are limitations, namely that the production of breast milk does not match the results expected by the researchers. This is because in the research, the researchers did not limit the mother's food consumption and could not control this, so when post-intervention and control were carried out, the mother said she consumed foods high in nutrients, which contain folic acid, and consumed green vegetables every day because of family advice, or because it is a tradition in rural areas where postpartum mothers are advised to consume vegetables to increase breast milk.

CONCLUSION

The mean of volume of breast milk expenditure (before) in control group was 19.238 ml (SD was 1.0984; SE was 0.2746; minimum was 17.0 ml; maximum was 21.2 ml). Meanwhile, the mean of volume of breast milk expenditure (after) in control group was the mean value after control was 23.369 ml (SD was 1.9458; SE was 0.4865; minimum was 20.0 ml; maximum was 25.6 ml). The mean of volume of breast milk expenditure (before) in intervention group was 19.913 ml (SD was 1.575; SE was 0.2894; minimum was 18.0 ml; maximum was 22.5 ml). Meanwhile, the mean of volume of breast milk expenditure (after) in intervention group was 26.594 ml (SD was 0.9007; SE was 0.2252; minimum was 23.4 ml, maximum was 26.7 ml).

It can be concluded that the mean difference of 4.131 ml in the intervention group and 6.681 ml in the control group. The results of a p-value of 0.000, which means that there was a difference in the consumption of Moringa leaf extract on increasing breast milk production in postpartum mothers and in groups that are only given monitoring. It can be concluded that there was a difference in volume of breast milk in the control and intervention group after treatment.

SUGGESTION

It is hoped that this research can increase knowledge and awareness for mothers about improving the quality of exclusive breast milk and increasing breast milk production with Moringa leaf extract and can help increase mothers' awareness of the importance of providing sufficient breast milk for their babies.

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