

The Effect of Moringa Leaf Tea (*Moringa oleifera*) on Breast Milk Production in 0-6 Months Breastfeeding Mothers

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Input : January 05, 2025
Accepted : February 05, 2025

Revised : January 18, 2025
Published : February 28, 2025

ABSTRACT

Moringa leaves contain various nutrients and phytochemical sources. Low micronutrients consumed by breastfeeding mothers will affect the ability to provide breast milk with sufficient micronutrient content for infant growth. The number of breastfeeding mothers in Indonesia has decreased significantly. According to WHO data, exclusive breastfeeding is globally 44% (2020), in Indonesia 67.96% (2022), West Java 80.08% (2023) and Bogor City 42.50% (2021). Therefore, WHO and UNICEF are trying to promote and support breastfeeding. Many factors cause low breastfeeding in infants, including lack of breast milk production. Moringa leaves are one of the herbal plants that contain steroids and phytosterols which play a role in increasing and facilitating breast milk production. To determine the effect of giving Moringa oleifera leaf tea on breast milk production in breastfeeding mothers aged 0-6 months at PMB E, Bogor City in 2024. This type of research is quantitative with a pre-experimental design with the One group pretest posttest design method. The number of samples in this study was 17 breastfeeding mothers aged 0-6 months at PMB E, Bogor City. The sampling technique used was accidental sampling. Data analysis using the Wilcoxon Signed Rank Test and obtained the average rank of breast milk production before and after the intervention, namely negative rank = 0, positive rank = 16 and ties = 1. Statistical tests obtained a Z value of -3.559 and an Asymp. Sig. (2-tailed) value = 0.000 < α 0.05. There is an effect of giving Moringa oleifera leaf tea on increasing breast milk production in breastfeeding mothers aged 0-6 months at PMB E, Bogor City in 2024.

Keywords : *moringa leaf tea, breast milk production, breastfeeding mothers*

INTRODUCTION

Breast milk (breast milk) is a very important source of nutrients for the baby, especially in the first 6 months of life. Breast milk contains all the nutrients a baby needs to grow and develop optimally, as well as providing immunological protection against various diseases. In Indonesia, although the number of exclusive breastfeeding continues to increase, it still has not reached the expected target. According to data from the Ministry of Health, only about 52.5% of babies

aged 0-6 months were exclusively breastfed in 2021, a decrease from 64.5% in 2018.

One of the main factors affecting low exclusive breastfeeding is the lack of milk production in nursing mothers. Inadequate milk production often makes mothers feel anxious and not confident in giving milk to their babies. Several studies have shown that nutritional factors, stress, and maternal health conditions play an important role in milk production. In such a situation, effective intervention is necessary to increase milk production.

Moringa leaves (*Moringa oleifera*) have long been used in traditional medicine to increase milk production. The content of phytochemicals such as flavonoids, saponins, and alkaloids in moringa leaves is known to have a lactogogum effect, which can stimulate the production of prolactin and oxytocin hormones that play a role in breast milk production. In addition, moringa leaves are also rich in essential nutrients such as vitamin A, vitamin C, calcium, iron, and protein, all of which support the health of nursing mothers and the quality of breast milk produced.

Various studies have shown that consumption of moringa leaves significantly increases milk production. Research conducted in the Philippines showed that mothers who consumed moringa leaves had a higher volume of breast milk compared to the control group. In addition, Indian studies have shown that mothers who consumed moringa leaf soup showed significant increases in milk production, as well as improvements in hemoglobin levels and overall nutritional status.

This study aims to examine the effect of moringa leaf tea on breast milk production in breastfeeding mothers 0-6 months in Indonesia. With the results obtained from this study, it is hoped that it can provide strong scientific evidence on the benefits of moringa leaves in increasing milk production, as well as providing practical recommendations for breastfeeding mothers and health workers in supporting exclusive breastfeeding.

METODOLOGI

This type of research is quantitative research that uses data in the form of numbers to describe population conditions or future trends and allows for generalization of the results using statistical analysis.³⁷ the approach used is pre-experimental design (Pre experimental Design) with one group pretest posttest design method. Pre-experimental design is a type of research that is carried out without the use of comparison groups. While the one group pretest posttest design method is a study conducted in one group with two measurements before and after treatment.³⁸ in this study, respondents were treated by giving moringa leaf tea (*Moringa oleifera*) to nursing mothers 0-6 months to be consumed twice a day in the morning and evening for 7 days.

Table 1 one group pretest posttest design

Group	Pretest	Perlakuan	Posttest
Eksperimen	O1	X	O2

Description:

O1 : before the treatment is given (pretest)

X : treatment given (treatment)

O2 : after treatment (posttest)

This study involved a population consisting of all breastfeeding mothers 0-6 months totaling 41 people. The sample of this study was part of a population that had similar characteristics and amounted to 17 people who met the inclusion criteria, selected by accidental sampling technique. Inclusion criteria include nursing mothers 0-6 months who are willing to become respondents of the study. This research was carried out at PMB E Bogor City, West Java province, from April to August 2024. In May, secondary data collection was carried out from the Register of breastfeeding mothers in PMB E Bogor City, while primary data collection was carried out in June with the distribution of questionnaires and moringa leaf tea interventions for 7 days. Data processing and analysis and conclusions were carried out in July 2024.

RESULT

This study was conducted in 2024 at PMB E Bogor city with the aim of finding out whether there is an effect of giving Moringa oleifera tea (*Moringa oleifera*) on milk production in breastfeeding mothers 0-6 months.

Univariate Analysis

Table 2 frequency distribution of respondent characteristics

Variabel	Jumlah (n)	Persen (%)
Umur		
20 - 35 tahun	17	100
> 35 tahun		0
Total	17	100
Pendidikan		
SD	2	11.8
SMP	8	47.1
SMA	4	23.5
Perguruan Tinggi	3	17.6
Total	17	100
Pekerjaan		
Tidak Bekerja	16	94.1
Bekerja	1	5.9
Total	17	100

Source: primary Data (2024)

Based on table 1 it is known that the majority of respondents aged 20-35 years as many as 17 people (100%). The education level of the majority of respondents is junior high school educated as many as 8 people (47.1%) and the minority is elementary school educated as many as 2 people (11.8%). Employment status the majority of respondents did not work as many as 16 people (94.1%) and a minority worked as much as 1 person (5.9%).

Bivariate Analysis

Normality Test

Table 3 descriptive analysis of pretest and posttest of breast milk production

Produksi ASI	Mean	Std. Deviation	Min.	Max.
Pretest	81.12	7.474	64	90
Posttest	83.71	7.704	64	92

Source: primary Data (2024)

Based on Table 2, the average value of pretest is 81.12 with std. deviation 7.474, minimum value 64 and maximum 90. The average value of posttest is 83.71 with std. deviation 7.704, minimum value 64 and maximum 92.

Table 4 pretest and posttest normality of breast milk production

Variabel	Shapiro Wilk		
	Statistic	df	Sig.
Pretest Produksi ASI	.922	17	.161
Posttest Produksi ASI	.885	17	.039

Source: primary Data (2024)

Based on table 3, the Sig. value of breast milk production pretest is 0.161 and breast milk production posttest is 0.039. This shows that the pretest data is normally distributed because $\text{Sig.} > \alpha 0.05$ and the posttest data is not normally distributed because the $\text{Sig.} < \alpha 0.05$ value. So the data analysis test uses non-parametric statistics with the Wilcoxon Test.

Wilcoxon Signed Rank Test (two paired samples)

Table 5 Mean rank of pretest and posttest breast milk production

			N	Mean Rank	Sum of Ranks
Posttest ASI -	Produksi	Negative Ranks	0	0	0.00
		Positive Ranks	16	8.50	136.00
Pretest ASI	Produksi	Ties	1		
		Total	17		

Source: primary Data (2024)

Negative ranks (negative difference) between pretest and posttest breast milk production in the N value, mean rank and sum of ranks are 0. This shows there is no decrease from pretest to posttest results of breast milk production after giving moringa tea. Positive ranks (positive difference) between pretest and posttest breast milk production obtained an N value of 16, which means there were 16 people who experienced an increase in breast milk production after giving moringa tea. Mean rank (average increase) is 8.50 and sum of ranks is 136.00. Ties are the similarity of pretest and posttest values. In the table obtained the value of ties is 1. So it can be said that there is 1 person whose pretest and posttest scores are the same after giving moringa tea.

Table 6 Statistical test of pretest and posttest of breast milk production

	Posttest Produksi ASI - Pretest Produksi ASI
Z	-3.559

Asymp. Sig. (2-tailed)	.000
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Source: primary Data (2024)

Based on table 6, the statistical test results show that the Z value is -3.559 and the Asymp. Sig. (2-tailed) = 0.000. This significance value is smaller than α 0.05, which means that there is a significant difference between before and after giving moringa tea on breast milk production. Therefore:

1) Null Hypothesis (H0)

There is no effect of moringa leaf tea (*Moringa oleifera*) on breast milk production in breastfeeding mothers 0-6 months is rejected.

2) Alternative Hypothesis (Ha)

There is an effect of moringa leaf tea (*Moringa oleifera*) on breast milk production in breastfeeding mothers 0-6 months is accepted.

DISCUSSION

Effect of Moringa Leaf Tea (*Moringa oleifera*) on Breast Milk Production in Breastfeeding Mothers Before and After Intervention

The results of the pretest and posttest of breast milk production showed that the value of positive ranks was 16, negative ranks was 0 and ties was 1. This can be interpreted that 16 out of 17 respondents experienced an increase in breast milk production after the intervention and 1 person who did not experience a decrease or increase. The mean pretest value of breast milk production also increased from 81.12 to 83.71 at the time of the posstest. Therefore, moringa is proven to be able to increase breast milk production in breastfeeding mothers. This increase is also supported by the Asymp. Sig. (2-tailed) = 0.000 which means it is smaller than α 0.05 which means it has an influence. The results of this study indicate that consuming moringa tea twice a day in the morning and evening for 7 days is proven to have an effect on increasing breast milk production in nursing mothers.

The results of this study are in line with the research of Purnanto, Himawati and Ajizah (2020) showing that there is an increase in the average breast milk production between pre-test and post, which is 152.00 to 158.50 with a p-value of 0.002 and a correlation value of 0.934. This means that regular consumption of moringa leaves is proven to be able to increase breast milk production in nursing mothers. Safarringga A and Putri RD's research (2021) stated that the average increase in breast milk production in the intervention group was 36,667 and the control group was 11,333 and the independent T test obtained a p-value of $0.000 < \alpha$ (0.05). This shows that there is an effect of moringa leaf extract on breast milk production in postpartum women. In the research of Sinaga A, Sinaga K, Surbakti IS, Putri NM, Rumondang (2022) also showed that after giving moringa leaf decoction, 17 out of 20 respondents stated that breast milk was smooth with a mean value of 6.15.

The results of research by Mundari R, Agustina IF and Megawati (2023) stated that there was an increase in breast milk production after being given the treatment of moringa leaf extract in the experimental group with an average

increase in breast milk production of 146 ml. The results of research by Johan H, Anggraini RD and Noorbaya S (2019) stated that there was an increase in breast milk production in postpartum mothers after intervention for 7 days. This is evident from the increase in baby's weight, increase in frequency of baby's bowel movements and frequency of breastfeeding. Similar research has also been conducted at TPMB T. Sartika Kec. Tambun Utara Bekasi which states that 31 out of 35 breastfeeding mothers said their breast milk was smooth after being given moringa leaves where the t test results showed a sig value. $0.000 < 0.05$.

Research by Hasibuan UFH, Putri M, Ningrum AHS also stated that breast milk production before being given moringa leaves had an average of 24.55 ml and after being given moringa leaves had an average of 41.45 ml. This shows that there is an effect of moringa leaves on increasing breast milk production with a p-value of $0.000 < 0.005$. Moringa contains phytochemical compounds such as flavonoids, saponins, alkaloids (lactagogue effect) which can stimulate the production of prolactin and oxytocin hormones by the hypothalamus through the anterior and posterior pituitary glands and increase prolactin hormone levels and iron content that supports breast milk quality.

Increased breast milk production in nursing mothers after being given moringa tea because moringa contains many phytosterols such as stigmasterol, sitosterol and kaempferol which function as hormone precursors. These components increase the production of estrogen (and prolactin) which stimulates the proliferation of the mammary glands to produce milk. This will increase and accelerate milk production (lactogogum effect). The compounds that have a lactogogum effect are sterols, which belong to the class of steroid compounds. The reproductive hormones involved in the lactation process are estrogen, progesterone, prolactin and oxytocin. Moringa leaves can be consumed by steaming, boiling or processed into drinks. Based on the results of the study, the use of moringa leaves can significantly increase breast milk production.

The researcher assumes that utilizing moringa leaves as an additional food for breastfeeding mothers will help mothers overcome the problem of lack of breast milk production because moringa leaves contain lactagogues that can stimulate breast milk production. The discussion in this study raised several important aspects related to the effect of moringa tea on breast milk production in breastfeeding mothers. The results showed a significant increase in breast milk production after the administration of moringa tea. Before the intervention, breast milk production in breastfeeding mothers showed a lower mean value compared to after the intervention, where there was a significant increase in milk volume. This supports the hypothesis that Moringa leaves have a lactogogum effect that can stimulate prolactin and oxytocin hormones that play a role in milk production. This study is in line with the results of previous studies which show that Moringa leaves contain phytochemicals such as flavonoids and saponins that function as natural galactagogues. Giving moringa leaves in the form of tea is considered effective because these compounds can be absorbed well by the body and then increase breast milk production. In addition, the study also highlights the importance of good nutritional support for breastfeeding mothers. Moringa

leaves, with their rich content of nutrients such as vitamin A, vitamin C, calcium, and iron, not only increase milk production but also improve the quality of the milk produced. This is crucial to support optimal infant growth and development.

The study also emphasized that intervention with moringa tea is an economical and accessible solution, especially in resource-limited areas. Increasing breast milk production through this natural method can help reduce dependence on formula milk and support the government's exclusive breastfeeding program. Thus, the results of this study provide additional scientific evidence that moringa tea can be a safe and effective alternative to increase breast milk production in breastfeeding mothers, while supporting maternal and infant health. Further studies with larger samples and more rigorous methods are needed to strengthen these findings and elucidate the biological mechanisms underlying the effects of moringa on milk production.

CONCLUSION

This study concluded that the administration of moringa leaf tea (*Moringa oleifera*) has a significant effect on increasing breast milk production in breastfeeding mothers 0-6 months at PMB E Bogor City in 2024. The results of data analysis showed a significant increase in the volume of breast milk production after intervention with moringa tea, which was seen from the comparison of pretest and posttest. The value of Asymp. Sig. (2-tailed) value of $0.000 < \alpha 0.05$ indicates that this result is statistically significant. Thus, moringa tea can be considered as an effective and economical alternative to increase breast milk production, support maternal and infant health, and support exclusive breastfeeding programs. Further studies with larger samples and tighter controls are needed to strengthen these findings.

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