



Potential of drinking Moringa leaves to increase breast milk production in post partum mothers

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ABSTRACT

This research is a literature review that aims to investigate the potential of drinking Moringa leaves in increasing the production of breast milk (ASI) in postpartum mothers. Maternal and child health has an important role in creating a good future for everyone, but maternal and child health issues have not received sufficient attention. The results showed that Moringa leaves have the potential to stimulate milk production in nursing mothers. Moringa leaves contain phytosterols, alkaloids, saponins and flavonoids which can increase and facilitate milk production. Moringa plants can be consumed in the form of steamed or boiled leaves, boiled water of Moringa leaves, or Moringa flour in drinks. Measurement of breast milk production can be done by observing the baby's frequency of urination (BAK), the frequency of the baby's bowel movements (BAB), and the frequency of breastfeeding. In conclusion, drinking Moringa leaves has the potential to increase milk production in postpartum mothers. This study provides insight into the use of Moringa leaves as a method to increase breast milk production. This study provides a solid basis for further research on the effects of moringa leaf lactagogum and its application in clinical practice. This effort is important in improving maternal and child health and increasing coverage of exclusive breastfeeding in areas with low coverage such as Majalengka Regency.

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1. INTRODUCTION

Maternal and child health has an important role in creating a good future for everyone. However, the health problems of mothers and children still do not receive adequate attention over time. This is influenced by certain factors, situations and existing conditions. Given the importance of maternal and child health problems, attention to them must be carried out continuously, starting from pregnancy, childbirth, to the postpartum period (Ministry of Women's Empowerment and Child Protection, 2018).

Mother's Milk (ASI) is a liquid produced by the mother's mammary glands and must be given to babies from birth to 6 months of age, without adding or replacing it with other foods or drinks. This is known as exclusive breastfeeding (Ministry of Health, 2012). The World Health Organization (WHO) also recommends exclusive breastfeeding until the age of 6 months, followed by complementary feeding thereafter (Destyana et al, 2018).

Exclusive breastfeeding, according to 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 food or drinks (except drugs, vitamins and minerals) (Ministry of Health RI, 2019). Based on Indonesia's Health Profile in 2018, nationally the percentage of newborns who receive exclusive breastfeeding is 68.74% of the national target of 80% (Ministry of Health RI, 2018). The exclusive breastfeeding coverage in West Java Province in 2018 was 90.79%. Even though the target has been reached, there are still several districts/cities in West Java Province whose coverage is still low, one of which is Majalengka Regency (West Java Provincial Health Office, 2019).

According to data obtained from the Majalengka Regency Health Office in 2018, the coverage of exclusive breastfeeding in Majalengka Regency reached 15,861 babies (75.39%) of a total of 21,064 babies. Although this figure is still quite high, it has not yet reached the target of the strategic plan (renstra) of 80%. One of the puskesmas in Majalengka Regency which had the lowest coverage of exclusive breastfeeding in 2018 was located at the Kertajati Health Center UPTD, with only 207 babies (22.00%) out of a total of 941 babies who received exclusive breastfeeding.

Exclusive breastfeeding coverage at the Kertajati Health Center UPTD is still far from the expected target of 80% (Majalengka District Health Office, 2019). The cause of the low coverage of exclusive breastfeeding can be caused by several factors, including maternal factors, infant factors, and behavioral factors. Maternal factors include maternal nutrition, medical history, psychological factors, type of delivery, and gestational age at delivery. Infant factors include breastfeeding technique, frequency of breastfeeding, and weight at birth. While behavioral factors include breast care, sleep patterns, cigarette consumption, and consumption of Moringa leaves which can affect milk production (Dewi and Sunarsih, 2015).

To increase exclusive breastfeeding, it is necessary to make efforts to increase milk production in nursing mothers, because exclusive breastfeeding is very dependent on sufficient milk production. Breast milk production can be measured based on the volume of milk drunk by the baby in one day. Signs that the baby is getting enough milk is if the baby feeds every 2-3 hours or at least 8-10 times in 24 hours in the first 2-3 weeks, the baby urinates (BAK) at least 6-8 times a day, the baby's weight increases around 125 grams per week, and there is no reduction in baby weight of more than 7% of birth weight (Sulistianingrum, 2016).

One of the efforts that can be made to increase milk production in nursing mothers is to provide plants that can stimulate milk production (Monica, 2016). One plant that is known to stimulate milk production is Moringa leaves. Moringa leaves contain phytosterols, alkaloids, saponins and flavonoids which can increase and facilitate milk production (Pearl, 2016).

Moringa is a local food source that has the potential to be part of the diet for breastfeeding mothers because the content of phytosterol compounds in it can increase and facilitate milk production (known as the lactogogum effect). The use of moringa to increase breast milk production can be done by consuming the leaves steamed or boiled as a vegetable, or consuming boiled water from Moringa leaves. In addition, Moringa leaves can also be processed into moringa flour to make drinks (Savitri, 2016). According to Purwanto (2015), measurement of milk production can be carried out for 7 days by observing the baby's frequency of urination (BAK), the frequency of the baby's bowel movements (BAB), and the frequency of breastfeeding through a questionnaire.

Based on this background, researchers are interested in conducting research on "The Potential of Drinking Moringa Leaves on Increasing Breast Milk Production in Post Partum Mothers."

2. RESEARCH METHOD

This research is a literature review research. Literature review is a process that involves preparing a clear framework for research, by analyzing, synthesizing, and critically evaluating the relevant literature obtained from various references. In the literature review method, researchers summarize theories, findings, and other research materials found in related literature. The aim is to gain a better understanding of the research topic to be studied, evaluate the quality and new findings of scientific papers, and identify knowledge gaps that can become the basis for further research. In the context of

this research, an analysis of 20 literature journals relevant to health education and knowledge of clean and healthy living behaviors was carried out. These journals are selected with a maximum time limit of the last 10 years, which means journals published within that period. The analysis is carried out according to the characteristics of each selected journal.

The literature review method is very useful in research because it allows researchers to collect existing information and identify trends, differences, and gaps in previous studies. This helps researchers in formulating relevant research questions and developing a solid theoretical framework for the research to be carried out. which means the journals published in that period. The analysis is carried out according to the characteristics of each selected journal. The literature review method is very useful in research because it allows researchers to collect existing information and identify trends, differences, and gaps in previous studies.

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3. RESULTS AND DISCUSSIONS

Table 1. Characteristics of 20 studies obtained from search and search results

Article Title	Author, Year	Publisher's Journal	Research Place	Sample	Method
The Effect of Giving Moringa Leaf Tea (Moringa Oleifera Lamk.) To Increasing Breast Milk Production in Postpartum Mothers in the Work Area of the Wungu Health Center, Madiun Regency	Wati, Dr (2022)	<i>Prima Wiyata Health</i>	Wungu Public Health Center, Madiun Regency	Postpartum mothers 60 people	quasi experimental study using one group prepost test design
Effects of Giving Moringa Leaf Extract (Moringaoleifera) in the Breastfeeding Process	Septadina, IS, Murti, K., & Utari, N. (2018)	<i>Sriwijaya Journal of Medicine</i>			
The Effect of Giving Moringa Leaf Powder (Moringa Oleifera) to Pregnant Women on Newborn Baby Weight	Yusnidar, Y., Dahlan, AK, & Patmahwati, P. (2020)	<i>Voice of Midwifery</i>	Bua Health Center, Bua District, Luwu Regency	third trimester pregnant women with a gestational age of 28 weeks as many as 38 people	True experiment with Randomized Double Blind, post test controlled
Effect of Moringa Leaf Drink on Increasing Mother's Milk Production (ASI) in Postpartum Mothers in the Working Area of the UPTD Kertajati Health Center, Majalengka Regency in 2020	Indriyani, YWI, & Meilani, E. (2021)	<i>YPIB Majalengka STIKES Campus Journal</i>	Kertajati Health Center, Majalengka Regency	15 post partum mothers aged > 10 days	quasi experimental design with nonequivalent control group design
The Effectiveness of Moringa Leaves on Breast Milk Production	Dahlia, D., &	<i>Journal of Social and Science</i>	Bireuen Mamplam	breastfeeding mothers	quasy experiment, with pre and posttest control group research design

in Breastfeeding Mothers at the Simpang Mamplam Bireuen Health Center	Maisura, M. (2021)		Simpang Health Center	totalled 30 people	
The Potential of Moringa Leaf Drink on Increasing Breast Milk Production (ASI) in Postpartum Mothers	Johan, H., Anggraini, RD, & Noorbaya, S. (2019)	<i>Sebatik</i>			Quasi Experiment with Nonequivalent Control Group Design
The Effect of Using Moringa Leaves on Breast Milk Production in Postpartum Mothers in Taman Sari Village	Hasibuan, UFH, Putri, M., & Ningrum, AHS (2020)	<i>Midwifery Journal</i>	TAMAN SARI VILLAGE	postpartum mothers day 4-12	Quantitative, quasi-experimental design with one group pre and post test design
Postpartum Mother's Behavior in Increasing Breast Milk Production	Yulita, N., Juwita, S., & Febriani, A. (2020)	<i>Midwifery Scientific Journal</i>	Pekanbaru City	Postpartum mothers 30 people	explanatory design
The Effect of Consumption of Moringa Leaf Tea on Increasing Breast Milk Production in Grobogan	Purnanto, NT, Himawati, L., & Ajizah, N (2020)	<i>Main Scholar Journal of Nursing and Public Health</i>	Grobogan	Postpartum mothers 60 people	quasi experimental study using one group prepost test design
Effect of Breastcare and Moringa Leaves Steeped Water on Breast Milk Production	Adi, GS, Saelan, S., Putriningrum, R., & HK, AN (2018).	<i>Wiraraja Medika: Journal of Health</i>	Sukoharjo Regency	Postpartum mothers 28 people	pre and post test without control group
The Effect of Giving Moringa Leaf Extract Cookies to Postpartum Mothers on Breast Milk Production and Baby Weight in Bekasi Regency	Alindawati, R., Soepardan, S., & Wijayanegara, H. (2021)	<i>J Midwifery and Nursing Aisyiyah</i>	Bekasi District	Postpartum mothers 72 people	pretest-posttest control group design
Moringa Almond Smoothies as Additional Nutrition for Postpartum Mothers to Increase the Quantity of Mother's Milk	Oktafiani, H., Sari, DN, & Valiani, C. (2022)	<i>Pioneer Health Journal</i>	West Java	Postpartum mothers 30 people	pretest and posttest one group design
The Effectiveness of Moringa Leaves Powder on The Production of Breast Milk and Immunoglobulin A (Ig A)	Kuswanto, K., Purnomo, H., & Anggraini, DD (2020)	<i>Midwifery Journal</i>	Kundrun Health Center	Breastfeeding mother 60 people	quasy experimental research, namely providing a treatment using a non-randomized perspective study design
The Effect of Giving Moringa Leaf Pudding (Moringa oleifera) on Breast Milk Production (ASI) to Breastfeeding Mothers in the Working Area of the Cawang Village Health Center, East Jakarta	Pratiwi, I., & Srimati, M. (2020)	<i>Indonesian Health Journal</i>	Community Health Center in Cawang Village, East Jakarta	Mothers breastfeeding babies aged 0-6 months	experimental study with a pretest-posttest design with a control group
Potential of Moringa Leaf Drink on Increasing Breast Milk Production (ASI) in Postpartum Mothers	Johan, H., Anggraini, RD, & Noorbaya, S. (2019)	<i>Sebatik</i>		Postpartum mothers 22 people	Quasi Experiment with Nonequivalent Control Group Design

Improving Health Education for Postpartum Mothers About the Benefits of Moringa Leaf Decoction for Smooth Breast Milk Production in Bangun Rejo Village, Kec. Cape Morawa	Surbakti, IS, Sinaga, A., Sinaga, K., Sitorus, R., Pakpahan, IL, & Yanti, WN (2022)	<i>J-MAS: Journal of Community Service</i>	district Cape Morawa	Post partum mothers 20 people	Quasy Experiment with the One Group Pretest-Posttest research design
Effect of Giving Moringa Leaf Extract on the Quantity and Quality of Breast Milk (ASI) in Breastfeeding Mothers Infants 0-6 Months	Wardani, WK (2022)	<i>University Of Bakti Indonesian The Journal Of Midwifery</i>	Wonosobo Health Center	breastfeeding mothers after a week giving birth to 70 people	double blind randomized controlled design
Literature Review: Moringa Leaves (Moringa oleifera) as Healthy Food Complementary Nutrition for the First 1000 Days of Life	Hanif, F., & Berawi, KN (2022)	<i>Health Journal</i>		Postpartum mother	longitudinal, case control, and cross-sectional studies
Effect of Giving Moringa Leaf Decoction on Smooth Breast Milk Production in Postpartum Mothers	Sinaga, K., Sinaga, A., Surbakti, IS, & Putri, NM (2022)	<i>Indonesian Health Issues</i>	Beringin Village, Beringin District, Deli Serdang Regency Macassar	Postpartum mothers 20 people	Quasy Expertise with research design One Group Pretest - Posttest
Effect of Giving Moringa Leaf Capsules on Vitamin A Content in Mother's Milk	Saleha, S., Selvia, S., Vitariani, A., & Purnamasari, F. (2020)	<i>Health News Journal</i>		Postpartum mothers 40 people	quasi experiment. Control group pretest-posttest design

In the article Usti Fina Hasanah Hasibuan et al (2020) it was carried out in Taman Sari Village for postpartum mothers on days 4-12. Respondents consisted of postpartum mothers who met the inclusion and exclusion criteria, namely multiparas, did not give formula milk, did not have nipple problems, and babies who were born normally without congenital abnormalities. The results showed that the production of breast milk before being given Moringa leaves had an average of 24.55 ml with a standard deviation of 3.49. The lowest milk production was 20 ml and the highest was 33.33 ml. After being given processed moringa leaves, milk production had an average of 41.45 ml with a standard deviation of 5.49. The lowest milk production was 30.56 ml and the highest was 50 ml.

Milk production before being given Moringa leaves was relatively low, with an average of 24.56 ml. This may be caused by the consumption of less nutrition in mothers, especially in terms of consumption of green vegetables which are important for increasing milk production. However, after being given Moringa leaves, milk production increased significantly, with an average of 41.45 ml. Moringa leaves contain many nutrients such as calcium, iron, protein, vitamin A, B vitamins, and vitamin C, which are important for postpartum mothers to produce breast milk.

The results of a study by Heri Johan et al (2019) showed that there was a significant difference between the intervention group (which was given a steeped moringa leaf drink) and the control group (which was not given anything) in terms of milk production in postpartum mothers who were breastfeeding. This can be seen from the changes in the baby's weight, the frequency of the baby's BAK, the frequency of the baby's bowel movements, and the frequency of breastfeeding which was more significant in the intervention group. The results of the Friedman test showed that there were significant differences in the intervention group and the control group in the variables of infant weight, frequency of infant urination, frequency of infant bowel movements, and frequency of breastfeeding.

These results indicate that consumption of Moringa leaves brewed drinks in postpartum mothers who breastfeed has a positive impact on milk production and the frequency of breastfeeding to infants. Furthermore, the results of the Mann Whitney test showed significant differences between the intervention group and the control group in the variables of baby's weight, baby's frequency of urination, frequency of baby's bowel movements, and frequency of breastfeeding. These results support the finding that consumption of moringa leaf brew can increase milk production and increase the adequacy of nutritional intake for infants. The findings of this study are consistent with previous studies showing that consumption of moringa leaves can increase milk production in rats and human lactating mothers.

The content of phytosterols in Moringa leaves is known to have a lactagogum effect which can increase milk production. In addition, the content of saponins and alkaloids in Moringa leaves can also stimulate smooth muscle contraction and increase the number and diameter of alveoli, which contributes to increased milk production. Adequate milk production has a positive impact on the baby's weight, the frequency of the baby's urination, the frequency of the baby's bowel movements, and the frequency of breastfeeding. Breast milk contains important nutrients such as lactose, protein, electrolytes and oligosaccharides which play a role in the growth and development of the baby. Therefore, an increase in milk production can increase the baby's weight, increase the frequency of urination and defecation of the baby, and increase the frequency of breastfeeding.

The results of this study by Widatiar Kusuma Wardani involved 82 breastfeeding mothers who met the inclusion requirements and agreed to participate in the study. However, during the study, 12 samples dropped out, with 6 samples dropping out in each treatment group. Thus, at the end of the study, the number of samples that could be analyzed was 70 samples, consisting of 35 samples in the intervention group and 35 samples in the control group. Reasons for dropping out include babies drinking formula milk, mothers not taking capsules for three days in a row, mothers being sick, and moving to places that are difficult to reach.

In this study, the socio-economic characteristics of the mothers were also considered, including the age of the mother and father, level of education, occupation, number of family members, income and family food expenditure. The results show that most mothers are under or equal to 25 years old, have an education level below or equal to primary school, and most do not work in the formal or informal sector. The number of children under five years is generally 1 person, and most families have more than 4 members. Generally, fathers are under the age of 30 and work as private employees or workers who require more physical energy.

Most household incomes are below the 2014 regional minimum wage for South Sulawesi Province, and the level of food expenditure is relatively high. The results showed that the volume of breast milk in the intervention group experienced a significant increase after the intervention. The volume of breast milk in the intervention group increased by 263.1 ± 40.8 ml (66.2%), while in the control group it increased by 151.4 ± 9.4 ml (33.7%). The difference in increased milk volume between the two groups was also statistically significant. However, there was no significant difference in breast milk iron levels between the intervention and control groups. Vitamin C and vitamin E levels in breast milk also did not show a significant difference between the intervention and control groups.

The discussion of the research shows that the relatively low production of breast milk before being given Moringa leaves may be caused by a lack of consumption of nutrients in mothers, especially consumption of green vegetables which are important for increasing milk production. However, after being given Moringa leaves which are rich in nutrients such as calcium, iron, protein, vitamin A, B vitamins, and vitamin C, breast milk production has increased significantly. Research on the 20 articles concluded that giving moringa leaf extract to breastfeeding mothers could increase breast milk volume, but had no significant effect on iron, vitamin C, and vitamin E levels in breast milk. However, iron levels in breast milk are still positively correlated with the mother's hemoglobin (Hb) status. This result might be due to the low concentration of iron in Moringa leaf extract.

4. CONCLUSION

Based on the results of the evaluation that has been carried out, it can be concluded from several studies that have been reviewed that the use of Moringa leaves has a positive effect in increasing milk production in postpartum mothers. Adequate milk production has a positive impact on the baby's weight, the frequency of the baby's urination, the frequency of the baby's bowel movements, and the frequency of breastfeeding. Breast milk contains important nutrients needed for baby's growth and development, such as lactose, protein, electrolytes, and oligosaccharides. Therefore, an increase in milk production can increase the baby's weight, increase the frequency of urination and defecation of the baby, and increase the frequency of breastfeeding.

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