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The Effect of Moringa Pudding on Increasing Breast Milk for Postpartum Mothers

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ABSTRACT:
Lack of breast milk intake in newborns is a serious health problem in Indonesia. Moringa (Moringa oleifera) is a plant rich in nutrients such as protein, vitamins, and minerals, and has been traditionally used to enhance breast milk production. This study aimed to evaluate the effect of moringa pudding on increasing breast milk production in postpartum women. A qualitative research method was employed, conducted in Loa Bakung, Sungai Kunjang District, Samarinda City. Data collection techniques included in-depth interviews, participant observation, and document analysis. The collected data were analyzed using the Miles and Huberman model, which involves data reduction, data presentation, and conclusion drawing. The results indicated that breast milk production increased by 150 cc in the group given Moringa Leaf Pudding. Initially, the milk production was minimal, and after the intervention, there was a notable increase. The minimum milk production observed was 0.00 cc, while the maximum reached 150 cc. This study concludes that Moringa Leaf Pudding can effectively increase breast milk production in postpartum women, suggesting its potential as a beneficial intervention.
Keywords: Moringa Pudding, Mother's Milk, Postpartum.

INTRODUCTION

Lack of breast milk intake in newborns is one of the significant health problems in Indonesia. Breast milk is an important source of nutrients for baby's growth and development, and has an important role in strengthening the baby's immune system (Sabriana et al., 2022). However, various factors such as maternal health problems that affect milk production can cause a lack of milk intake in infants. The impact of this lack of breast milk intake can have a negative impact on infants' health, increase the risk of infection and disease, and interfere with their overall growth and development (Bhutta et al., 2020; Brar et al., 2020; Bridgman & von Fintel, 2022; Saleh et al., 2021). Lack of milk production is one of the main factors that can

cause failure in exclusive breastfeeding, thus potentially encouraging a mother to stop breastfeeding early (Andrews et al., 2021; Vaz et al., 2021). A study in India found that up to 39% of breastfeeding mothers experience the problem of insufficiency of milk production (Rajesh et al., 2023). Similar findings are also found in studies in China, which show that the problem of insufficiency in milk production is the main cause of stopping the breastfeeding process (Acheampong et al., 2020).

The importance of nutritional intake for breastfeeding mothers has been recognized as a key factor in increasing breast milk production (Basri & Hadju, 2020; Long et al., 2021). Therefore, diverse approaches are expected to provide effective solutions to increase milk production, one of which is through an approach that pays attention to nutritional intake for breastfeeding mothers (Vidal-Batres et al., 2024). Galaktogog is a substance that can increase milk production, therefore, it is important to continue to raise awareness and support the practice of exclusive breastfeeding in the community to overcome the problem of lack of breast milk intake in newborns.

In an effort to increase breast milk production in postpartum mothers, various efforts can be made, one of which is to give moringa pudding. Moringa leaves are famous for their very high nutritional content, even exceeding some other major sources of nutrition. Moringa leaves are reported to have vitamin A content that is 10 times higher than carrots, calcium which is 17 times more than milk, protein that is 9 times higher than yogurt, and carotenoids that even exceed oranges, carrots, and melons (M. S. Hasan, 2023).

Moringa oleifera, or Moringa leaves, is a potential solution to overcome the problem of malnutrition and enrich complementary foods with additional sources of protein and micronutrients from local plants. Moringa leaves can be used in various forms, both dry and wet, and mixed into various food ingredients at minimal cost. So with these advantages, processed Moringa leaves can be an effective complementary food choice to meet the nutritional needs of the First 1000 Days of Life (HPK) (Hanif & Berawi, 2022). Moringa leaves have long been used in traditional medicine for a wide variety of diseases, including increasing breast milk production.

Previous research by (Hariyati et al., 2023) found that the effect of giving combination Moringa leaf pudding on breast milk production in postpartum mothers at Evy Suhardi Clinic Samarinda and breast milk volume after intervention in the control group and treatment group showed significant differences. Health workers provide health promotion about postpartum maternal nutrition that can increase milk production.

Another study by Fungtammasan (2022) showed that the frequency of breastfeeding after breastfeeding mothers consumed Moringa leaf pudding increased by 48.3%, while the length of breastfeeding babies increased by 22.9% during 7 days of Moringa leaf pudding feeding. The advice from this study is expected to breastfeeding mothers who experience little milk

production, little frequency and duration of breastfeeding, and their families add insight and knowledge about the benefits of consuming Moringa leaf pudding regularly.

Based on this background description, researchers are interested in conducting a study entitled "The Effect of Moringa Pudding on Increasing Breast Milk for Postpartum Mothers". This research can be the basis for further research on the effect of other natural food ingredients on the health of postpartum mothers and babies. The purpose of this study was to evaluate the effect of giving moringa pudding on increasing breast milk production in postpartum mothers.

RESEARCH METHODS

This study used qualitative research methods. Qualitative methods provide a focus on in-depth observations, allowing researchers to understand phenomena comprehensively. In research, a qualitative approach results in a more in-depth analysis of individual aspects of human beings and their behavior. This approach is recognized in response to the recognition that all consequences of human actions are influenced by the internal dimensions of the individual. These dimensions include the beliefs, political views, and social background of each individual. By paying attention to these aspects, qualitative research provides a more holistic perspective on the phenomenon under study (Roosinda et al., 2021). The location of the study was determined by the purposive area method and was located in Loa Bakung, Sungai Kunjang District, Samarinda City.

Data collection techniques in this study are in-depth interviews, participatory observations, and documents. While the data analysis method in qualitative research is the first method of data analysis, analysis before the field, analysis during the field with the Miles and Huberman model, data reduction and data presentation carried out by summarizing, choosing the main things, focusing on important things, then looking for themes and patterns and drawing conclusions.

RESULTS AND DISCUSSION

Breast milk contains fats, carbohydrates, proteins, salts, minerals, vitamins, and other protective substances produced by the maternal breast glands (Rivanica et al., 2023). As the primary source of nutrition for infants, breast milk is uniquely provided exclusively to babies aged 0 to 6 months (Vicanty et al., 2022). It is considered the optimal food for infants due to its ideal nutritional composition, including the essential binding protein B12 and crucial amino acids that significantly contribute to the development of brain cells and infant intelligence. Exclusive breastfeeding positively impacts infant health quality; a lower rate of exclusive breastfeeding is associated with poorer health outcomes for infants and toddlers (Astriana & Afriani, 2022).

Breast milk is the optimal natural food a mother can provide to her newborn. Its composition, which adapts to meet the changing needs of the baby, is ideal for the baby's growth and development. Additionally, breast milk contains protective substances that help shield infants from various infectious diseases. Beyond its nutritional benefits, breastfeeding has a profound emotional impact, strengthening the bond between mother and child and supporting the child's mental development. There is also a notable correlation between breastfeeding and reduced birth rates (Roesli U, 2013). Breast milk is essential for infants as it promotes better growth and development, provides antibodies that protect against numerous viral, bacterial, parasitic, and fungal infections (M. Hasan & Saputra, 2023).

Breastfeeding is an invaluable investment in ensuring the survival and enhancing the health, social, and economic development of individuals and nations. For mothers, breastfeeding offers numerous benefits, such as preventing postpartum bleeding, speeding up uterine involution, reducing the risk of anemia, lowering the chances of ovarian and breast cancer, strengthening the maternal bond, aiding in the return to pre-pregnancy weight, and serving as a temporary method of birth control (Hajifah et al., 2021). Breastfeeding is a natural behavior between a mother and her baby, and in situations of illness or malnutrition, it can be life-saving for the infant. In conditions of poverty, breastfeeding is often the most natural and accessible means of nourishment. It has been demonstrated to protect infants from diseases and improve the mother's health. Additionally, breastfeeding fosters a strong affectionate bond between mother and child and is considered a fundamental right of every newborn (Hasriyana & Surani, 2021).

Providing exclusive breastfeeding requires careful preparation and practice by the mother. The practice of exclusive breastfeeding is influenced by both internal and external factors. Internal factors include personal characteristics that motivate and facilitate exclusive breastfeeding, such as the mother's level of knowledge, previous breastfeeding experience, and demographic factors like age, occupation, and education. External factors are those that reinforce breastfeeding behavior, which are crucial because, despite having the knowledge and capability to practice healthy behaviors, some mothers may still face challenges in doing so (Alfaridh et al., 2021).

Infants who do not receive exclusive breastfeeding have a 3.94 times higher risk of death from diarrhea compared to those who are exclusively breastfed. Additionally, these infants are more susceptible to respiratory infections, gastrointestinal infections, and immune-related diseases than those who are exclusively breastfed (Pérez-Hernández et al., 2024). To reduce child morbidity and mortality, the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) recommend that infants be exclusively breastfed for at least the first six months of life. Solid foods should be introduced after six months, while breastfeeding should continue until the child is two years old (Sari et al., 2022).

The reasons for mothers failing to practice exclusive breastfeeding include habits of giving prelacteal foods, using formula because breast milk is not sufficient, stopping breastfeeding due to illness of the mother or baby, being too busy with work to breastfeed, and a desire to try formula milk (Dantas et al., 2024). One significant reason for low rates of exclusive breastfeeding is the limited supply or productivity of breast milk for many mothers. According to the results of the Triplo test conducted on October 24, 2024, at the Laboratory of Chemistry and Biochemistry, Faculty of Agriculture, Mulawarman University, Moringa pudding contains 8.4608% protein, 0.2237% fat, 7.9892 mg of Fe, and an unspecified amount of Mg per 100 grams.

Low rates of exclusive breastfeeding are often linked to challenges faced by postpartum mothers in producing and providing sufficient breast milk for their babies. Many parents struggle with producing enough milk or feel uncertain about their ability to adequately nourish their baby. Therefore, enhancing breastfeeding efforts for postpartum mothers requires a comprehensive approach involving extensive support and education. Programs that support breastfeeding, such as breastfeeding preparation classes, lactation counseling, and assistance from healthcare providers, can help boost mothers' confidence and skills in producing and exclusively breastfeeding their babies.

Additionally, increasing breastfeeding efforts for postpartum mothers also requires social support and policies that encourage breastfeeding practices. Supportive communities and environments can offer emotional and practical assistance to postpartum mothers, including support from spouses, family, friends, and the local community. Furthermore, one way to enhance breast milk production in postpartum mothers is by consuming Moringa leaves.

Substances that can stimulate, initiate, maintain, and increase milk production are known as galactagogues. One such food that acts as a galactagogue is Moringa (Moringa oleifera). Moringa leaves, consumed in various forms, contain polyphenols, alkaloids, and phytosterols such as campesterol, β-sitosterol, and stigmasterol, which stimulate breast milk production. Polyphenols enhance the hormone prolactin, while alkaloids increase the activity of the hormone oxytocin. Phytosterols serve as precursors in the production of estrogen, which triggers the release of prolactin. Besides these galactagogue compounds, Moringa leaves also provide various nutrients that support both infant growth and development, as well as maternal health (Prayekti et al., 2021).

Consuming foods containing Moringa leaves is believed to boost milk production in breastfeeding mothers. Additionally, Moringa consumption is thought to enhance endurance. Moringa leaves are a promising ingredient for developing dietary supplements for nursing mothers. They are believed to counteract the effects of phytosterols (lactobacilli effect) and boost milk production (Nurillah & Yuniarti, 2023). Moringa leaves are used as complementary therapies to enhance milk production, in addition to proper breastfeeding techniques and maternal psychological support. Regular consumption of Moringa leaves can lead to increased

milk production. Analysis of sitosterol and stigmasterol in Moringa leaves indicates that stigmasterol content is higher. The presence of steroids in Moringa leaves is believed to be associated with increased breast milk levels in mothers who consume them (Mundari et al., 2023).

Moringa leaves contain phytosterol compounds that play a role in increasing and facilitating breast milk production, known as the lactagogue effect. These compounds include sterols, which belong to the steroid class of compounds. The production of breast milk is triggered by the hormonal reflex to produce prolactin when the baby suckles on the mother's nipple. This neurohormonal stimulation occurs in the mother's nipple and areola, and the signal is transmitted through the vagus nerve to the pituitary gland. The anterior lobe of the pituitary gland then secretes prolactin, which enters the bloodstream and reaches the mammary glands responsible for producing breast milk (I. Pratiwi & Srimiati, 2020). The Moringa plant (Moringa oleifera) is a local food ingredient with potential benefits for nursing mothers due to its phytosterol content, which enhances breast milk production. One creative way to incorporate Moringa into a nursing mother's diet is by making Moringa leaf pudding. Pudding is a popular and appealing food choice, especially for nursing mothers, making it an attractive option for consuming Moringa leaves. Developing Moringa leaf pudding provides a simple, affordable, and accessible solution to address insufficient breast milk production (Y. S. Pratiwi et al., 2023).

Providing Moringa leaf pudding as a dietary supplement to breastfeeding mothers has been found to increase milk production. Moringa leaves contain phytosterol compounds that can directly stimulate mammary gland cells to increase breast milk secretion (I. Pratiwi & Srimiati, 2020). The rich nutrient content of Moringa pudding, including vitamins A, B, C, and E, as well as essential minerals like calcium and xiron, can stimulate breast milk production and enhance its quality. Moreover, Moringa is known for its galactagogue properties, which can stimulate the hormone prolactin, essential for milk production.

Research results have indicated that mothers who consumed Moringa leaf pudding before breastfeeding interventions experienced an increase in breast milk production, with an average increase of up to 150 cc. This increase suggests that these mothers initially had insufficient milk production. However, after consuming Moringa leaf pudding, their milk production improved. The observed range of breast milk production varied from 0.00 cc to 150 cc, demonstrating the positive impact of Moringa leaf pudding consumption in enhancing breast milk production in nursing mothers. Thus, incorporating Moringa pudding into the diet can be a beneficial alternative to support and increase adequate and high-quality milk production in postpartum mothers.

CONCLUSION

Giving Moringa pudding consistently has proven its significant impact in increasing breast milk production in puerperal mothers. The results showed that postpartum mothers who

received moringa pudding supplements were able to produce breast milk with a larger volume. The results of this study highlight the potential of Moringa pudding as an effective complementary food for breast milk (MPASI), especially in the context of increasing breast milk production in postpartum mothers. The advantage of Moringa pudding lies not only in its effectiveness, but also in the ease of the manufacturing process and affordable cost. Based on the results of the Triplo test on October 24, 2024 at the Laboratory of Chemistry and Biochemistry, Faculty of Agriculture, Mulawarman University, protein content 8.4608.fat content 0.2237.Fe content 7.9892.Mg /100gr Moringa pudding This finding marks Moringa pudding as an adequate alternative complementary food for postpartum mothers in Indonesia. In the results of the study, it was seen that the group given Moringa Leaf Pudding before the breastfeeding intervention experienced an increase in breast milk production up to 150 cc, showing a significant increase. These results show that Moringa pudding can improve milk production which was initially less than optimal in puerperal mothers. Thus, intervention in the form of Moringa Leaf Pudding becomes relevant to increase breast milk production in postpartum mothers in need.

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