

Green Beans Juices Increases the Expenditure Volume of Breast Milk in Postpartum-Mother

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ABSTRACT (10PT)

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Background: There is no special food or drink that can increase the volume of milk production. Green beans contain active compounds, namely polyphenols and flavonoids that function to increase prolactin. When the hormone prolactin increases, milk secretion will be maximized so that the quantity of breast milk will increase. The aim of study was applied green bean juice to increase the volume of breast milk expenditure in postpartum mother **Method** This research was a case study approach. The participants were 5 post-partum mothers. The instrument used an observation sheet. Data were obtained from interviews and observations **Results:** After the application of green bean juice for 7 days. The volume of milk expenditure in postpartum mothers increased from 60% to 100% in the good category **Conclusion:** The application of green bean juice is effective in increasing the volume of breastfeeding in postpartum mothers.

1. Introduction

The importance of improving nutrition for generations is a serious concern of the Ministry of Health Indonesia [1]. We should prepare children from an early age to become healthy, intelligent, and have a character following the values of the Indonesian nation and sustainable by the family, community, government, and private sector [2]. One of the most basic efforts to ensure the achievement of optimal quality of child development and at the same time fulfill children's rights is to provide the best food for children from birth to the age of two [3]

Breast milk secreted by both the mother's breast glands is in the form of natural food or the best nutritious and high-energy milk that is easily digested and contains a balanced and perfect nutritional composition for baby's growth and development available at any time, ready to be served at the right temperature and free from contamination [4]

Efforts to maximize the achievement of the Sustainable Development Goals (SDGs) agenda in 2030 regarding the target of the mortality rate of children aged less than 5 years is <25 per 1000 live births, exclusive breastfeeding is important to be practiced universally so that it can save 13% of children from all deathless than 5 years old [5]. Exclusive breastfeeding in Indonesia is still far from expectations. Nationally, the coverage of infants receiving exclusive breastfeeding in 2017 was 61.33%. However, this figure has not reached the expected target of 80% [6]

According to data from the Tanah bumbu Health Service, in 2017 Exclusive Breastfeeding Coverage Of the 4,300 baby boys and baby girls examined, only 1,787 babies were exclusively breastfed or 41.56% while the target to be achieved was 80% of babies who had to be breastfed. According to data from the Batulicin Health Center in 2017 there were 619 postpartum mothers, from 1 January to 26 March 2018 there were 155 postpartum mothers who experienced irregular milk production, a total of 73 people (47%) [7]

According to the UNICEF Framework, one of the factors that cause stunting in toddlers is unbalanced food intake [8]. Unbalanced food intake includes exclusive breastfeeding that is not given for 6 months breast milk is milk produced by the mother and contains the nutrients needed by the baby for the needs and development of the baby. Babies are only given breast milk, without the addition of other fluids such as formula milk, orange juice, honey, tea water, water, and without the addition of solid foods such as bananas, papaya, milk porridge, biscuits, rice porridge, and the team, for 6 months [9]

Reform in the field of Health is the vision of a Healthy Indonesia 2015-2030 with the Sustainable Development Goals (SDGs) [10]. The four main pillars that must be developed to achieve this vision are the Social Development Pillar, the Economic Development Pillar, the Environmental Development Pillar, and the Inclusive Development Pillar and Method of Implementation. Progress in the Social Development Pillar has 6 Goals, 55 Targets, 88 indicators. The target in question is the SDGs goal 2 which aims to end hunger, achieve food security and improve nutrition, and promote sustainable agriculture. The 2030 targets for ending all forms of malnutrition include achieving the 2025 international targets for reducing stunting and wasting in children under five and addressing the nutritional needs of adolescent girls, pregnant and lactating women, and the elderly. Indonesia has a strong commitment to increasing exclusive breastfeeding, especially among working mothers [3]

Efforts to improve breastfeeding behavior in mothers who have babies, especially exclusive breastfeeding have been regulated in Government Regulation No. 33 of 2012. Chapter I Article 2 mentions the fulfillment of the baby's right to get exclusive breastfeeding from birth to the age of 6 (six) months with attention to their growth and development.[11]

The principle of nutrition in breastfeeding mothers is closely related to the production of milk, which is needed for the growth and development of babies. In the body, there are reserves of various nutrients that can be used when needed [12]. However, if the mother's food continuously does not contain enough nutrients needed, of course in the end the milk-making glands in the mother's breasts will not be able to work perfectly, and will ultimately affect the increase in the volume of breast milk expenditure [6]

In reality, there is no specific food or drink that can miraculously increase the volume of breast milk production [13], although many people believe that certain foods/drinks will increase breast milk. However, it has been scientifically proven that green beans contain a lot of protein, minerals, calcium, phosphorus, fat, vitamin B1 (thiamine), and vitamin B2 (riboflavin) Green bean juice contains Vitamin B1 (thiamin) which functions to convert carbohydrates into energy, strengthens the nervous system, and is responsible for the production of breast milk.[7]

Mariati's research on "The Influence of Sari Green Nuts In Breastfeeding Products In Postpartum Mother" shows that the average milk production in postpartum mothers who are given peanut juice has an observation score of 9.53 breast milk production. The average milk production of postpartum mothers who were not given green bean juice had an observed score of 6.93 for breast milk production. The average difference between the two groups of breast milk was 2.60.[14]

The results of Widya Astuti's research in 2014 found that consuming green bean juice affected the production of breast milk (ASI) in breastfeeding mothers at the Dinoyo Public Health Center, Malang. Wulandari's 2015 research also explained that the provision of green bean juice to 7 breastfeeding mothers was 4 people (57.1%) whose breast milk came out smoothly and 3 people (42.9%) whose breast milk was not smooth. The conclusion is that the more often you consume green bean juice, the more smoothly your breast milk will flow [15]

The nutritional content of green beans is quite high and the composition is complete. Based on the amount, protein is the second main constituent after carbohydrates. Green beans contain 20-25% protein. High protein is needed by mothers during lactation, especially the protein contains amino acids so that it can stimulate the secretion of breast milk. Green beans also contain active compounds, namely polyphenols and flavonoids which function to increase the hormone prolactin. When the prolactin hormone increases, milk secretion will be maximized so that the quantity of breast milk will increase and the nutritional content contained in green bean juice will increase the nutritional content in breast milk [16]

2. Materials and Method

This research method uses descriptive-analytic research with a case study approach. The population in this study were breastfeeding mothers in PMB Aning. Participants in this study were determined by purposive sampling technique, namely the method of selecting participants in a study by determining in advance the criteria to be included in the study, where participants were taken to provide useful information for the participants who were given care were 5 persons

Participants who meet these criteria then consume 250 ml of Ultrajaya brand green bean juice once a day in the afternoon or at 16.00 in the morning and ask the mother to apply it at home for 7 days. Next, observe the volume of breast milk production on the 7th day.

The research was conducted in Rowokele District, Kebumen Regency, Central Java Province, Indonesia. When the research was conducted in June. The instrument in this study used a

checklist and an observation sheet on the ability of breastfeeding mothers. The data collection was carried out based on the observation method with analytical techniques using descriptive statistical data analysis.

3. Results and Discussion

3.1. Results

Based on the table, it is known that the volume of breastfeeding in post partum mothers before the application of green bean juice was in the good category of 3 participants (60%) and the non-breeding category of 2 participants (40%)

Table 1. Volume of breast milk expenditure in post partum mothers before the application of green bean juice.

Participants	Before the implementation	
	Volume	Description
Ny. R	50 cc/ml	Good
Ny.T	10 cc/ml	Good
Ny.W	0 cc/ml	Bad
Ny. D	0 cc/ml	Bad
Ny. R	60 cc/ml	Good

Based on table 2. It is known that the volume of breast milk expenditure in post partum mothers after the application of green bean juice is in the good category of 5 participants (100%)

Table 2. Volume of breast milk expenditure in post partum mothers after the application of green bean extract.

Participants	After implementation	
	Volume	Description
Ny. R	400 cc/ml	Good
Ny.T	395cc/ml	Good
Ny.W	350 cc/ml	Good
Ny. D	450 cc/ml	Good
Ny. R	455 cc/ml	Good

3.2. Discussion

The results of the case study showed that all participants were postpartum mothers and received the application of green bean juice 7 times. According to Shohib's (2016) theory, the content of nuts can help the process of fetal growth in pregnant women and can optimize the production of breast milk and the color density of breast milk in nursing mothers. Green beans contain a high enough nutritional value in 100 grams of dried green bean seeds containing 22.2 grams of protein, 6.29 grams of carbohydrates, 124 grams of calcium, 326 mg of phosphorus, 0.64 grams of vitamin B1, and 6 IU of vitamin C.

Green beans are good sources of vegetable protein, thiamine, or vitamin B1 converts carbohydrates into energy because breastfeeding mothers have greater energy than during pregnancy. If there is a lack of thiamine, the mother becomes irritable, difficult to concentrate, and lacks enthusiasm. A good mood will trigger the hormone oxytocin to secrete breast milk.[7]

The results of the case study show that the volume of milk expenditure in post-partum mothers before the application of green bean juice was in the good category 3 participants (60%) but there were 2 participants (40%) in the bad category.

The volume of milk produced and secreted by the mammary glands can differ based on the factors that influence it [17]. The effect of the non-smooth flow of breast milk in the first days after giving birth can be caused by a lack of stimulation of the hormones prolactin and oxytocin which play a very important role in the smooth volume of milk expenditure. Several factors are suspected to be the cause of the baby not getting breast milk properly, including the mother's knowledge, the mother's reluctance to breastfeed due to pain while breastfeeding, fatigue while breastfeeding, and the mother's concern about breast changes after breastfeeding. Socio-cultural factors, lack of family,

and environmental support in the breastfeeding process also greatly affect the breastfeeding process [18]

Mother's milk (ASI) produced after giving birth on the first day is in the form of colostrum with a volume of 10-100cc, and on days 2 to 4, it will increase to a volume of about 150-300ml/24 hours. Breast milk production after 10 days and beyond giving birth until the baby is three months old or called mature breast milk, breast milk can produce about 300 - 800 ml/day, and breast milk will continue to increase in the next day or week [9]

The volume of milk expenditure that will be produced by the mother in her breast glands is not the same every time. It is said that the volume of breast milk will decrease with time [11]. One of the causes of the volume of breast milk production is not optimal due to poor nutritional intake of mothers, unbalanced food menus, and also consuming food that is less regular than the volume of breast milk expenditure is not sufficient for babies [19]. Nutrition and nutrition play an important role in terms of supporting the maximum volume of milk expenditure because the volume of breast milk expenditure is influenced by the hormone prolactin which is related to maternal nutrition; therefore, the diet of nursing mothers is guided by the Balanced Nutrition Guidelines (PGS). Breastfeeding mothers are recommended to eat 6 times per day, drink 3 liters of water per day according to the frequency of breastfeeding their babies because after breastfeeding the mother will feel hungry. Mothers are encouraged to drink every time they breastfeed and consume an additional 500 calories per day Breastfeeding mothers with good nutrition, able to breastfeed babies for at least 6 months. On the other hand, mothers who are malnourished are not able to breastfeed their babies for that long, some even don't have milk [8]3.2.2 Volume of breastfeeding in post-partum mothers after the application of green bean juiceThe results of the case study showed that the volume of milk expenditure in post-partum mothers after the application of green bean juice was in the good category of 5 participants (100%).

The results of this study are also following research where 4 respondents (57.1%) mothers experienced an increase in breast milk production, research where 6 respondents (60%) mothers experienced increased milk production, and Yuni Widaryanti's research in BPM Sumbermulyo Jogoroto Jombang 2015 there were 7 postpartum mothers showed that 4 (57.1%) respondents whose breast milk came out smoothly after consuming green bean juice.

Mariati's research on "The Influence Of Sari Green Nuts In Breastfeeding Products In Postpartum Mother" shows that the average milk production in postpartum mothers who are given peanut juice has an observation score of 9.53 breast milk production. The average milk production of postpartum mothers who were not given green bean juice had an observed score of 6.93 for breast milk production. The average difference between the two groups of breast milk was 2.60.[9]

This is under which states that if one of the nuts that can increase the volume of breast milk expenditure is green beans, this type of bean has the main advantage, namely high levels of vitamin E which is not found in other types of beans, and the vitamins are not damaged during the heating process. The main content of green beans in the form of protein and vitamin B complex (B1, B6). Thiamine (B1) in green bean seeds is contained in the aleurone layer which is easily soluble in water so that in the small intestine it is easily absorbed into the mucosal tissue.

Lack of nutritional intake causes the nutritional needs needed to produce breast milk to be taken from the mother's body. If this situation is allowed to drag on, in addition to the condition of the mother's body will be disturbed, milk production will also decrease, the quality will decrease, and the period of breastfeeding will be relatively short [16]. The nutritional intake that is consumed properly and in a balanced manner is expected to help the respondent's milk production to meet the needs of his baby.

The results of the KAISI research, the Korean human health research institute, showed that every 100 grams of green bean sprouts contain 4.2 g of protein, 3.4 g of carbohydrates, 1.0 g of fat, 47 g of calories, 9.2 g of water, and 15 g of vitamins. C. Green beans (*phaseolus radiatus*) are also a source of nutrition, especially vegetable protein. The nutritional content of green beans is quite high and the composition is complete [7]

Based on the amount, protein is the second main constituent after carbohydrates. Green beans contain 20 – 25% protein. Protein in raw green beans has a digestibility of about 77%. Digestibility that is not too high is caused by the presence of anti-nutritional substances, such as antitrypsin and tannins (polyphenols) in green beans. The presence of polyphenols in several types of plants can affect the increase in the volume of breast milk expenditure. In addition, the increase in breast milk production is influenced by the hormone oxytocin and the hormone prolactin (Lany, 2010). The increase in these two hormones is influenced by proteins, namely polyphenols and amino acids

present in green beans which also affect the prolactin hormone to produce breast milk by stimulating the alveoli which work actively in the formation of breast milk.[20]

4. Conclusion

Postpartum mothers at PMB Aning Friyanti received the application of green bean juice for 7 times. The volume of milk expulsion in postpartum mothers at PMB Aning Friyanti before the application of green bean juice was in the good category (60%).

Declaration

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Conflicts of Interest: The authors declared that there is no conflicts of interest in this research.

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