Relationship Of Additional Nutritional Consumption Of Green Beans (Vigna Radiata) With Breast Milk Production.

Rohmi Handayani¹, Siti Yulaikah²

¹Ministry of Health, Surakarta Health Polytechnic, Department of Midwifery

ABSTRACT

The protein needed by breastfeeding mothers can be supplied from nuts, including green beans. Green beans 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 beans will increase the nutritional content in breast milk (Suskesty, 2017)

Purpose of the study: to determine the relationship between the frequency of breastfeeding and the provision of additional nutritional consumption of vigna radiate with milk production in postpartum mothers on the 15th day in Klaten district.

Methods: This type of research is pre-experimental design with post test only design with control group design. The population in this study were all mothers who had babies aged 1-3 months and resided in the working area of PuskesmasKlaten from January to September 2020. This study is a mother who has a baby aged 1 - 3 months and breastfeeding exclusively in the working area of PuskesmasKlaten with a sample size of 40 respondents consisting of 20 respondents in the treatment group (consumption of green beans) and 20 respondents in the control group (not consuming green beans). The data analysis technique is the Spearman Correlation and Independent T-Test. Results: There was a correlation between the frequency of breastfeeding and milk production on the 15th day of postpartum mothers with a P value: .000. There is a difference in the average milk production in the 15th day postpartum mothers who are given additional Vigna Radiata (green beans) food and not given Vigna Radiata with P value: .000 Conclusion: The frequency and consumption of additional Vigna radiata (green beans) nutrition can increase breast milk production.
I. INTRODUCTION

Problems around nutrition are very important to be considered and overcome for a country because nutrition problems can cause various problems for development in the future. The formation of quality Human Resources (HR), of course, must start early, namely from infancy or childhood. (Pakpahan, 2016)

One of the factors that plays an important role in improving human quality is the provision of breast milk (ASI). Maximum breastfeeding is an important activity in child care and preparation for future generations. Breast milk is the best food in the early life of children as well as a basic right to grow and develop optimally. Suitable nutritional and protective factors in breast milk ensure good nutritional status and decrease infant mortality and morbidity. The benefits of breastfeeding include protecting the baby from disease and reducing the chances of the baby getting infectious and allergic diseases. (Pakpahan, 2016)

A baby's growth and development is largely determined by the amount of breast milk obtained, including the energy and other nutrients contained in the milk. Breast milk without other foodstuffs can provide for growth until about four months of age. After that, breast milk only functions as a source of protein, the main vitamins and minerals for babies who get additional food which is dependent on rice.

It is estimated that 80% of mothers who give birth are able to produce enough breast milk for the full needs of their babies without additional food for the first six months. Even mothers who are undernourished, often can produce enough milk without additional food for the first three months. The process of breastfeeding is carried out through lactation activities.

Many factors influence the lactation process, including breastfeeding technique, frequency, duration and nutrition of breastfeeding mothers. This is related to one another, if the breastfeeding technique is wrong it will cause pain in the punting so that the mother will stop breastfeeding. Likewise with the frequency of breastfeeding, the higher the frequency of breastfeeding, the baby will get more optimal nutrition. Breastfeeding on-demand or breastfeeding whenever the baby asks is the best way because it can prevent problems with the breastfeeding process. (Sari, 2017)

Apart from the lactation process, nutrition in nursing mothers plays a role in breast milk production. Breastfeeding mothers need more nutrition, especially more energy needs than during pregnancy. Breastfeeding mothers need an additional 800 kcal, which is 600 kcal for milk production and 200 kcal for activities during breastfeeding. The additional nutrients needed are not only used for the needs of the body of a nursing mother, but also for milk production, with high protein needed by the mother to maintain milk production. (Sari, 2017)

Breastfeeding mothers should get an additional 20 grams of protein every day, because 100 cc of breast milk contains 60-65 KKal, from 1.2 grams of protein, 2.5-3.5 grams of fat. The substances in the secretion of breast milk are taken from the body of the nursing mother and are obtained from the daily food supply. (Ritonga, 2019)

The protein needed by breastfeeding mothers can be supplied from nuts, including green beans. The content of green beans is quite high and the composition is complete. Mung beans contain 20-25% protein and contain amino acids so that they can secrete 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 breast milk kunyiyas will increase and the nutritional content contained in green beans will increase the nutritional content in breast milk (Suskestry, 2017)

Based on the above phenomena, the researchers are interested in conducting research with the title "The relationship between the frequency and duration of breastfeeding as well as the additional consumption of vigna radiate with breast milk production"
II. METHODS

This study was a pre-experimental study using a post test only research design with a control group design. The research will be carried out in the working area of PuskesmasKlaten. The research will be carried out in January - September 2020.

The population in this study were all mothers who had babies aged 1-3 months and who lived in the Klaten Public Health Center working area from January to September 2020.

The sample in this study were mothers who had babies aged 1 - 3 months and breastfeeding exclusively in the working area of the Klaten Public Health Center with a sample size of 40 respondents consisting of 20 respondents in the treatment group (consumption of green beans) and 20 respondents in the control group (not consuming nuts, green). The sample technique used was purposive sampling. Data analysis was performed using the Spearman correlation test to determine the correlation of nipple suction frequency and milk production and using the Independent T-Test to determine the mean difference in breast milk production between breastfeeding mothers who consumed and did not consume green beans.

III. RESULT

The research was carried out in the Klaten Selatan Health Center area from January to September 2020. The sample size in the study was 40 people consisting of 20 breastfeeding mothers who consumed green beans and 30 breastfeeding mothers who did not consume green beans. Data on breastfeeding mothers who consume green beans and do not consume green beans and their milk production are taken from primary data. The results of this study will present the distribution of the characteristics of the respondents and the results of statistical analysis of the relationship between the frequency of breastfeeding and milk production as well as the reduction in the average milk production between breastfeeding mothers who are given additional green bean food and not given green beans.

The Relationship between Nipple Suction Frequency and Breast Milk Production

The results of the study regarding the relationship between the frequency of nipple suction and milk production are presented in the following table.

| Variabel                  | M   | Med | Min | Max | Sig P Value |
|---------------------------|-----|-----|-----|-----|-------------|
| Breastfeeding (time/day)  | 12.95 | 13  | 10  | 15  | .000        |
| Breastmilk production (ml)| 103.75 | 95 | 30  | 230 |             |

Based on table 1, the results of the study on the relationship between nipple suction frequency and AS production. The mean frequency of breastfeeding by the respondents was 12.95 times per day with a minimum frequency of 10 breastfeeds a day and a maximum of 15 times a day. Meanwhile, the average milk production in 40 respondents was 103.75 ml in one pump after 2 hours of breastfeeding their babies. Breast milk production is at least 30 ml and at
most is 230 ml. The results of the research on the relationship between the frequency of breastfeeding and milk production based on table 4.1 obtained data on the minimum and maximum frequency of breastfeeding and milk production. The measure of data centering and distribution is used because the data is not normally distributed.

Based on the results of statistical tests with the Spearman Correlation test, it was found that the p value was 0.000, which means that there was a significant relationship between the frequency of breastfeeding and milk production. With a correlation coefficient of 0.922 which means that the nature of the relationship is very strong.

Differences in the average milk production in breastfeeding mothers who consume green beans and do not consume green beans

The results of the research regarding the relationship between green bean consumption and breast milk production are presented in the following table.

Table 2. Difference in the average milk production in breastfeeding mothers who consume green beans and do not consume green beans

| Group                  | N  | Mean | SD  | CI 95% Lower | CI 95% Upper | P Value |
|------------------------|----|------|-----|--------------|--------------|---------|
| Consume Green Beans    | 20 | 135.5| 45.128 | 39.634       | 87.366       | .000    |
| Not Consume Green Beans| 20 | 72.00| 27.261 | 39.463       | 87.537       |

P Value: T-Test Independent

IV. DISCUSSION

The Relationship between Frequency of Breastfeeding and Milk Production

This study was conducted on 40 respondents consisting of 20 respondents who were in the treatment group, namely breastfeeding mothers who were given green beans every day for 7
days by giving as much as 100 gr / day by making green bean porridge. Meanwhile, for the control group, 20 were breastfeeding mothers who were not given green beans.

One of the efforts to increase breast milk is by breastfeeding children regularly. The more often the child sucks the mother's nipple, the increase in milk production will occur and vice versa if the child stops breastfeeding, there will be a decrease in breast milk. When the baby starts to suck breast milk, there will be two reflexes that will cause the milk to come out at the right time, namely the breastmilk formation / production reflex or the prolactin reflex stimulated by the prolactin hormone and the let down reflex. When the baby sucks on the nipple, it produces a hormone called prolactin, which regulates cells in the alveoli to produce milk. The milk is collected into the milk ducts. Second, let down reflex. The baby's suction will also stimulate the production of another hormone, namely oxytocin, which makes the muscle cells around the alveoli contract, so that milk is pushed towards the nipples. So the more the baby sucks, the more milk it produces (Perinasia, 2006).

The smoothness of the lactogenesis process determines the onset of lactation. Failure to breastfeed is one of the factors that causes lactation onset for more than 3 days. The frequency of breastfeeding is related to stimulation of suction in the breast with the production of oxytocin and prolactin to produce milk. Breastfeeding with a frequency of more than 6 times in the first 24 hours after birth can ensure adequate breastfeeding in the following days (Rivers, et.al, 2010).

The results of this study prove that the frequency of breastfeeding is related to milk production. From the results of the analysis using the Spearman Correlation test, a significance value (p value) was obtained (p value) of 0.00 with a correlation coefficient of 0.922, which means that the frequency of breastfeeding is significantly related to milk production and the nature of the relationship is very strong. This research is in line with the research of Riana Angriani et al in 2017 concerning the Relationship between the Frequency of Breastfeeding and the Smoothness of Production of Post-Partum Mother's Breast in the Work Area of Puskesmas Peusangan Selatan, Bireuen District, Aceh Province, which results in the frequency of breastfeeding a variable that is proven to be related to the smooth production of post partum mother's breast milk in the Work Area. Puskesmas Peusangan Selatan, Bireuen Regency with PR = 2.438, this means that respondents who have a good frequency of breastfeeding have a 2.438 times chance to have a smooth milk production compared to respondents who have a poor frequency of breastfeeding.

The results of this study are in line with Amahorseja's research (2012) regarding the determinants of the continuity of breast milk production, which shows that the frequency of breastfeeding is a determinant factor for the continuity of milk production with a p value of 0.001, it is also known that B = 32.474 so that the more often the mother breastfeeds her baby, the continuity of her milk production is also getting smoother. Based on this research, it is also known that the frequency of breastfeeding is the dominant factor affecting the continuity of milk production.

It is known that 58% of mothers experience breastfeeding problems in the first 2 weeks resulting in a lack of confidence in the mother to breastfeed her baby. If the milk supply is truly inadequate then additional supplements are needed. If supplementary feeding is given as a substitute for breastmilk it will have a negative impact on the milk supply itself. So that the more often breastfeeding is given to babies, the milk production will be smoother and the baby's needs for nutrition from breast milk are also fulfilled (Jacqueline, et. Al 2016).

This study is also supported by Sulistiyah's (2016) study regarding the relationship between the frequency of breastfeeding mothers in infants 0-6 months and the fluency of breastfeeding, it is known that there is a relationship between the frequency of breastfeeding mothers in infants 0-6 months and the fluency of breastfeeding with a p value of 0.001. Factors that influence the fluency of breastfeeding when breastfeeding include the frequency of breastfeeding, avoidance of formula milk and the psychological influence of the mother while
breastfeeding as well. In addition, this research is supported by Pranajaya's (2013) research on the determinants of breast milk production in breastfeeding mothers where the results of this study indicate that there is a relationship between the frequency of breastfeeding and milk production (p value 0.001). Each baby has a breastfeeding pattern unique, different from each other, some babies usually suck little or only briefly but with frequent frequency. Some babies also suckle longer but with less frequency. Influence in pituitary hormone secretion. The child suction stimulates the smooth muscles found in the breasts. To contract which then stimulates the surrounding nervous system and passes this stimulation to the brain. The brain will command the hypophyse gland in the back to release more pituitary, which will affect the strong contraction of the smooth muscles of the breast and uterus. Contraction of smooth muscles in the breasts is useful for the formation of breast milk, while contraction of smooth muscles in the uterus is useful for accelerating involution.

The characteristics of a baby who is sufficiently breastfed include that the baby will look satisfied after breastfeeding, the baby will fall asleep and not cry, the baby looks healthy and there is an average weight gain of 500 grams per month while the ideal frequency of breastfeeding is 8-12 times in 24 hours and 10 to 20 minutes for each breast, with a breastfeeding interval between one and a half to two hours. But often some are long, maybe up to half an hour. Conditions like this depend on the strength of the baby to suck, the speed of swallowing and the baby's comfort when breastfed. When full, the baby will release the mother's nipple. The frequency of breastfeeding also depends on the amount of milk and the baby's appetite. Recent research has shown that babies who are breastfed slowly get as much milk as babies who are breastfed quickly. If a mother whose baby is breastfeeding slowly and stops breastfeeding before the baby is finished, the baby may not be getting the final, energy-rich milk needed to thrive.

The Relationship between Vigna Radiata (Green Beans) Consumption and Breast Milk Production

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. Mung beans contain 20-25% protein. High protein is needed by the mother during lactation, especially the protein contains amino acids so that it can stimulate breast milk secretion. 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. (Suskesty, 2017).

Based on the results of this study, after analysis with the Independent T-test statistical test, it was found that there was a significant difference in the mean milk production between breastfeeding mothers who consumed additional green bean food and those who did not consume green beans. The results of this study are supported by the results of Sukesty's 2017 research on the effect of mixed green bean juice on the increase in hormone prolactin and baby weight, with the results that there is a difference in baby weight gain on the 15th day in the two treatment groups with p value <0.05. Baby weight on day 15 has a positive correlation with prolactin hormone levels, with a correlation coefficient value of 1.00. It is proven that green beans increase the hormone prolactin which supports increased milk production.

Selection of green beans (Phaseolus Radiatus) as a galactagogue is based on its nutritional content, including carbohydrates, which are the largest component of green beans, which is 62-63%. The fat content in green beans is 0.7-1 g / kg fresh green beans which consists of 73% unsaturated fat and 27% saturated fat, so it is safe for consumption. Based on the amount, protein is the second main constituent after carbohydrates. Mung beans contain 20-25% protein. The protein in raw green beans has about 77% digestibility. The low digestibility is due
to the presence of anti-nutritional substances, such as antitrypsin and tannins (polyphenols) in
green beans. The fulfillment of adequate nutrition during the lactation process can affect the
production of the hormone prolactin after eating. Provision of additional nutrients containing
galactogogues is very helpful to increase milk production. In this study, mothers were given
additional nutrition in the form of mixed green bean juice and fennel leaves because these plants
contain active compounds, namely polyphenols and flavonoids which function to increase the
prolactin hormone. 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 the mixed
green bean juice and fennel leaves will increase the nutritional content in breast milk.

Vitamin B1 (thiamin) found in green bean juice functions to strengthen the nervous
system and is responsible for milk production, where thiamin stimulates the work of
neurotransmitters that will convey messages to the posterior pituitary to secrete the hormone
oxytocin so that this hormone can stimulate breast smooth muscle contraction which is on the
walls of the alveoli and the walls of the ducts so that the milk is pumped out. In addition, it is
also useful for maximizing the nervous system so that it is easier to concentrate and more
excited. Mothers who are easy to concentrate, excited and in a good mood will trigger the work
of the brain to provide information to nerve imfuls in order to stimulate the hypothalamus in the
formation of the hormones prolactin and oxytocin so that the process of breast milk formation
and breastfeeding is smooth (Reni, 2014).

This research is in line with the research conducted by Wulandari, DT and Jannah, SR (2015),
before being given mung bean juice, the postpartum mother experienced an ineffective milk
production after being given green bean juice for 6 consecutive days the postpartum mother
experienced smooth milk production, marked by smooth expenditure of mother’s milk
production when breastfeeding her baby.

The research is in line with that conducted by Irfani, F (2017), which states that the
benefits of green bean juice are that it can facilitate breastfeeding in Post Partum mothers due to
the large amount of nutrients in green bean juice, which converts carbohydrates into energy and
is responsible for accelerating breast milk production, where the content is Nutrients from green
beans will stimulate the work of neurotransmitters that will convey a message to the pituitary
posterior to excrete the hormone oxytocin. Research conducted by Wahlkida, SW (2017),
titled the effect of green bean consumption on breast milk production in breastfeeding mothers
with infants aged 0-6 months at Posyandu in the village of Bakalan Malang. In this study using
the chi square test, the p value <(0.002 <0.005) shows that there is a significant effect before and
after giving mung bean juice in the village of Bakalan Malang. In this study, the method of
consuming mung bean juice is recommended for all mothers. childbirth.

V. CONCLUSIONS

There is a relationship between the frequency of breastfeeding and the production of
breastmilk on the 15th day postpartum mother with a P value: .000 and there is a difference in
the mean milk production for the 15th day postpartum mothers who are given additional Vigna
Radiata (green beans) food and not given Vigna Radiata with P value: .000

Suggestions for the community, especially breastfeeding mothers, are to consume
green beans as an additional food because their nutritional value is very high and can increase
breast milk production so that it can support the growth and development of their babies. So that
health workers, especially midwives, promote more green beans as an additional supplement for
breastfeeding mothers.
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