International Journal of Multidisciplinary Education and Research
ISSN: 2455-4588; Impact Factor: RJIF 5.12
Received: 17-04-2019; Accepted: 20-05-2019
www.educationjournal.in
Volume 4; Issue 4; July 2019; Page No. 60-67

The giving food snack bar of cumin leaves (plectranthus amboinicus lour spreng) as an additional alternative of nutrition to increase breast milk production

Rina Utami[1*], Runjati[2], Daru Lestantyo[3]
[1] Midwifery Student, Postgraduate Program, Master Applied of Health, Indonesia
[2] Politeknik Kesehatan Kemenkes Semarang, Semarang, Indonesia
[3] Universitas Diponegoro Semarang, Semarang, Indonesia

Abstract
Background: The benefits of breastfeeding are protection against infections because they contain specific proteins to protect against allergies and stimulate the immune system. One of the problems of nursing mothers is hypogalactia. Hypogalactia occurs due to barriers to the production of the prolactin hormone at the stage of lactogenesis caused by food problems, zinc deficiency and stress. Traditional plants that are believed to be hereditary as stimulants for breast milk, including the leaves of cumin, which play a role in the prolactin reflex and then stimulate the alveoli to produce breast milk.
Method: The type of research used is Quasy Experiment with a pre-test – post-test control group design. This research arranged two groups, namely the intervention group given bar snack the cumin leaves, while the control group that was given the placebo was a snack bar without caraway leaves. Technique non-probability sampling with method was consecutive sampling used to get 32 respondents divided into two groups.
Results: The results of statistical test Mann Withney showed a p value of 0.000 (<0.05) which means that there was a significant difference in the volume breast milk after being given treatment between the intervention group and control group.
Conclusion: The results of the research after being treated an increase in the volume breast milk of respondents given food snack bar of cumin leaves (Plectranthus Amboinicus Lour Spreng), so that traditional plant therapy is effectively implemented to postpartum mothers who experience a decrease in the volume breast milk, especially mothers who are active in breast feeding exclusive.

Keywords: Foof snack bar of cumin leaves, plectranthus amboinicus lour spreng, alternative nutrition supplement, breast milk production

1. Introduction

Breast milk (ASI) is a fat emulsion in a solution of protein, lactose and organic salts secreted by the mother's breast glands as food for babies [1]. ASI as an intervention strategy that can have a high impact on becoming a global gold standard [2-3]. This strategy can optimize the process of growth and development of the baby, both physical, spiritual, emotional and socialization [4-5].

Some mothers feel anxious about breastfeeding and use the schedule in breastfeeding, so that it affects the quantity of milk produced and is not in accordance with the needs of the baby. The inadequacy of breast milk production is one of the reasons mothers stop breastfeeding early [6]. This can lead to psychological disorders in postpartum mothers, because they feel unable to support the baby's weight gain and meet their needs [7-8].

The study stated that the factors that influence exclusive breastfeeding include lack of milk production, difficulty in breathing, nipple condition, working mothers and the effect of breast milk substitutes [9]. Another reason for the failure of exclusive breastfeeding is lack of knowledge about exclusive breastfeeding, and non-exclusive food ideology, so that there is a lack of motivation for mothers to provide exclusive breastfeeding for babies [10]. Knowledge and attitudes in exclusive breastfeeding can be influenced by means of health education, because the health education provided will easily capture information and influence attitudes in exclusive breastfeeding [11].

One of the benefits of breastfeeding is protection against infection because it contains specific proteins for protection against allergies and stimulates the immune system [12]. In 75 middle and low income countries can prevent 823,000 child deaths each year from breastfeeding [13-14]. Based on recent studies, infants who are breastfed for a period of 6 months or more have 33.3 times better survival than breastfed infants less than 4 months old, and breastfed infants 4-5 months have 2 survival, 6 times than babies who are breastfed for less than 4 months [15].

Lactation is an integrated part of the reproductive process that provides ideal and natural baby food and is the biological and psychological basis needed for growth [1]. Production of breast milk is influenced by two hormones, namely the hormone prolactin which can affect the amount of milk production, while oxytocin influences the process of breastfeeding. Prolactin is related to maternal nutrition, the higher the nutrient intake, the better the production [16]. The assessment of ASI production can be seen from several indicators, for example with signs of adequate breastfeeding. based on Budiati's research, indicators of adequacy of breastfeeding can be divided into two, namely in terms of mother and infant aspects. The indicators examined in terms of the baby include the frequency and characteristics of BAK and BAB, the number of hours the baby sleeps, the baby's weight [17].

One of the problems of nursing mothers is hypogalactia which contributes 63% [18]. Hypogalactia occurs due to barriers to the production of the prolactin hormone at the stage of lactogenesis caused by food problems, zinc deficiency and stress [19]. According to the World Health Organization (WHO), the target of breastfeeding for infants under 6 months is at least 50%. Meanwhile, according to Indonesia's Health Profile in 2017, the coverage of Exclusive ASI in Indonesia is 35.73%. While for Central Java, it has decreased when seen in the last three years, namely 2015, 2016, 2017, with 61.6%, 54.22%, 41.89% coverage respectively [20-21].

Central Java has 35 cities and districts, in 2016 Pekalongan Regency ranked 28th in Exclusive ASI coverage, which was 39.38%, a decrease compared to the previous year at 42.91% [21-22]. and again declined in 2017, which was 38.4% and became number 29 [23]. Reasons for mothers to stop breastfeeding exclusively not only because the mother works but because of the low production of ASI [24]. On the first day giving birth to a little ASI production becomes an obstacle in breastfeeding [25].

Government efforts in supporting exclusive breastfeeding for infants are regulated in the Health Act (Law No. 36 of 2009 concerning Health), No [26]. Government Regulation No.33/2012 concerning exclusive breastfeeding [27]. Article 129 of Law 36 concerning health that the government is responsible for establishing policies in order to guarantee the right of infants to obtain breast milk exclusively. Currently in the era of technological development, many formula milk companies offer their products for baby consumption so that babies do not get their full rights, and several factors that can become obstacles in breastfeeding.

The mitigation efforts include increasing the quality and quantity of breast milk [28]. Thus the mother can give exclusive breastfeeding and continue until the child is 2 years old [29]. In order to increase the quality and quantity of breast milk, a substance containing lactagogum is needed. Laktagogum is a substance that can be used as an enhancement and smoothing of ASI [30]. Drugs that can increase and facilitate breastfeeding, for example by administering domperidone, this pharmacological drug has good effectiveness, but is not widely known and has side effects [31]. Side effects that can be caused by domperidone include headaches, dizziness, dry mouth and diarrhea [32].

Various plant studies in Indonesia have shown the effect of laktagogum. Plants that have been tested for content and are efficacious as laktagogum, for example katuk leaves, Moringa leaves and cumin leaves [33-34]. Nutritional composition of 100 grams of cumin leaves contains higher total carotene, namely 13288 compared to katuk leaves and Moringa leaves, namely 10020 and 9000 respectively [35]. Plectranthus amboinicus (Lour.) Spreng or leaves of leaves and in Javanese society are known as caraway leaves (cumin), and have been used as stimulants oflactagogueby Batak people in Indonesia for hundreds of years [36]. The benefits of cumin plants indicate that the stem has the highest polyphenol concentration of 9.6 mg / g gallic acid followed by leaves and roots, respectively 8.4 and 5.4 mg / g gallic acid [37].

The content of cumin leaves has three main components, which are nutritional, pharmacoseutic and lactagogum. In mice given caraway leaves 30 mg / kg body weight, can increase milk production, the weight of rats and mother rats, increased significantly at the age of rats on days 2-14 of breastfeeding [38]. Other studies by supplying soup 150 grams of cumin leaves or wake-up per day for two weeks after delivery had increased milk volume by 65%, compared to breastfeeding mothers who consumed Molocco + B12tablets^{TM} (10%) or Fenugreek seeds (20%) [39].

Research on the development and utilization of cumin leaves served in the form of soup and stored in cans at a temperature of 3-5^{o}C damage occurred on the 8th day and the pH value during storage decreased which means the total value of titrated acid increased, the total value of microbes and thiobarbituric acid tends to increase 3-5^{O}C [40]. Factors that influence breast milk production are food. Sources of quality food and lactagogum containing from generation to generation can improve the quality and quantity of breast milk.

Based on the description above, additional functional food is needed for the development of a product by utilizing the potential of cumin leaves found in many communities and then processed in the form of a snack bar because it will be more practical, durable, can be easily enjoyed with a better taste for nursing mothers, because mothers breastfeeding is one of the targets of supplementary feeding, which requires more nutrition than mothers who do not breastfeed. The hope of the product is not only to support the exclusive breastfeeding program, but also to supplement the nutritional intake of nursing mothers.

2. Methods

This type of research uses is Quasy Experiment with a pre test - post test with control group design. The researcher arranged two groups, namely the intervention group given food snack bar of cumin leaves, while the control group that was given the placebo was a snack bar without caraway leaves. Giving food snack bar of cumin leaves and placebo (snack bar without caraway leaves) given as much as 34 grams in onepack snack bar/dayuntil the 14th day. The volume measurement breast milk uses the breast milk pump instrument by looking at the amount of breast milk released, then recorded into the observation sheet. Measuring the volume of breast milk with mothers breast feeding is carried out before and after the therapy action.

The population in this study were all mothers post partum normal in the working area of the Pekalongan District Health Center, which included the Kajen 1 health center, Bojong II health center, Kesesi 1 health center from May to June 2019. Determination of the minimum sample size using techniques non- probability sampling with method consecutive sampling and based on inclusion and exclusion criteria 32 respondents were divided into two groups with 16 respondents in the intervention group and 16 respondents in the control group.

In this study researchers conducted data collection by observing, identifying, interviewing and filling out the questionnaire. The collected data was analyzed through the IBM SPSS program version 24.0, and continued with a different test namely non-parametric test (Wilcoxon test and Mann Withney). The processed data is used as the basis for discussing problem statements, which are then presented in table form so conclusions can be drawn.

3. Results

Table 3.1: Frequency distribution respondents based on age, psychological condition, work, education, parity and rest pattern mothers based on demofigic data

Category		Respondents Group				p value
		Intervention		Control		
		N	%	n	%	
Age	<20 years	1	6.3	1	6.3	0.722
	20-35 years	14	87.5	14	87.5	
	>35 years	1	6.3	1	6.3	
	Total	16	100	16	100	
Psychological Conditions	Not Stress	14	87.5	14	87.5	0.749
	Stress	2	12.5	2	12.5	
	Total	16	100	16	100	
Work	Employment	5	31.3	4	25.0	0.452
	Not Working	11	68.8	12	75.0	
	Total	16	100	16	100	
Education	Elementary Shcool	4	25.0	2	12.5	0.343
	Middle School	5	31.3	9	56.3	
	High School	7	43.8	5	31.3	
	Total	16	100	16	100	
Parity	Primipara	5	31.3	5	31.3	1.000
	Multipara	11	68.6	11	68.6	
	Total	16	100	16	100	
Rest Patterns Mothers	< 7 hours (less)	2	12.5	5	31.3	0.375
	> = 7 hours (enough)	14	87.5	11	68.8	
	Total	16	100	16	100	

*Levene's Test

Based on the table above, this study shows that between the intervention group and the control group in terms of age, psychological conditions, work, education, parity and rest pattern or maternal sleep duration are homogeneous data because p value > 0.05 or no significant difference.

Table 3.2: Differences in the outcome breast milk production included infant body weight, body frequency, chapter frequency and duration of sleep before and after treatment in the intervention group and control group

Variable		Average Difference	Intervention Group (n = 16)			Average difference	Control Group (n = 16)		
			SD	p*	P **		SD	P*	P**
Baby's weight	Pre and D-14	312.500	86.603	0.001	0.000	200.000	51.640	0.001	0.000
	Pre and D-7	154.375	75.097		0.001	78.125	31.458		0.000
	D-7 and D-14	158.125	113.091		0.000	121.875	54.677		0.000
Urination Frequency	Pre and D-14	4.375	0.719	0.001	0.000	3.250	0.856	0.001	0.000
	Pre and D-7	1.938	0.680		0.000	1.438	0.892		0.001
	D-7 and D-14	2.438	0.727		0.000	1.813	0.544		0.000
Defecation Frequency	Pre and D-14	1.750	0.683	0.001	0.000	0.813	0.655	0.001	0.002
	Pre and D-7	0.188	0.544		0.180	0.063	0.574		0.655
	D-7 and D-14	1.563	0.892		0.001	0.875	0.719		0.002
Sleep a long time	Pre and D-14	1.563	0.629	0.001	0.000	0.500	0.632	0.005	0.011
	Pre and D-7	1.563	0.629		0.000	0.438	0.727		0.035
	D-7 and D-14	1.563	0.629		1.000	0.063	0.250		0.317

*Friedman
**Post Hoc Wilcoxon

Based on the above table, showed that there were differences in the mean before and after the intervention group on the outcome of ASI production which was infant weight (312.500 grams), BAK frequency (4.375), BAB frequency (1.750) and infant sleep duration (1.563) with each p value 0.001 (<0.05). Where as in the control group of infant weight (200.00 grams), the frequency of BAK (3.250), frequency of BAB (0.813) and duration of sleep (0.500), with each value of p= 0.001 in body weight. Frequency of BAK, frequency of BAB and p= 0.005 for infant sleep duration (p <0.05).

Table 3.3: Differences in the volume breast milk before and after treatment in the intervention group and control grup

Variable		Intervention Group (n=16)				Control Group (n=16)			
		Average Difference	SD	P*	P **	Average Difference	SD	P*	P **
Volume Breast Milk	Pre and D-14	50.719	5.876	0.001	0.001	38.281	7.861	0.001	0.001
	Pre and D-7	37.344	8.715		0.001	21.719	7.616		0.001
	D-7 and D-14	13.375	10.675		0.001	16.566	8.662		0.001

*Friedman
**Post Hoc Wilcoxon

Based on the above table, showed that there were differences in the average volume of breast milk in the intervention group and control group with p value 0.001 (0.005). However, it can be seen that the average increase in ASI volume in the intervention group after treatment for 14 days was 50.719 ml and in the control group the average volume of breast milk increased 38.28 ml.

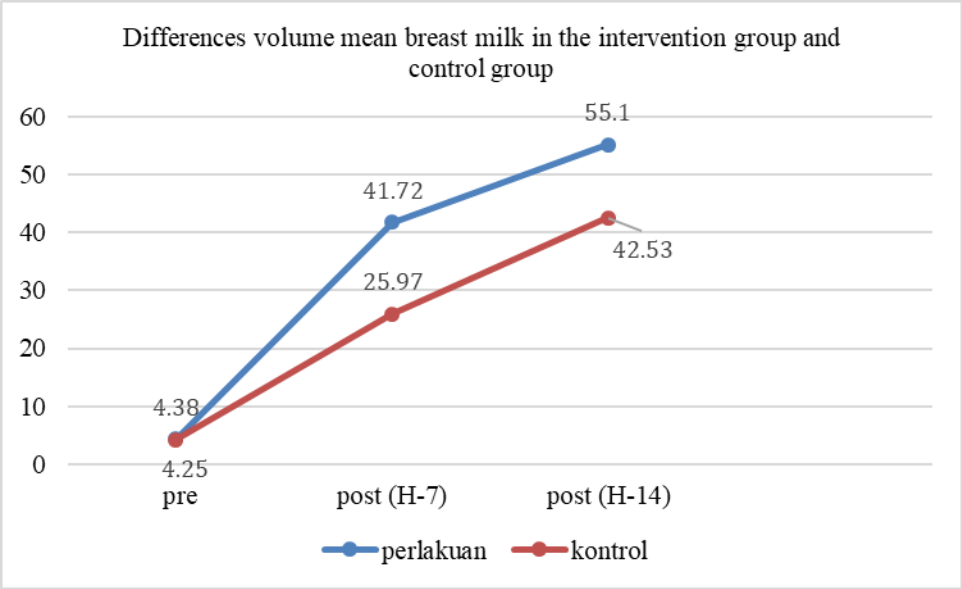

Fig 3.4: Differences volume mean breast milk in the intervention group and control group

Based on the fig above, it can be seen that there is a change in volume breast milk between the intervention groups given snack food the cumin leaf barcompared to the control group which is only given a food snack bar without cumin leaves. In the intervention group before being given treatment the average volume of breast milk was 4.38 ml, then increased on day 7 to 41.72 ml, day 14 to 55.1 ml. while in the control group before being given treatment the average volume of breast milk was 4.25 ml, day 7 became 25.97, and day 24 became 42.51 ml.

Table 3.5: Differences in infant weight, body frequency, chapter frequency and length of sleep of infants in the intervention group and control group

Variables		Group		p value
		Intervention (Mean±SD)	Control (Mean±SD)	
Baby's weight	Pre	2828.13±184.363	2793.75±198,221	0.471
	Post (D-7)	2982.50±198.242	2871,00±203.280	0.046
	Post (D-14)	3140.63±169.528	2993.75±207.264	0.020
	Δ	312.50±86.60	200.00±236.64	0.010
Urination Frequency	Pre	5.31±0.479	5.63±0.500	0.081
	Post (D-7)	7.25±0.577	7.06±0.574	0.356
	Post (D-14)	9.69±0.479	8.88±0.500	0.000
	Δ	4.37±0.718	3.25±0.683	0.000
Defecation Frequency	Pre	1.50±0.516	1.69±0.479	0.288
	Post (D-7)	1.69±0.602	1.63±0.500	0.826
	Post (D-14)	3.25±0.775	2.50±0.516	0.006
	Δ	1.75±0.683	0.81±0.750	0.002
Long time sleeping baby	Pre	10.19±0.403	10.44±0.512	0.133
	Post (D-7)	11.75±0.447	10.88±0.500	0.000
	Post (D-14)	11.75±0.447	10.94±0.443	0.000
	Δ	1.56±0.629	0.50±0.632	0.000

*Mann Withney

Based on the table above, the average pre-baby day weight (before) and the 7th day of the intervention group was greater than control group, p value before treatment and 7th was 0.471 and 0.046 (<0.05), meaning there was no difference in average body weight. The 14th day the average body weight of the intervention group was greater than the control group with a p value of 0,000 (<0.05). The frequency of pre (before) infant urination in the intervention group was lower than the control group and the 7th day of the intervention group was greater than the control group with p values of 0.081 and 0.356 (<0.05) meaning there was no difference in defecation frequency. Day 14 of the frequency of infant urination in the intervention group was greater than the control group with a p value of 0.000 (<0.05).

The frequency of pre (before) baby defecation in the intervention group was lower than the control group and the 7th day of the intervention group was greater than the control group with p values of 0.288 and 0.826 (<0.05) meaning there was no difference in urination frequency.

Day 14 the average infant weight of the intervention group was greater than the control group with a p value of 0.006 (<0.05). The average duration of infant sleep pre (before) the intervention group was smaller than the control group with a p value of 0.133 (<0.05). The 7th and 14th days showed an average change between the intervention and control groups with a p value of 0.000 (<0.05). This means that there is a difference in the average fifteenth day sleep duration between the intervention group and the control group.

Table 3.6: Analysis differences in volume breast milk between in the intervention group and control group

Parameter	Group		p
	Intervention Mean±SD	Control Mean±SD	
Pre	4.38±1.088	4.25±1.835	0.359
Post (D-7)	41.72±8.720	25.97±7.725	0.000
posts (D-14)	55.10±5.777	42.53±8.887	0.000
Δ	50.7±5.876	38.28±7.86	0.000

*Mann Withney

Based on the table above, that the volume of breast milk obtained results before being treated at intervention group and control group p value 0.359 (p>0.05) meaning that there was no difference in volume breast milk in the intervention group and control group. After being given treatment is p value of 0.000 and the difference in p value 0.000 means p <0.05, it can be concluded that after the treatment and the difference in the volume of breast milk there are significant differences in the volume of breast milk.

4. Discussion

4.1 The giving food snack bar of cumin leaves an impact on the outcome of breast milk production in infant weight, urination frequency, defecation frequency, and long time sleeping baby

Assessment of breast milk production can be seen as an indicator of adequacy of breast milk can be divided into two aspects, in terms of mother and infant aspects. The indicators examined in terms of the baby include the frequency and characteristics of urination and defecation, the number of hours the baby sleeps, the baby's weight.

Based on the results of the study it was found that the average body weight of infants before and after treatment was greater (2828.13 grams) when compared with the control group (2793.75 grams). The difference in the treatment group given functional food snack bar cumin treatment leaves 312.50±86.60 with avalue of p 0.001 which means there are differences or have an impact on the baby's body weight as treatment.

The giving function alof food snack bar of cumin leaves can have an effect on breast milk production because the content in cumin leaves also has levels of FeSO4 which can be used as non heme iron for mothers breast feeding [36]. This vitamin A content in leaves is also high in beta-carotene [41].

Increase in the volume of breast milk which can be caused by the content in the leaves of cumin containing lactagogum. Based on research conducted by researchers before the cumin leaf content can improve the quality of breast milk, because it contains Potassium, Zinc, Magnesium which can dissolve in breast milk so it can increase the weight of infants who consume bar snacks cumin leaf. This is in accordance with research conducted by previous researchers that foods containing vitamin A can improve the quality of breast milk so that breast milk production can increase because inside the cumin leaves contain beta-carotene [36, 42].

The results of the study are also in line with the research of Rizal Damanik entitled ffect of consumption of building soup (Coleus amboinicus Lour) on micronutrient intakes. In his study showed that torbangun leaf soup can increase the consumption of micronutrients in research subjects in this case namely nursing mothers. The average consumption of micro substances such as calcium, magnesium, potassium and iron will increase and exceed the recommended nutritional adequacy rate [43].

Based on the results of the research conducted, the average baby urination experienced a change in frequency before and after the intervention was greater in the treatment group compared with the control group which was 5.31 x / day to 9.69 x / day with a value of p value 0.001 having an impact on frequency like a baby before and after treatment.

This shows an improvement in breast milk production in the treatment group consuming functional bar snack food cumin leaf. In this indicator, the aspect assessed is the frequency of urination (BAK) of the baby, where the baby has enough milk production for 24 hours at least 6-8 times the baby will BAK with clear and yellow urine. The pattern of elimination in infants depends on the intake obtained by the baby, at least babies who drink ASI 8 to 10 times a day have clear urine color and smell distinctively urine [44].

Babies average change is greater than the control group. In the treatment group before intervention the average CHAPTER 1.68x / day and after the intervention became 3.25 x / day. In contrast to the control group, namely 1.62 before intervention and 2.5 after treatment. With a p value of 0.001 there is a difference in the frequency of baby chapters before and after treatment.

In accordance with the theory that the indicator of assessment of ASI production can use criteria that can be used as a reference to find out the amount of breast milk that is sufficient for the baby's needs, including increasing infant weight, infant sleep duration, frequency of BAK and BAB [45]. The pattern of infant elimination depends on the intake of the baby, infants who drink ASI generally have a pattern of defecation 2-3 times a day, the resulting BAB is golden yellow, not too runny and not too thick.

The mean sleep duration of infants in the treatment group experienced a greater d change compared to the control group. In the treatment group the baby has a long sleep until 10.11 hours to 11.75. In contrast to the control group who had an average length of sleep before intervention 10.44 and after intervention 10.94 hours / day with a p value of 0.001, meaning that there was a difference in the length of sleep for infants before and after treatment in the treatment group. The administration functional of the cumin leaf bar food snack is found in the production of breast milk with a long infant sleep indicator. This difference can be seen on days 7 to 14 days. The production of breast milk produced by the mother's breast glands is not the same time. Babies who suck mother's milk in the first minute are different from the last minute. Breast milk released in the first minute is runny faster, then thickens. The milk produced at the last minute contained 4-5 times fat, 1.5 times more protein compared to the milk that came out in the first minute. So that if the mother feeds her baby properly and correctly, the baby will benefit from the content of breast milk in each phase of

breastfeeding [45].

Based on the theory above and based on the influence obtained from the giving of the functional cumin leaf snack food bar to the production of breast milk, it is likely that the baby gets all the benefits contained in breast milk both from the quantity and quality of breast milk in each breastfeeding phase in the first to last minute. Satisfaction of suckling babies is obtained from the high fat content at the last minute of breastfeeding, so that the milk is sufficient, the baby will fall asleep or calm for several hours.

4.2 The giving food snack bar of cumin leaves breast milk production (volume of breast milk) between in the intervention group and control group

Based on the results of the study it was found that volume of breast milk showed that there was a difference in volume breast milk before and after intervention in the treatment and control groups. In the treatment group the difference between the average before and after the mother consumed food snack bar of cumin leaves which was 50.7 ml, while in the control group before and after it was 38.28. Volume breast milk values in the intervention group and control group after significant treatment were p= 0.001, which means that Ho was accepted, meaning there was a significant difference in breast milk production as indicated by the volume of breast milk between the intervention group and control groups. The results of the study showed that the giving food snack bar of cumin leaves can have an effect on the volume of breast milk.

Increase in breast milk production in the volume indicator of breast milk because cumin leaves contain lactagogum. Laktagogum is a substance that can increase and expedite milk. Today's society still believes in the use of natural ingredients derived from natural ingredients compared to processed plants that use chemicals or synthetics, because this belief is proven from generation to generation [30].

Laktagogum contained in cumin leaves contained compounds containing saponins, polyphenol flavonoids, essential oils and can increase the hormone prolactin and oxytocin produced by the hypothalamus through the anterior and posterior pituitary so that it can be used as an alternative to increase milk production.[46] Flavonoids are one of the phenolic compounds contained in plant tissues, which have an antioxidant role through secondary metabolic processes. The antioxidative ability of flavonoids is able to donate hydrogen atoms or has the ability to chelate metals.

In breastfeeding mothers who consume cumin leaf snack bars or treatment groups have experienced an increase in baby's weight, this can be due to the cumin leaves having content that can increase the quality and quantity of breast milk, including having steroid, polyphenol and flavonoid contents, which can increase the breastfeeding hormone namely prolactin and oxytocin [47]. Hormonally to produce breast milk, when the baby sucks the mother's breast, there is hormonal stimulation of the mother's nipple and areola. This stimulation is forwarded to the pituitary via the vagus nerve, then to the anterior lobe. From this lobe will release prolactin hormone, enter the bloodstream to the glands making ASI. Glands will be stimulated to produce milk [48].

Increased milk production can be seen from the volume of breast milk produced and released by the breast gland can be different based on factors that influence. In the last week of pregnancy, ASI-making glands begin to produce milk. if the nipple sucking results are adequate, on the first day after birth the baby will get 50-100 ml / day and the amount will continue to increase until it reaches 400-500 ml / day in the second week. In the following month a healthy baby will consume around 700-800 ml / day [1].

Baayi regularity sucks more than 10 times a day, making breastmilk production increase every day supported also by nutrition by giving the cumin leaf fungisonal food bar consumed by the mother for 14 consecutive days which helps increase maternal prolactin levels and breast milk which is affected by the hormone oxytocin, so that the coordination between nutrition and the baby's suction causes the volume of breast milk to increase, according to the results of the study, namely an increase in the volume of breast milk. This research is also in line with research conducted by Damanik that foods containing flavonoids have antioxidant activity which can act as an alternative to increase milk production [47].

5. Conclusion

Based on the results of research and discussion on the effect of giving snack food bar the cumin leaf to the volume of breast milk and the outcome of breast milk production it can be concluded that:

5 Giving food snack bar of cumin leaves (plectranthus amboinicus lour spreng) 34 grams for 14 days can increase the volume of breast milk evenly before the intervention was given (4.38 ± 1.088), post D-7 (41.72±8.720), post D-14 (55.10±5.777) with a difference of 50.7±5.876 with p value 0.001 (<0.05) shows that there are at least 3 different measurements in the group given the intervention. Increasing the volume of breast milk is due to the content of steroids, polyphenols, flavonoids, which can improve the quality and quantity of breast milk.

6 Giving food snack bar of cumin leaves (plectranthus amboinicus lour spreng) 34 grams for 14 days has the effect of increasing the volume of breast milk compared to giving a food snack bar without caraway leaves. It is proven by the value of p = 0.001 (p <0.05) in the intervention group with the control group. It is evident that the content in cumin leaves has the effect of lactogogum which can affect the volume of breast milk.

7 Giving food snack bar of cumin leaves (plectranthus amboinicus lour spreng) 34 grams for 14 days has a potential effect compared to giving a food snack bar without caraway leaves to have an impact on the outcome production breast milk includes infant body weight (p value = 0.020), urination frequency (p value=0.001), defecation frequency of babies (p value= 0.006) and long-time sleeping baby's duration (p = 0.001) each p value <0.05 which show differences between treatment and control groups. It is evident that the content of cumin leaves contained in cumin leaves can provide the potential for ethyl acetate fraction which can improve the outcome of breast milk production.

6. References

1. Nugroho T. ASI Dan Tumor Payudara. Yogyakarta: Nuha Medika, 2011.
2. Binns C, Lee MK, Kagawa M. Ethical challenges in infant feeding research. Nutrients. 2017; 9(1):1-11.
3. Ohlhorst SD, Russell R, Bier D, *et al*. Working Group P Report Nutrition research to affect food and a healthy

lifespan 1, 2. Adv Nutr. 2013; 4:579-584.
4. Ryan K, Team V, Alexander J. The theory of agency and breastfeeding. Psychol Heal. 2017; 32(3):312-329.
5. Zhang Z, Liong S, Wong CP. High frequency measurement of isotropic conductive adhesives. Proc Int Symp Exhib Adv Packag Mater Process Prop Interfaces, 2001, 246-250.
6. Cai X, Wardlaw T BD. Global Trends in Exclusive Breastfeeding. Int Breastfeed J. 2012; 7(12):2-6.
7. Whitehead RG, Paul AA. Human Lactation, Infant Feeding, and Growth : Secular Trends, 1985, (5).
8. Wulandari Sr HS. Asuhan Kebidanan Ibu Masa Nifas. Yogyakarta: Gosyen Publishing, 2011.
9. GAY. Pemberian ASI Eksklusif dan Faktor-faktor yang Mempengaruhi. Gizi. 2014; 20(4):15-26.
10. Afifah DN. Faktor Yang Berperan Dalam Kegagalan Praktik Pemberian ASI Eksklusif (Studi Kualitatif di Kecamatan Tembalang, Kota Semarang Tahun 2007). Kesehatan, 2007, 1-19.
11. Apriliana Kuswanto R. Pengaruh Pendidikan Kesehatan Dengan Metode Ceramah Terhadap Pengetahuan Dan Sikap Pemberian Asi Eksklusif Pada Ibu Hamil Primigravida Di Puskesmas Kapuan Tahun 2016. J Kebidanan. 2017; 6(13):26-37.
12. Marmi. Asuhan Kebidanan Pada Masa Nifas Puerperium Care. Cetakan Ke. Celeban Timur: Pustaka Pelajar, 2017.
13. Hockstein E, Now I. Global Strategy for Infant and Young Child, 2014.
14. Kesavan PC, Swaminathan MS. From millennium development goals to sustainable development solutions. Curr Sci. 2014; 106(4):495-496.
15. Rahayu LS, Sofyaningsih M, Pertiwi D, *et al*. Pengaruh Pelayanan Kesehatan terhadap Gizi Buruk Anak Usia 6 - 24 Bulan. Sari Pediatr. 2011; 12(1):71-80.
16. Maritalia D. Asuhan Kebidanan Nifas Dan Menyusui. Yogyakarta: Pustaka Pelajar, 2014.
17. Budiati T, Cd NH. Peningkatan Produksi Asi Ibu Nifas Seksio Sesarea Melalui Pemberian Paket Sukses Asi.
18. Maula SN, Widyawati MN, Suryono S. A Model for Hypogalactia Treatment Using Electrical Acupoint to Increase Breast Milk Volume and Improve Prolactin Content, 2018, 6020.
19. Liu N, Krassioukov AV. Postpartum hypogalactia in a woman with Brown-Séquard-plus syndrome: A case report. Spinal Cord. 2013; 51(10):794-796. doi:10.1038/sc.2013.51
20. Kementrian Kesehatan RI. Profil Kesehatan Indonesia. Kementeri Kesehat Republik Indones, 2017, 1-382.
21. Profil Kesehatan Jateng. Profil Kesehatan Jateng 2016. DINKES Jateng. 2016; 3511351(24).
22. Dinas Kesehatan Jawa Tengah. Provinsi Jawa Tengah Tahun 2015. Profil Kesehat Provinsi Jawa Teng, 2015, 1-262.
23. Kesehatan D. Profil Kesehatan Jawa Tengah Tahun. 2017; 3511351(24).
24. Inayah G, Dian A. Determinan Perilaku Pemberian Air Susu Ibu Eksklusif pada Ibu Pekerja. J Kesehat Masy Nas. 2013; 7:298-303.
25. Breasfeeding SC. With Confidence. Panduan Belajar Menyusui Dengan Percaya Diri. Jakarta: Pt. Elex Media Komputindo, 2006.
26. Undang-undang Republik Indonesia Nomor 36 Tahun, 2009.
27. PP 33 2012 ttg pemberian asi ekslusif.pdf, 2012.
28. Sutadi H, Koestoer RA. Effects of Acupoint Stimulation with Digital Massager of Oxytocin on the Breast Milk Production of Working Mothers. J Nurse. 2016; 6(2):91-100.
29. Nina SM. Pedoman Ibu Menyusui. (Medika N, ed.). Yogyakarta, 2013.
30. Kaliappan N, Viswanathan P. Pharmacognostical studies on the leaves of Plectranthus amboinicus (Lour) Spreng. Int J Green Pharm. 2008; 2(3):182-184.
31. Fazilla TE, Tjipta GD, Azlin E, Sianturi P. Pengaruh domperidon terhadap produksi ASI pada ibu yang melahirkan bayi premature. 2013; 46(1):48-52.
32. Ingram J, Taylor H, Churchill C, Pike A, Greenwood R. Metoclopramide or domperidone for increasing maternal breast milk output: a randomised controlled trial, 241-246.
33. Ahmad Baequny, Supriyo SH. Efektivitas Minum Jamu (Ramuan Daun Katuk, Kunyit, Lempuyangan, Asem Jawa) Terhadap Produksi Asi Pada Ibu Nifas, 2008, 153-164.
34. Djajanti AD. Uji Efek Pelancar ASI Rebusan Daun Kelor (Moringa Oleifera (lamk)) Pada mencit. J Farm, 2013.
35. Departemen Kesehatan Republik Indonesia. Milik Perpustakaan Gizi, 1995.
36. Damanik R. Torbangun (Coleus amboinicus Lour): A bataknese traditional cuisine perceived as lactagogue by bataknese lactating women in Simalungun, North Sumatera, Indonesia. J Hum Lact. 2009; 25(1):64-72.
37. El-hawary SS, El-sofany RH, Abdel-Monem AR, Ashour RS. Phytochemical Screening, DNA Fingerprinting, and Nutritional Value of Plectranthus amboinicus (Lour.) Spreng. Pharmacogn J. 2012; 4(30):10-13.
38. Iwansyah AC, Damanik MRM, Kustiyah L, Hanafi M. Potensi Fraksi Etil Asetat Daun Torbangun (Coleus amboinicus L.) dalam Meningkatkan Produksi Susu, Bobot Badan Tikus, dan Anak Tikus. J Gizi dan Pangan. 2017; 12(1):61-68.
39. Armstrong GR, Dwewy CE, Summerlee AJS. Lactogogue Effects of Torbangun, a Bataknese Tradisional Cuisine, 2015.
40. Warsiki E, Damanik RM. Perubahan Mutu dan Umur Simpan Sup Daun Torbangun (Colues amboinicus Lour) Dalam Kemasan. J Gizi dan Pangan. 2012; 7(1):7-10.
41. Tiurlan Farida LJ. The Benefit of Bangun-bangun Leaves Extract (Coleus Amboinicus L.) For Increasing of Rat Breast Milk Production, 2013, 15-24.
42. Suryowati T, Rimbawan Damanik R, Bintang M, Handharyani E. Identifikasi Komponen Kimia Dan Aktivitas Antioksidan Dalam Tanaman Torbangun (Coleus Amboinicus Lour). J Gizi Pangan. 2015; 10(3):217-224.
43. Damanik R, Damanik N, Daulay Z, *et al*. Consumption of bangun-bangun leaves (Coleus amboinicus Lour) to increase breast milk production among Batakneese women in North Sumatra Island, Indonesia. Procceeding Nutr Sosiety Aust, 2001, S67.
44. Rahayu Dwi. Produksi asi ibu dengan intervensi Acupresure point for Lactation dan Pijat Oksitosin. Jurnal Ners. 2015; 10(1):9-19.
45. Wiji Rn. Asi Dan Panduan Ibu Menyusui. Yogyakarta:

Nuha Medika, 2013.
46. Tiurlan Farida LJ. The Benefit of Bangun-bangun Leaves Extract (*Coleus Amboinicus* L.) For Increasing Of Rat Breast Milk Production, 2013, 15-24.
47. Suryowati T, Rimbawan Damanik R, Bintang M, Handharyani E. Identifikasi Komponen Kimia Dan Aktivitas Antioksidan Dalam Tanaman Torbangun (Coleus Amboinicus Lour). J Gizi Pangan. 2015; 10(3):217-224.
48. Yusari Asih & Risneni. Buku Ajar Asuhan Kebidanan Masa Nifas Dan Menyusui. Jakarta: CV. TRans Info Media, 2016.