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ORIGINAL ARTICLE

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THE EFFECT OF FROM THE STEW OF MORINGA LEAF (*Moringa Oleifera*) WATER TO INCREASE BREAST MILK PRODUCTION FOR BREASTFEEDING MOTHERS IN TOBELO HEALTH CENTER TOBELO DISTRICT DISTRICT NORTH HALMAHERA

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ABSTRACT

Background The *World Health Organization* (WHO) and *the United Nations International Children's Emergency Fund* (UNICEF) recommend: early initiation of breastfeeding within 1 hour of birth, exclusive breastfeeding for the first 6 months of life, and introduction of adequate and safe complementary (solid) nutrition. food at 6 months along with continued breastfeeding for up to 2 years or more. **Research Methods**: This type of research uses. One group pretest design and observations were made through the pretest first, then given treatment or intervention, then given a posttest so that they could find out the changes that occurred before and after giving the treatment or intervention. **Research Results**: For this research, a normality test was carried out and a pragmatic statistical test (paired sample t-test) was used, namely the testing procedure in the same (dependent) group, with the significance level of the t-test results being $p < 0.05$ the value before Moringa leaf boiled water was given 30cc and after giving the boiled water 60cc, the result was $p = 0.00$ so it was concluded that there was an effect after being given treatment. **Conclusion and Suggestion**: There is an effect of giving Moringa leaf boiled water to increase milk production in breastfeeding mothers given once a day for 1 week in a row. Keywords: The effect of giving Moringa leaf boiled water to increase breast milk production.

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PRELIMINARY

Exclusive breastfeeding is giving breast milk exclusively from newborns to 6 months of age without giving any food. Exclusive breastfeeding is important for the optimal growth and development of babies physically, mentally, and intelligently. [1] Breast milk is also the most ideal source of nutrition with a balanced composition and adapted to the baby's growth and development. By providing proper feeding management, breast milk is sufficient to meet the needs of babies up to 6 months. [2] Breastfeeding for infants is the provision of liquids that are only breast milk, without the addition of other fluids such as formula milk, oranges, honey, tea water, water, and without the addition of solid foods such as bananas, papaya, milk porridge, biscuits, rice porridge, and team.

Breastfeeding alone without any complementary foods until the age of 6 months will have tremendous benefits for the development and growth of the baby and increase the bond of affection between mother and baby. [3] The *World Health Organization* (WHO) and *the United Nations International Children's Emergency Fund* (UNICEF) recommend: early initiation of breastfeeding within 1 hour of birth, exclusive breastfeeding for the first 6 months of life, and introduction of adequate and safe complementary (solid) nutrition. food at 6 months along with continued breastfeeding for up to 2 years or more. [4]

According to data from the *World Health Organization* (WHO) 2017, the coverage of exclusive breastfeeding in the world in 2016 only reached 36%. This achievement is still below the exclusive breastfeeding coverage target set by WHO, which is 50%. [5] Based on data from the Ministry of Health of the Republic of Indonesia in 2020, in Indonesia's health profile in 2016, the percentage of infants who received exclusive breastfeeding nationally was 29.5%. In 2017, nationally the coverage of infants receiving exclusive breastfeeding was 61.33 %. and in 2018 there was a decrease to 37.3%. Provinces with the highest exclusive breastfeeding were West Nusa Tenggara at 87.35%, West Sulawesi at 80.46%, East Nusa Tenggara at 79.45%, and East Java at 76.01%, and South Sulawesi at 75.45%. The 2018 Basic Health Research data recorded that the coverage of exclusive breastfeeding in Indonesia was 37.3%. [6] Based on data from the Tobelo Health Center from January to August 2021, the number of breastfeeding mothers at the Tobelo Health Center is 62 people. (Tobelo Health Center Annual Book Report).

Breastfeeding has a major contribution to the growth and development and immunity of the baby. Babies who are fed only breast milk will grow and develop optimally and do not get sick easily. There are protective factors and appropriate nutrients in breast milk to ensure the good nutritional status of infants and reduce morbidity and mortality in children. Several epidemiological studies state that breastfeeding protects infants and children from infectious diseases, such as diarrhea, otitis media, and acute lower respiratory tract infections. [7]

Leaf (*Moringa oleifera*) is one part of the Moringa plant that has been widely studied for its nutritional content and uses. Moringa leaves are very rich in nutrients,

including calcium, iron, protein, vitamin A, vitamin B, and vitamin C. Moringa leaves contain higher iron than other vegetables, which is 17.2 mg/100 g. Moringa leaves also contain active compounds of alkaloids, flavonoids, saponins, phenolics, triterpenoids/steroids, and tannins. The results of Kristina's research (2014) that Moringa leaves contain phytosterols which can increase breast milk production for women who are breastfeeding. Moringa leaves contain Fe 5.49 mg/100 g and phytosterols namely sitosterol 1.15%/100 g and stigmasterol 1.52%/ 100 g which stimulates milk production. [8]

According to research conducted by Soraya Rahmanisa and Tara Aulianova in the journal Majority on the effectiveness of extracting alkaloids and sterols from katuk leaves (*Sauropus Androgynus*) on breast milk production, explains that one of the benefits of katuk leaves is to launch breast milk production because it contains sesquiterpene compounds. In addition to launching breast milk, katuk leaves also have several benefits, including yaws, constipation, ulcers, and as a natural dye. The content of alkaloids and sterols from katuk leaves can increase milk production to more because it can increase glucose metabolism for lactose synthesis so that milk production increases.[9]

RESEARCH METHODS

This type of research uses. One group pretest design and observations were made through the pretest first, then given treatment or intervention, then given a posttest so that they could find out the changes that occurred before and after giving the treatment or intervention. The type of research used in this study is a qualitative research type, with the *Experimental Case Study method with Pre-test and Posttest Group*. By dividing the two research groups of breastfeeding mothers to measure the amount of breast milk before and after giving Moringa oleifera *leaves*. In taking the sample for this research, certain techniques are used so that the sample is as representative of the population as possible. In this case, the number of samples obtained from the population is 6 breastfeeding mothers at the Tobelo Health Center, Kec. Tobelo Inclusion criteria are general characteristics of research subjects from a target and affordable population that will be studied. Inclusion criteria are also general requirements that must be met by the subject to be included in the study.

criteria :

1. Respondents were breastfeeding mothers aged 20-35 years at the Tobelo Health Center, Kec. Tobelo
2. 0-6 months of breastfeeding baby
3. Exclusive Breastfeeding Respondents
4. Respondents are aware and can be invited to communicate well.
5. Respondents are willing to sign the *informed consent* form

Exclusion Criteria

Exclusion criteria are criteria that eliminate/exclude research subjects who cannot represent the sample because they do not meet the requirements as research samples.

1. Respondents who are not breastfeeding mothers aged 20-35 years at the Tobelo Health Center, Kec. Tobelo

2. Breastfeeding baby age not from 0-6 months
3. Respondents are not exclusive breastfeeding
4. Respondents are not aware and cannot be invited to communicate well.
5. Respondents are not willing to sign the *informed consent* form

RESULTS: Table 1 Frequency Distribution of Respondents by Age.

Age	Amount	
	N	%
<20	1	16.7
21-35	3	50.0
>35	2	33.3
Amount	6	100.0

2021 primary data source

Based on table 1 above, explains that from 6 respondents (%100) the majority of respondents in this study were mostly in the age range <20 years, namely 1 person (16.7%) 20-35 years, namely 3 (50.0%) people and >35 years 2 (33.3%) people.

Table 2 Distribution of Respondents by Education.

Education	Amount	
	N	%
SD	2	33.3
JUNIOR HIGH SCHOOL	2	33.3
SENIOR HIGH SCHOOL	2	33.3
Amount	6	100

2021 primary data source

Meanwhile, education in this study is related to the last education or diploma owned by the respondent. Based on table 2 above, it is explained that of the 12 respondents (% 100) it was found that the majority of respondents had elementary education level, namely 2 people (33.3%), junior high school level, 2 people (33.3%) and high school level, namely 2 people (33,3%).

Table 3 Distribution of Respondents by Occupation.

Profession	Amount	
	N	%
IRT	3	50.0
ENTREPRENEUR	2	33.3
Civil Servant	1	16.7
Amount	**6**	**100**

2021 primary data source

Based on table 3 shows that from 6 (100%) respondents, it can be seen that according to the distribution of respondents according to occupation the most at the (IRT) level as many as 3 (50.0%) people then followed by the level (Entrepreneur) as much as 2 (33.0%)) people and (PNS) 1 (16.7%) people.

Table 4. Distribution of Respondents Before Consumption of Moringa Leaf Boiled Water.

BREAST MILK PRODUCTION	Amount	
	N	%
Lots	2	20
A little	4	80
Amount	6	100

2021 primary data source

The results of the research are in table 4. It shows that of the 6 respondents (100%) there are 2 respondents (20%) who have a lot

of breast milk and 4 respondents (80%) have little breast milk.

Table 5. Distribution of Respondents after consumption of boiled water Moringa leaves.

BREAST MILK PRODUCTION	Amount	
	N	%
Lots	5	20
A little	1	80
Amount	6	100

2021 primary data source

The results of the study are in table 5. It shows that from 6 respondents (100%) there were 5 respondents (80%) who experienced a lot of breast milk and 1 respondent (20%) had little milk production after consuming boiled water from Moringa leaves and 6 people.

A. Bivariate Analysis

Bivariate analysis was conducted to determine the effect of the independent variable and the dependent variable using the T-test with a significance level of $p < 0.05$.

Table 6. Distribution of Respondents Before and After Consumption of Moringa Leaf Boiled Water.

Group	Breast Milk Production				Amount		0.05
	Lots		A little				
	N	%	N	%	N	%	
Before	0	0	6	100	6	100	*0.000*
After	5	80	1	20	6	100	

The results of the study are in table 6. It shows that from 6 respondents (100%) there were 5 respondents (80%) who experienced an increase in breast milk production after consuming Moringa leaf boiled water and 1 respondent (20%) Bivariate analysis was carried out to determine the effect on breastfeeding mothers. by using the T-test with a significance level of $p < 0.05$. Based on the results of statistical testing using the T-test technique, it was found that $p = 0.00$ is smaller than = 0.05, which means Ho is rejected and Ha is accepted. Thus, there is an effect of giving Moringa leaf boiled water to increase milk production in breastfeeding mothers. no increase in milk production.

DISCUSSION

In this study, an intervention was carried out on nursing mothers by giving Moringa leaf boiled water, according to the inclusion criteria. This study aims to determine the effect of giving Moringa leaf boiled water to increase breast milk production in breastfeeding mothers.

Moringa leaf boiled water was used for research before giving boiled water was given to respondents, first Moringa leaves were picked directly from the tree then boiled for 10 minutes and given as much as 200 ml, then directly given to nursing mothers to increase milk production.

Univariate analysis was conducted to determine the form of the relationship between the two variables (independent and dependent variables). For this research, a normality test was performed and a paired sample t-test parametric statistical test was used, namely the testing procedure of the same group (dependent). The level of

significance of the results of the t-test is p< 0.05.

In this study, it was obtained from the results that the characteristics of respondents consisted of age groups, education, and occupations table 1. It can be seen that age < 20 as many as 1 people, 21-35 as many as 3 people and > 35 as many as 2 people. Judging from the education of SD 2 people, SMP 2 people, and SMA 2 people. Judging from the work of IRT 3 people, 2 entrepreneurs, and 1 civil servant.

The results obtained from data processing with paired statistical test samples t-test obtained a p-value of 0.00 = 0.05 so that it can be concluded that there is an effect after being given treatment for 7 days.

Moringa plant (*moringa oleifera)* is a local food ingredient that has the potential to be developed in the culinary arts of nursing mothers because it contains phytosterol compounds that function to increase and facilitate milk production (laktagogum effect). [20]

Research conducted by **Soraya Rahmanisa and Tara Aulianova et al** about the effectiveness of extracting alkaloids and sterols from katuk leaves (*Sauropus Androgynus*) on breast milk production, explains that one of the benefits of katuk leaves is to launch breast milk production because it contains sesquiterpene compounds. In addition to launching breast milk, katuk leaves also have several benefits, including yaws, constipation, ulcers, and as a natural dye. The content of alkaloids and sterols from katuk leaves can increase milk production more because it can increase glucose metabolism for lactose synthesis so that milk production increases. [21]

Exclusive breastfeeding is breastfeeding for the first 6 months of a baby's life without food or drink other than vitamins, drugs, and ORS. The function of breast milk is as fulfillment or nutrition for babies, therefore exclusive breastfeeding is highly recommended and recommended until the baby is 2 years old. [22]

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