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The Effectiveness of Chain Pumpkin on Improving Breast Milk Production and Increasing Baby's Weight

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Abstract: A Breast milk is the best nutrition for babies because it is easy to digest and contains the nutrients needed for growth and immunity. This research aims to determine the effectiveness of chayote in smoothing breast milk production and increasing baby weight. This research uses a two group pretest-posttest design method without a control group, with measurements taken before and after treatment. The independent variable is the method of consuming chayote, while the dependent variable is the smooth production of breast milk and the increase in baby weight. This research produced information that the P-Value value obtained for increasing the smoothness of breast milk production (0.000 for boiled chayote and 0.001 for fried chayote) showed a significant difference. The P-Value value obtained for increasing baby weight (0.000 for boiled chayote and 0.003 for fried chayote) shows a significant difference. Based on these data findings, breastfeeding mothers are expected to consume chayote, both boiled and fried, as part of their diet to support smooth breast milk production and baby growth.

Keywords: Baby's weight; Breast milk production; Chayote

Introduction

State Breast milk is the best nutrition for babies because it is easy to digest and contains the nutrients needed for growth and immunity. Apart from that, breast milk is also very safe to consume, its cleanliness is guaranteed so that you can avoid digestive disorders such as diarrhea, vomiting and others. According to the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO), it is recommended that babies be breastfed only breast milk until 6 months and continued until the age of two years, this is because it can reduce morbidity and mortality rates in babies. (WHO, 2018). The frequency of babies receiving exclusive breastfeeding aged 0-6 months in Indonesia is still relatively low, only reaching 67.74% and this is still far from the national average target of 80%. The highest percentage of exclusive breastfeeding coverage is in West Nusa Tenggara province at 86.26%, while the lowest percentage is in West Papua Province at 41.12%. In West Java Province itself it was 63.53% (Kementerian Kesehatan Republik Indonesia, 2019).

Providing breast milk immediately after birth significantly increases the baby's chance of survival. If babies start breastfeeding within 1 hour of birth, (22%) of babies who die in the first 28 days (equivalent to about one million newborns every year worldwide) could be prevented. If the breastfeeding process is started within the first day, then only (16%) babies can be saved (Nasrullah, 2021). The main causes of failure in the breastfeeding process are often caused by not carrying out Early Breastfeeding Initiation (IMD) immediately after the baby is born, lack of breast milk production (32%), nipple problems (28%), the influence of advertising on formula milk (6%), mothers working (5%), while the problem that often occurs when breastfeeding is breast milk that does not flow smoothly or comes out only a little (Kementerian Kesehatan Republik Indonesia, 2019).

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The low level of exclusive breastfeeding for babies aged 0-6 months is due to several factors that delay the breastfeeding process. One of them is because mothers experience a decrease in breast milk production on the first day after giving birth due to a lack of stimulation of the hormones oxytocin and prolactin which are useful for facilitating breast milk production (Ayelign & Zerfu, 2021; Ueno et al., 2022). The food consumed by postpartum mothers can affect the quality of breast milk produced. Breastfeeding mothers should consume a nutritional intake of approximately 1,800-2,000 calories per day. If food does not meet adequate nutritional intake, the milk production glands in the breasts will not work perfectly and this will affect milk production. For breastfeeding mothers, it is best to consume vegetables that can increase breast milk volume, for example katuk vegetables, chayote, long beans and banana blossoms (Astari & Hardianti, 2022).

In order for mothers to be successful in providing exclusive breast milk, mothers must receive additional food to avoid reducing breast milk production. There are several things you should pay attention to in order to increase the quality and volume of breast milk you have by consuming vegetables and fruit which can increase the volume of breast milk (Higurashi et al., 2023; Singh et al., 2023). Vegetables that can be consumed are katuk, chayote and banana blossoms. Apart from these vegetables, fruits that contain lots of water will help mothers produce abundant breast milk, such as melon, watermelon, pear, and many other fruits (Harahap et al., 2021). Indonesia has enormous natural wealth and potential from its ancestors. Since ancient times, the Indonesian people have known about medicinal plants and used them to maintain health and treat disease. The use of medicinal plants is based on empirical experience from generation to generation. One type of natural wealth that we have is chayote (Akbar, 2022).

Chayote or jipang pumpkin (*Sechium edule*, English chayote) is a plant from the pumpkin tribe (Cucurbitaceae) whose fruit and young shoots can be eaten. Chayote is rich in fiber, antioxidants, iron, manganese, phosphorus, zinc, potassium, copper, vitamins B1, B2, B6, and vitamin C. Chayote is also rich in folate which helps cell formation and DNA synthesis. Apart from that, these vegetables also contain small amounts of the antioxidant polyponones, aglycones, flavonoids which are very important in helping fight free radicals and reactive oxygen species (SOR) in the body, both of which play a role in aging and the development of cancer (Akbar, 2022). From the results of the analysis of breast milk production and observation methods carried out on both mothers and babies, it can be stated that giving fried chayote is effective in helping increase breast milk production with a value of 71.50%. Giving chayote using the fried method has the lowest level of effectiveness in helping smooth breast milk production compared to the boiled or steamed method (Harahap et al., 2021).

Method

This study utilized a two-group pretest-posttest design without involving a control group. In this design, measurements were taken before and after administering treatment to the experimental group. The absence of a control group allows the study to focus entirely on the effects of the intervention on the group receiving the treatment. Respondents were selected based on predetermined inclusion criteria, which considered relevant factors such as the health condition of breastfeeding mothers and their babies, as well as their willingness to participate throughout the study. Participation in this research was voluntary, with respondents given the freedom to join after receiving clear explanations about the study's objectives and procedures. This approach ensures ethical considerations are upheld while confirming that participants fully understand their role and responsibilities during the research process (Muala et al., 2024; Saggu et al., 2023).

The independent variable in this study is the consumption of chayote, which was administered in two different preparation methods: boiled chayote and fried chayote. The choice of these two preparation methods aimed to explore the differences in their potential to support smooth breast milk production and increase baby weight. Chayote is known for its nutritional content that could potentially stimulate milk production. Therefore, the research sought to compare the effectiveness of these two preparation methods in achieving the desired outcomes (Donker et al., 2021). The dependent variables in this study are the smoothness of breast milk production and the increase in baby weight, both of which are key indicators of the success of the treatment. These indicators were chosen as they are critical in ensuring that the nutritional needs of infants are met during the breastfeeding period.

Regarding data analysis, this study employed both univariate and bivariate approaches. Univariate analysis was used to examine respondents' numerical data, such as baby weight and milk production, by calculating the mean and standard deviation. This analysis provides an overview of the data distribution and the trends achieved after the treatment. Additionally, bivariate analysis was conducted using statistical tests to interpret the tabulated data. A normality test was performed to determine whether the data followed a normal distribution, which in turn guides the selection of the

appropriate statistical methods (Nyqvist et al., 2024). Following this, a T-test was applied to assess the effectiveness of the treatment between the two chayote preparation methods on the measured outcomes. The use of these statistical tests aims to test the proposed hypotheses and ensure that the results obtained are scientifically significant. The findings from this analysis will form the basis for conclusions regarding which chayote preparation method is more effective in promoting smooth breast milk production and increasing baby weight. See Figure 1.

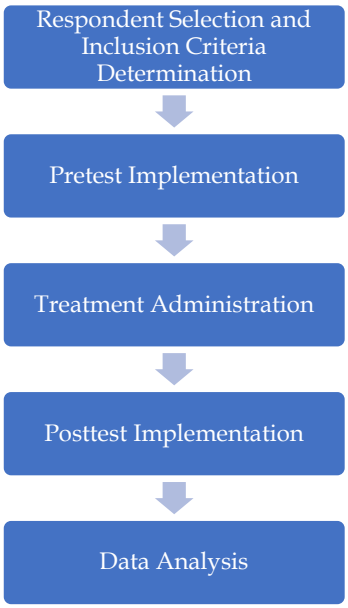

Figure 1. Research Flow

Result and Discussion

Results
Univariate Analysis Results

Table 1. Frequency distribution of smooth breast milk production and weight gain

Variable	Pretest		Post test (boiled chayote)		Pretest (Fried Squash)		Post test (Fried Chayote)	
	n	%	n	%	n	%	n	%
Smooth breast milk production								
Fluent	22	36.7	56	93.3	19	31.7	55	91.7
Not Smooth	38	63.3	4	6.7	41	68.3	5	8.3
Weight Gain								
BB Up	27	45.0	57	95.0	20	33.3	52	86.7
BB Not Rising	33	55.0	3	5.0	40	66.7	8	13.3
Total	60	100.0	60	100.0	60	100.0	60	100.0

Based on Table 1, it is known that in the boiled chayote group, before consuming boiled chayote, breast milk production was not smooth at 63.3% and the baby's weight did not increase by 55%. After consuming boiled chayote, breast milk production increased by 93.3% and the baby's weight increased by 95%. Likewise, in the fried chayote group, before consuming fried chayote, breast milk production was not smooth by 68.3% and the baby's weight did not increase by 66.7%. After consuming fried chayote, the smoothness of breast milk production increases by 91.7% and the increase in the baby's weight increased by 86.7%.

Normality Test

Table 2. Normality test in the boiled and fried chayote group on smooth breast milk production and increase in body weight

Category	Measurement	N	Shipiro-Wilk Sig
Smooth breast milk production	Pretest	60	0.07
	Posttest	60	0.14
Weight Gain	Pretest	60	0.07
	Posttest	60	0.09

Based on Table 2, the data normality test assessment is used as one of the conditions for determining the choice of parametric or non-parametric tests. The number of samples in this study was 60 so the normality test used was Shipiro-Wilk Sig. The p value of the normality test for the breast milk increase variable using the boiled chayote method. P value 0.007 (> 0.05) is greater than the alpha value, so H0 is accepted, meaning that the baseline measurement variable is distributed following a univariate normal distribution. The weight gain variable using the boiled chayote method P value 0.07 (> 0.05) is greater than the alpha value, so H0 is accepted, meaning that the baseline measurement variable is distributed following a univariate normal distribution. And with the fried chayote method, the P value is 0.09 (> 0.05) which is greater than the alpha value, so H0 is accepted, meaning that the baseline measurement variables are distributed following a normal distribution.

Bivariate Analysis Results

Based on Table 3, it can be seen that before consuming boiled chayote the average value (mean) 75.30, whereas after consuming boiled chayote the average value (mean) 120.20 with the difference in mean 44.90 and the difference in std deviation 1.243 With value P-Value = 0.000 which means there is a significant difference in the smoothness of breast milk production before and after consuming boiled chayote. Furthermore, mothers who consumed fried chayote had

a mean before 78.25 and after 115.40 with a mean difference of 37.20, difference std. deviation 1.452. With value P-Value = 0.001, which means there is a significant difference in the smoothness of breast milk production before and after consuming fried chayote.

Table 3. Effectiveness of smoothing breast milk production before and after giving boiled and fried chayote

Variable	Group	Mean Before	Mean After	Mean difference	SD difference	P Value
Smoothness Breast milk production	Boiled Siamese pumpkin	75.30	120.20	44.90	1.24	0.000
	Fried zucchini	78.25	115.40	37.20	1.45	0.001

Table 4. Effectiveness of baby weight gain before and after giving boiled and fried chayote

Variable	Group	Mean Before	Mean After	Mean difference	SD difference	P Value
Weight Gain	Boiled Siamese pumpkin	2950.20	3625.40	675.20	96.20	0.000
	Fried zucchini	2875.40	3550.75	675.35	95.60	0.003

Based on Table 4 above, it can be seen that before consuming boiled chayote the mean value 2950.20 Meanwhile, after consuming boiled chayote, the average value (mean) 3625.40 with the difference in average body weight 675.20 gram, std. deviation 96.20. With value P-Value = 0.000 which means there is a significant difference in baby weight gain before and after consuming boiled chayote. Furthermore, mothers after consuming fried chayote had an average value (mean) of 2875.40, std. deviation 95.60, while after consuming fried chayote the average value (mean) 3550.75 with a difference of 675.35 grams, std. deviation 81. With value P-Value = 0.003 there is a significant difference in weight gain before and after consuming fried chayote.

Discussion

Effectiveness of Boiled and Fried Chayote on Smooth Breast Milk Production

Based on the research results, it is known that before consuming boiled chayote the average value (mean) 75.30, whereas after consuming boiled chayote the average value (mean) 120.20 with the difference in mean 44.90 and the difference in std deviation 1.243 With value P-Value = 0.000 which means there is a significant difference in the smoothness of breast milk production before and after consuming boiled chayote. Furthermore, mothers who consumed fried chayote had a mean before 78.25 and after 115.40 with a mean difference of 37.20, difference std.deviation 1.452. With value P-Value = 0.001. which means there is a significant difference in the smoothness of breast milk production before and after consuming fried chayote (Olanbiwoninu et al., 2023; Zhang et al., 2022).

Based on the results of statistical research, the value of r = 91.20, which means that respondents who were given chayote using the steamed method, had an average increase in breast milk of 91.20% with a p value = 0.02, meaning that giving chayote using the steamed method was effective in increasing production. breast milk (Harahap et al., 2021). Based on the results of research in the fried chayote group, statistics show a value of r = 71.50, which means that respondents who were given chayote using the fried method had an average increase in breast milk of 71.50% with a value of p = 0.02, meaning that the chayote method was given. Fried is effective for increasing breast milk production (Harahap et al., 2021). According to Junus & Rosidi (2023), states that the temperature of the steaming cooking method is only 100°C. Steaming is a processing process that can maintain the water content of vegetables, this is shown by the fact that there is no difference in the water content of steamed vegetables and the overall water content of raw vegetables. From the research results of Sarwono (2017), the water content of steamed chayote was 93.90 ± 0.20 compared to raw chayote 94.22 ± 0.34, only experiencing less than a 1% decrease in water content.

According to Sarwono (2017), the cooking media used in the frying process will provide a heating process at a higher temperature, the frying process can reach a temperature of 170°C, which is thought to be a temperature not much different from the stir-frying process because it uses the same cooking media. From the research results of Sarwono (2017), the water content of sauteed/fried chayote was 80.83 ± 2.59 compared to raw chayote 94.22 ± 0.34, experiencing a ± 10% decrease in water content. Further test results by Khoiriyah (2022) shows that stir-fried/fried vegetables have lower water content than vegetables before processing, this shows that the frying process reduces the water content in vegetables compared to before processing. Likewise, the boiling and steaming processes do not have a

significantly different effect on water content, this is because water is absorbed during the processing process. Based on RI Minister of Health Regulation No. 75 of 2013, adequate potassium intake for adults in Indonesia is around 4.7 g/day. According to Sarwono (2017), steamed chayote contributes (41.2mg/100gr BW) or 0.9%/100gr of boiled chayote consumption. This is sufficient to meet the potassium needs in the human body (Jagodic et al., 2020; Patel et al., 2020). From the results of the analysis of breast milk production and observation methods carried out on both mothers and babies, it can be stated that giving steamed chayote is effective in helping increase breast milk production with a value of 91.20%. Giving chayote using the steamed method is most effective in helping smooth breast milk production compared to the fried method.

Effectiveness of Boiled and Fried Chayote on Weight Gain

Based on the research results, it can be seen that before consuming boiled chayote the mean value was 2950.20, while after consuming boiled chayote the average value was 3625.40 with an average difference in body weight of 675.20 grams, std deviation 96.20. With a P-Value value: 0.000, which means there is a significant difference in baby weight gain before and after consuming boiled chayote. Furthermore, mothers after consuming fried chayote had an average value (mean) of 2875.40, std deviation 95.60, while after consuming fried chayote the average value (mean) was 3550.75 with a difference of 675.35 grams, std deviation 81. With the P-Value = 0.003, there is a significant difference in weight gain before and after consuming fried chayote. Based on the results of the research after the modified PMT intervention was carried out in the form of processed yellow pumpkin soup, cinnamon pumpkin porridge and 1 portion of pumpkin, potato and corn porridge/day for 14 days, it was found that 1 child (12.5%) had poor nutritional status. and 7 people (87.5%) had their nutritional status improved to good nutrition. There was an increase in average body weight to 9.088 kg ± 1.1740, or an average increase of 0.650 for each toddler (Irwan et al., 2020).

Increased smooth production of breast milk in breastfeeding mothers as seen from the frequency of baby feeding, characteristics of baby feeding, frequency of baby's movements, characteristics of baby's movements, length of time the baby sleeps after breastfeeding, frequency of breastfeeding in a day and baby's weight gain (Susanti & Triningsih, 2021). According to research results, mothers who provide adequate breast milk to their toddlers will increase the chances of the toddler having good nutritional status (Darnerud & Bergman, 2022; Mariutti et al., 2021). Breast milk should continue to be given to children until they are 2 years old or more. After 6 months of exclusive breastfeeding, it does not mean that breastfeeding is stopped, along with the introduction of food to the baby, breastfeeding is still carried out, it is best to breastfeed for 2 years. According to WHO recommendations, breastfeeding with breast milk until the child is 2 years old is still able to fulfill 1/3 of the calorie needs, 1/3 of the protein needs, 45% of the need for vitamin A and 90% of the need for vitamin C (Siregar & Ritonga, 2020).

Babies who receive sufficient breast milk intake will experience normal weight gain (Takei et al., 2010; Kschonsek et al., 2016). Most of the growth of babies who receive breast milk is normal, especially babies who receive exclusive breast milk. This is because the nutritional content in breast milk meets the needs of babies up to 6 months of age (Field et al., 2022; Nimmannun et al., 2022).

Conclusion

Based on the research findings and discussion regarding the effectiveness of boiled and fried chayote on smooth breast milk production and increased baby weight in Indonesia in 2024, several conclusions can be drawn. Firstly, it was observed that after consuming boiled chayote, the smooth production of breast milk and the increase in baby weight improved among a total of 60 respondents. A similar pattern was seen in the fried chayote group, where breast milk production and baby weight also increased across 60 respondents. Secondly, the effectiveness of consuming both boiled and fried chayote was found to be significant in enhancing maternal breast milk production, with P-values of 0.000 and 0.001, respectively. Lastly, the method of administering chayote, whether steamed or fried, was also shown to be effective in increasing baby weight, with P-values of 0.000 and 0.003. These results underscore the potential benefits of chayote in supporting breastfeeding mothers and promoting healthy baby growth.

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Author Contributions

The following statements should be used Conceptualization, GU, TK, YH, SR, SNJ contributed to the data collection process, data processing, article writing.

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Conflicts of Interest
The authors declare no conflict of interest.

References

Akbar, D. I. (2022). *Perbedaan Efektivitas Pemberian Jus Labu Siam (Sechium edule) dengan Rebusan Labu Siam (Sechium edule) terhadap Perubahan Tekanan Darah pada Penderita Hipertensi di Wilayah Kerja Puskesmas Andalas Padang Tahun 2022* (Thesis). Poltekkes Kemenkes Padang. Retrieved from http://repositoryperpustakaanpoltekkespadang.site/id/eprint/164/

Astari, R., & Hardianti, V. (2022). Effect of Consuming Processed Banana Flower on the Increase of Breast Milk Production among Postpartum Mothers. *Faletehan Health Journal*, *9*(02), 234-239. https://doi.org/10.33746/fhj.v9i02.269

Ayelign, A., & Zerfu, T. (2021). Household, Dietary and Healthcare Factors Predicting Childhood Stunting in Ethiopia. *Heliyon*, *7*(4), e06733. https://doi.org/10.1016/j.heliyon.2021.e06733

Darnerud, P. O., & Bergman, Å. (2022). Critical Review on Disposition of Chlorinated Paraffins in Animals and Humans. *Environment International*, *163*(October 2021). https://doi.org/10.1016/j.envint.2022.107195

Donker, A. E., Staaij, H. V. D., & Swinkels, D. W. (2021). The Critical Roles of Iron During the Journey from Fetus to Adolescent: Developmental Aspects of Iron Homeostasis. *Blood Reviews*, *50*(July), 100866. https://doi.org/10.1016/j.blre.2021.100866

Field, M. S., Bailey, R. L., Brannon, P. M., Gregory, J. F., Lichtenstein, A. H., Saldanha, I. J., & Schneeman, B. O. (2022). Scanning the Evidence: Process and Lessons Learned from an Evidence Scan of Riboflavin to Inform Decisions on Updating the Riboflavin Dietary Reference Intakes. *American Journal of Clinical Nutrition*, *116*(2), 299–302. https://doi.org/10.1093/ajcn/nqac102

Harahap, M. H., SN, T. H., & Andina, R. (2021). Efektifitas Pemanfaatan Labu Siam (Sechium edule) dengan Metode Rebus, Kukus dan Goreng terhadap Peningkatan Produksi ASI. *JKM (Jurnal Kebidanan Malahayati)*, *7*(2), 168-176. https://doi.org/10.33024/jkm.v7i2.3438

Higurashi, S., Tsujimori, Y., Nojiri, K., Toba, Y., Nomura, K., & Ueno, H. M. (2023). Dietary Patterns Associated with General Health of Breastfeeding Women 1–2 Months Postpartum: Data from the Japanese Human Milk Study Cohort. *Current Developments in Nutrition*, *7*(1), 100004. https://doi.org/10.1016/j.cdnut.2022.100004

Irwan, I., Towapo, M., Kadir, S., & Amalia, L. (2020). Efektivitas Pemberian PMT Modifikasi Berbasis Kearifan Lokal terhadap Peningkatan Status Gizi Balita. *Journal Health & Science; Gorontalo Journal Health & Science Community*, *4*(2), 59-67. https://doi.org/10.35971/gojhes.v4i2.7742

Jagodic, M., Potočnik, D., Tratnik, J. S., Mazej, D., Pavlin, M., Trdin, A., Eftimov, T., Kononenko, L., Ogrinc, N., & Horvat, M. (2020). Selected Elements and Fatty Acid Composition in Human Milk as Indicators of Seafood Dietary Habits. *Environmental Research*, *180*(April 2019), 108820. https://doi.org/10.1016/j.envres.2019.108820

Junus, H., & Rosidi, M. I. (2023). Ilabulo: Olah Rasa dalam Identitas Budaya Masyarakat Gorontalo. *Innovative: Journal of Social Science Research*, *3*(5), 205–213. Retrieved from https://j-innovative.org/index.php/Innovative/article/view/4847

Kementerian Kesehatan Republik Indonesia. (2019). *Profil Kesehatan Indonesia 2018*. Retrieved from https://www.kemkes.go.id/id/profil-kesehatan-indonesia-2018

Khoiriyah, L. (2022). *Pengaruh Suhu dan Tekanan pada Mesin Vacuum Frying terhadap Hasil Penggorengan Chips Buah Naga (Hylocereus polyrhizus)* (Undergraduate Thesis). Fakultas Pertanian, Universitas Lampung. Retrieved from http://digilib.unila.ac.id/66592/

Kschonsek, J., Stimming, M., Libuda, L., Kersting, M., & Böhm, V. (2016). Food-Based Modification of LC-PUFA Concentration in Complementary Food Did Not Affect Plasma Vitamin E Concentration in Infants. *NFS Journal*, *3*, 25–32. https://doi.org/10.1016/j.nfs.2016.02.005

Mariutti, L. R. B., Rebelo, K. S., Bisconsin-Junior, A., Morais, J. S. D., Magnani, M., Maldonade, I. R., Madeira, N. R., Tiengo, A., Maróstica, M. R., & Cazarin, C. B. B. (2021). The Use of Alternative Food Sources to Improve Health and Guarantee Access and Food Intake. *Food Research International*, *149*(April). https://doi.org/10.1016/j.foodres.2021.110709

Muala, W. C. B., Charnelle, T. K., Fabrice, T. D., Bernard, T., Ghislain, M. N., & Serge, N. E. (2024). Formulation of Weaning Food from Yellow Maize (Zea mays L.) and Red Millet (Eleusine coracana L.), Enriched with Pretreated African Locust Beans (Parkia biglobosa Jacq.) Flour. *Journal of Agriculture and Food Research*, *16*(February), 101080. https://doi.org/10.1016/j.jafr.2024.101080

Nasrullah, M. J. (2021). Pentingnya Inisiasi Menyusu Dini dan Faktor yang Mempengaruhinya. *Jurnal Medika Hutama*, *2*(02 Januari), 626-630. Retrieved from https://jurnalmedikahutama.com/index.php/JMH/article/view/144

Nimmannun, K., Davis, C. R., Srisakda, P., Gannon, B. M., Tanumihardjo, S. A., & Udomkesmalee, E. (2022). Breast Milk Retinol Concentrations Reflect Total Liver Vitamin A Reserves and Dietary Exposure in Thai Lactating Women from Urban and Rural Areas. *Journal of Nutrition*, *152*(12), 2689–2698. https://doi.org/10.1093/jn/nxac223

Nyqvist, M. B., Jayachandran, S., & Zipfel, C. (2024). A Mother's Voice: Impacts of Spousal Communication Training on Child Health Investments. *Journal of Development Economics*, *168*(February), 103263. https://doi.org/10.1016/j.jdeveco.2024.103263

Olanbiwoninu, A., Greppi, A., Awotundun, T., Adebayo, E. A., Spano, G., Mora, D., & Russo, P. (2023). Microbial-Based Biofortification to Mitigate African Micronutrients Deficiency: A Focus on Plant-Based Fermentation as Source of B-Group Vitamins. *Food Bioscience*, *55*(March), 102996. https://doi.org/10.1016/j.fbio.2023.102996

Patel, A. S., Bariya, A. R., Ghodasara, S. N., Chavda, J. A., & Patil, S. S. (2020). Total Carotene Content and Quality Characteristics of Pumpkin Flavoured Buffalo Milk. *Heliyon*, *6*(7), e04509. https://doi.org/10.1016/j.heliyon.2020.e04509

Saggu, A. K., Tomer, V., Kumar, A., & Pandey, P. (2023). Consideration of Phytonutrients, Probiotics and Prebiotics for Enhanced Immunity During Disaster Relief Situation – A Review. *Clinical Nutrition Open Science*, *47*, 131–146. https://doi.org/10.1016/j.nutos.2022.12.011

Sarwono, S. A. (2017). *Pengaruh Proses Pengolahan terhadap Kadar Kalium pada Sayuran* (Undergraduate Thesis). Bogor Agricultural University (IPB). Retrieved from http://repository.ipb.ac.id/handle/123456789/90744

Singh, P., Pandey, V. K., Sultan, Z., Singh, R., & Dar, A. H. (2023). Classification, Benefits, and Applications of Various Anti-Nutritional Factors Present in Edible Crops. *Journal of Agriculture and Food Research*, *14*(November), 100902. https://doi.org/10.1016/j.jafr.2023.100902

Siregar, S., & Ritonga, S. H. (2020). Hubungan Pemberian ASI Eksklusif dengan Pertumbuhan Berat Badan Bayi 0-6 Bulan di Wilayah Kerja Puskesmas Padangmatinggi Kota Padangsidimpuan Tahun 2018. *Jurnal Kesehatan Ilmiah Indonesia/Indonesian Health Scientific Journal*, *5*(1), 35–43. https://doi.org/10.51933/health.v5i1.230

Susanti, E. T., & Triningsih, L. (2021). Literature Review: Pijat Oksitosin oleh Suami terhadap Produksi ASI pada Ibu Nifas. *Jurnal Keperawatan*, *7*(1), 39-52. https://doi.org/10.56186/jkkb.85

Takei, M., Ando, Y., Saitoh, W., Tanimoto, T., Kiyosawa, N., Manabe, S., Sanbuissho, A., Okazaki, O., Iwabuchi, H., Yamoto, T., Adam, K. P., Weiel, J. E., Ryals, J. A., Milburn, M. V., & Guo, L. (2010). Ethylene Glycol Monomethyl Ether-Induced Toxicity is Mediated Through the Inhibition of Flavoprotein Dehydrogenase Enzyme Family. *Toxicol Sci.*, *118*, 643–652

Ueno, H. M., Sato, T., Higurashi, S., Tazaki, H., & Toba, Y. (2022). Xanthophylls in Human Milk and Maternal Diet: A Cross-Sectional Analysis of Data from the Japanese Human Milk Study Cohort. *Current Developments in Nutrition*, *6*(6), nzac093. https://doi.org/10.1093/cdn/nzac093

WHO. (2018). *Global Strategy for Infant and Young Child Feeding*.

Zhang, Z., Wang, Y., Yang, X., Cheng, Y., Zhang, H., Xu, X., Zhou, J., Chen, H., Su, M., Yang, Y., & Su, Y. (2022). Human Milk Lipid Profiles around the World: A Systematic Review and Meta-Analysis. *Advances in Nutrition*, *13*(6), 2519–2536. https://doi.org/10.1093/advances/nmac097