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THE EFFECTIVENESS OF CABBAGE LEAF COMPRESSES AND ALOE VERA AGAINST BREAST ENGORGEMENT SCALES IN BREASTFEEDING MOTHERS

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ABSTRACT
Previous research reported the reason a mother stops breastfeeding her baby in the first month post partum is because of breast engorgement. This has a big impact on exclusive breastfeeding status. Engorgement in the breasts, whatever the cause, must be treated immediately. Providing non-pharmacological therapy must be attempted as initial prevention because the side effects are minimal. The aim of this research is to analyze the effectiveness of cabbage leaf compresses on the scale of breast engorgement in breastfeeding mothers. This research is a type of intervention research with a quasi-experimental design in the work area of the Bandung community health Center, Serang Regency, Banten Province in December 2023. The sample used was 30 breastfeeding mothers. The data was interview, anamnesa, and collected by observational form. The bivariate analysis used in this study was the Mann Whitney U test. The results of the Mann-Whitney test showed a p value of 0.049 < 0.05 for the aloe vera compress, the results of the cabbage leaf compress intervention analysis showed a p value of 0.042 < 0.05, which means there was difference in mean scale breast engorgement before and after applying aloe vera and cabbage leaf compresses.

Keywords: aloe vera; breast engorgement; cabbage

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INTRODUCTION

Based on a report from the Demographic and Health Survey at the age of more than 25 years, one-third of women in the world (38%) were found not to breastfeed their babies due to breast engorgement, and in Indonesia the coverage rate of exclusive breastfeeding reached 32.3% of mothers who exclusively breastfed their children. As many as 55% of breastfeeding mothers experience mastitis and nipple blisters, possibly due to lack of breast care during pregnancy.(Rohmah, 2019) Moderate engorgement is often experienced by 21-52% of women. While severe engorgement occurs at 1-44%. Moderate pain is reported to be experienced by 29-68% of women, and 10-33% of women experience severe pain for up to 14 days, half of which require analgesia to relieve breast pain. The problem of breast engorgement in postpartum mothers is 50% in primiparous mothers, 40% in multiparous mothers and 10% of mothers who do not experience breast engorgement. Breast engorgement is often experienced due to nipple blister problems, where 57% of postpartum mothers who breastfeed report having suffered nipple blisters (Pratiwi, 2019)(Apriyani, 2021)

Previous research suggests the reasons a mother stops breastfeeding her baby in the first month post partum are mostly due to nipple blisters, breast engorgement, difficulty in attachment at the time of breastfeeding and also the mother's perception of breast milk

insufficiency.(Adnyani, 2022). Breast milk that is not given adequately will result in engorgement of the breast, so that the rest of the milk collects in the ductus lactoferous area. This can occur on the third day after delivery. In addition, the use of a tight bra and the condition of unclean nipples can cause blockage of the ducts. And if there is no good intervention because of the engorgement of the breast, it will cause nipple blisters, mastitis, and payuda abscesses to cause septicemia.(Kristin, 2021)

The habit of incomplete breast emptying process also causes breast stasis or dam which later becomes a medium for the development of microorganisms. Maternal fatigue causes a decrease in the mother's immune system making it easier for infection by microorganisms, this condition can increase postpartum maternal morbidity.(Nasriyah, 2019 Engorgement of the breast whatever the cause must get treatment immediately. The provision of non-pharmacological therapy should be sought as an early prevention because of the minimal side effects. Previous research that has been reported by has reported that cold cabbage leaf compresses can be used as a therapy to lower the scale of breast engorgement g and pain in mothers who experience breast milk dams.(Suprayitno, 2018)(Damayanti, 2020) Cabbage or cabbage (*Brassica Oleracea Var. Capitata*) is an economical vegetable that is very easy to find. Cabbage contains the amino acid glutamine which is believed to treat all types of inflammation, one of which is inflammation that occurs in the breast. Cabbage is also rich in sulfur content which is believed to reduce breast engorgement and inflammation. Cabbage has antibiotic and anti-inflammatory properties due to its sinigrin content ((Arieschа, 2020)(Yudi, 2023)*Allylisothiocyanate*Rapine, mustard oil, magnesium, and sulfur can help widen capillaries, thereby increasing blood flow in and out of the area, and allowing the body to reabsorb fluid contained in the area.(Rohmah, 2019).

In addition, One of the plants that has medicinal properties is aloe vera or aloe vera. Previous research states that aloe vera can be used to treat breast pain due to menstruation or breast pain due to the process of stopping breast milk. Aloe vera contains (Patiran, 2022) a*nthraquinone* which contains aloin and emodin that can serve as analgesic .(Sari, 2019) Based on preliminary studies conducted on breastfeeding mothers in the Bandung sub-district, there are still many breastfeeding mothers who experience engorgement in the breast, the engorgement occurs in one breast or both breasts. However, there has never been a health worker who suggests the use of cabbage leaves or aloe vera to compress breasts even though cabbage leaves are available very much in the Bandung sub-district. The purpose of this study was to analyze the effectiveness of cabbage leaf compresses on the scale of breast engorgement in breastfeeding mothers in Bandung District, Banten Province in 2023.

METHOD

This research is a type of intervention research with *an experimental quasy design.* The location used in this research is in the working area of the Bandung Health Center, Serang Regency, Banten Province. This study was conducted for 2 weeks for each research sample, if all samples had completed the intervention time then the study ended. The study will begin in December 2023. The sample used in this study used *purposive sampling* of 30 breastfeeding mothers. The inclusion criteria are: Postpartum mothers at least 24 hours. The breasts are flushed and swollen. The mother does not have tuberculosis, HIV or other infectious diseases that prohibit the mother from breastfeeding. Willing to be a respondent by signing informed *consent.* Exclusion Criteria: Mothers with a diagnosis of mastitis or abscess. Mothers with psychiatric disorders such as the baby blues or depression. Mothers with infectious diseases that prohibit breastfeeding.

Cabbage leaf compress intervention is to give cold cabbage leaf compress on the breast lasts for 15-20 minutes or until the cabbage leaves wither for 2-3 times every day. Aloe vera compress intervention is to give aloe vera compress *or aloe vera that is halved and attached in cold conditions to the breast lasts for 15-20 minutes for 2-3 times every day.* Breast engorgement is assessed with 4 scales, namely: scale 4 when the breast is palpable hard and painful. Scale 3 if the breast still looks firm but the breast skin is palpable less soft. Scale 2 when the breasts are not too tense and hard, the skin begins to feel soft, but some are still in a fixed degree of breast engorgement. Scale1 when breast skin looks fresh and normal again. The bivariate analysis used in this study was the *Mann Whitney U test.*

RESULTS

Table 1.
Frequency Distribution of breast engorgement scale Before and After administration of *aloe vera intervention*

	Before the intervention of administering *aloe vera*	After the intervention of giving *aloe vera*
Average (mean)	2.27	1.67
Standard Deviation	0.88	0.62
Minimum	1	1
Maximum	4	3

Table 1, it is reported that giving cold aloevera compresses to nursing mothers can reduce the scale of breast engorgement. Before administering aloevera compresses, the average engorgement scale was 2.27, and after regular administration of aloevera compresses, the average engorgement scale was reduced to 1.67. Even the maximum value of engorgement after compresses is reduced to 3.

Table 2.
Frequency Distribution of breast engorgement scale Before and After cabbage leaf compress intervention

	Before the intervention of applying cabbage leaf compresses	After the intervention of applying cabbage leaf compresses
Average (mean)	2.13	1.60
Standard Deviation	0.74	0.63
Minimum	1	1
Maximum	4	3

Table 2, it is reported that applying cold cabbage leaf compresses to nursing mothers can reduce the scale of breast engorgement. Before applying cabbage leaf compresses the average engorgement scale was 2.13 and after applying cabbage leaf compresses regularly the average engorgement scale was reduced to 1.60., in line with the results of aloevera compresses, in the cabbage leaf compress group the maximum value of engorgement after compresses was reduced also reduced to 3.

Table 3.
The effectiveness of applying *aloevera* compresses against breast engorgement scales

Result	Mann-Whitney Test					Df	P value / Sig (2-tailed)
				95 Confidence Interval			
	Mean Rank before	Z	Mean Rank after	Lower	Upper		
Breast engorgement scale	18.33	-1.97	12.67	0.03	1.17	15	.049

The results of the Mann-Whitney test show a p value of 0.049 < 0.05, so it can be concluded that there is a significant and significant difference in the average breast engorgement scale before and after giving *aloevera compresses* regularly. Based on the results of the table

above, it can be concluded that the administration *of aloevera* compresses is effective in reducing the scale of breast engorgement in nursing mothers. The results of the *Mann-Whitney* test showed the p value of the intervention and after the cabbage leaf compress intervention of 0.042 < 0.05, it can be concluded that there is an average difference in the scale of breast engorgement before and after regular cabbage leaf compresses. Based on the results of the table above, it can be concluded that the application of cabbage leaf compresses is effective in the scale of breast engorgement in nursing mothers.

Table 4.
The effectiveness of applying cabbage compresses against breast engorgement scales

Result	Mann-Whitney Test					Df	P value/ Sig (2-tailed)
				95 Confidence Interval			
	Mean Rank before	Z	Mean Rank after	Lower	Upper		
Breast engorgement scale	18.40	-2.03	12.60	0.17	1.05	15	.042

DISCUSSION

The effectiveness of *Aloevera* compress against breast engorgement scale

The results of the *Mann-Whitney* test showed a p value before the intervention and after the intervention of 0.049 < 0.05, so it can be concluded that there is a significant and significant difference in the average breast engorgement scale before and after giving aloevera compresses regularly. These results are in line with the study reporting that the average pain before treatment was 7.00 and pain after treatment was 3.00, in these results obtained (Elifrida, 2021) *p-value* 0.001 which means that there is a significant influence between pain before and pain after being given aloe vera. So it can be concluded that aloe vera has an influence on breast engorgement pain.In theory, aloe vera has long been dubbed as the ultimate medicinal or healing plant. The inside of the flesh of these aloe vera leaves is filled with sap and slimy flesh without color. The texture is chewy and crumbles. Aloe vera meat sap contains 22 amino acids of which 8 are essential amino acids that cannot be produced by the body. In addition, the flesh of aloe leaves is anticancer. Polysaccharides and flavonoids found in the flesh of aloe vera leaves. (Martini, 2022)(Kusumastuti, 2023)

Aloe vera can be used to treat breast pain due to menstruation or breast pain due to the process of stopping breast milk. Aloe vera contains *anthraquinone* which contains aloin and emodin which can serve as analgesics. The analgesic activity of aloe vera is also associated with the presence of enzymes *carboxypeptidase* and *bradykinase* which can reduce pain. Pain reduction occurs through stimulation of the immune system and decrease in prostaglandins responsible for pain (Sari, 2019).(Borges-Argáez, 2019)Aloe vera contains lots of water and various substances that can reduce pain so that the pain felt will be reduced. Aloe vera contains *anthraquinone, aloe emodin, bradikinase enzyme, carboxypeptidase, salicylates, tannins* and *Saponins* each of which has the ability as an anti-pain and anti-inflammatory. Research states that aloe vera is cold and contains lignin which has a high absorption ability. The effect of cold on aloe vera can increase comfort in mothers who experience engorgement pain. (Borges-Argáez, 2019) (Lestari, 2021)

The effectiveness of applying cabbage leaf compresses against breast engorgement scales

The results of the Mann-Whitney test analysis where in pairs before the intervention and after the cabbage leaf compress intervention obtained Sig.2-tailed values of 0.042 < 0.05, it can be concluded that there is an average difference in the scale of breast engorgement before and

after applying cabbage leaf compresses regularly. Based on these results, it can be concluded that applying cabbage leaf compresses is effective in breast engorgement scale in breastfeeding mothers at the Bandung Health Center, Serang-Banten in 2023. These results are in line with research reported by Yang reported that there was a significant association between cold cabbage leaf compresses and a decrease in the degree of breast engorgement p value 0.000 < 0.05. In addition, research (Andari, 2021) showed the average result of breast engorgement of postpartum mothers before being given cold cabbage compresses with a mean of 4.00 after being given cold cabbage compresses with a mean of 0.77.(Santy, 2022)

Cabbage leaves are theoretically rich in phytonutrients and various vitamins such as vitamins A, C & K. These are all natural antioxidants, which help prevent cancer . In addition, cabbage is a good source of the amino acid glutamine and is believed to treat all types of inflammation, one of which is inflammation of the breast. For external use, cabbage leaves can be used to compress bruised, swollen or painful body parts (Pratiwi, et al, 2019).(Yadav, 2019) Cabbage can be used for engorgement therapy. Cabbage (*Brassica Oleracea Var.Capitata*) is known to contain the amino acid methionine which functions as an antibiotic and other ingredients such as sinigrin (*Allylisothiocyanate*), mustard oil, magnesium, *Oxylate heterosides* Sulfur, this can help widen capillaries thereby increasing blood flow in and out of the area, thus allowing the body to reabsorb the fluid contained in the breast. In addition, according to cabbage leaves, it also secretes a cold gel that can absorb heat which is marked from clients feeling more comfortable and cabbage leaves become wilted / mature after sticking.(Aprilina, 2021)(Napisah, 2021)

CONCLUSION

The results of the *Mann-Whitney* test showed a p value before the intervention and after the intervention of 0.049 < 0.05, it can be concluded that there is a significant and significant difference in the average breast engorgement scale before and after giving aloevera compresses regularly. In addition, the results of the cabbage leaf compress intervention analysis showed a p value of 0.042 < 0.05, which means that there is a difference in the average breast engorgement scale before and after applying cabbage leaf compress.

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