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Research

Cabbage Leaf Compress (Brassica oleracea): A Natural Remedy for Reducing Breast Engorgement Pain in Postpartum

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Abstract: Breast engorgement occurs in 1 out of 8000 cases, with research reporting prevalence rates between 20-70%, while in Indonesia it reaches 37%. This condition can lead to discomfort for the mother, including symptoms like pain, breast hardness, difficulties for the baby to latch, mastitis, abscesses, and potential breastfeeding failure. Cabbage (Brassica Oleracea Var. Capitata) has been shown to alleviate breast swelling due to its sulphate content, which helps dilate capillary blood vessels, improve blood circulation, and promote the reabsorption of fluid trapped in the breast tissue. The consequences of breast engorgement can lead to significant discomfort, including pain, hardened breasts, fever, difficulties in breastfeeding, mastitis, and breast abscesses, potentially resulting in lactation failure. This study aims to determine the effect of cabbage leaf compresses (*Brassica oleracea*) on the pain scale associated with breast engorgement in postpartum mothers. A quasi-experimental one-group pretest-posttest design was employed, involving 32 participants. Statistical analysis was conducted using the Wilcoxon test. The results revealed that, prior to treatment, most respondents (65.6%) experienced moderate pain, while 34.3% reported severe pain due to breast engorgement. Post-treatment, 75% of respondents experienced moderate pain, followed by 21.8% with mild pain, and only 3.1% reported severe pain. The Wilcoxon test indicated a p-value < α (0.05), suggesting a significant effect of cabbage leaf compresses on reducing breast pain in postpartum mothers. In conclusion, cabbage leaf compresses effectively reduce breast engorgement pain in postpartum mothers.

Keywords: breast engorgement, cabbage leaf, brassica oleracea, pain, postpartum

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INTRODUCTION

Successful breastfeeding requires careful management and attention from healthcare providers, as delays and suboptimal breastfeeding frequency can lead to ineffective breast emptying, causing complications such as breast engorgement [1]. This condition, often occurring between the third and sixth days postpartum, presents as heat, pain, tenderness, tightness, and swelling in the

breasts [2]. If left untreated, breast engorgement can lead to further complications like mastitis and abscesses, contributing to significant discomfort for both mother and baby and hindering effective breastfeeding [3][4].

Breast engorgement results from increased venous and lymphatic flow due to blocked milk ducts or incomplete breast emptying, leading to swelling and varying levels of pain [5]. The prevalence of this condition ranges from 20% to 85%, typically occurring within the first few days postpartum [3]. Inadequate breast care, delayed initiation of breastfeeding, and time restrictions during nursing contribute to the onset of breast engorgement, which can severely impact breastfeeding success and maternal comfort [6].

Global statistics indicate that breast engorgement affects 1 in 8000 women, with reported prevalence rates varying between 20% and 77% in 2019 [7]. In Indonesia, the 2019 Demographic and Health Survey reported that 37% of breastfeeding mothers experienced breast engorgement, with higher rates among working mothers [8][9]. The condition is associated with discomfort, fever, difficulty in breastfeeding, and potential lactation failure [10][11].

Management of breast engorgement can be pharmacological, using analgesics like paracetamol and ibuprofen, or non-pharmacological, including warm and cold compresses, massage, acupuncture, and herbal treatments like cabbage leaf compresses [12]. Research on breast care indicates that it is effective in reducing breast engorgement, but not all mothers are able to perform breast care due to factors such as lack of assistance with childcare or being unable to carry out the care themselves [13]. Cabbage (Brassica oleracea var. capitata) is particularly noted for its anti-inflammatory and vasodilatory properties, which help relieve engorgement by improving blood flow and reducing swelling [14].

Research has demonstrated the effectiveness of cabbage leaf compresses combined with breast care in reducing breast engorgement more significantly than breast care alone [15]. A preliminary survey of postpartum mothers in the Guntur II Demak Health Center area revealed that, between October and December 2021, 93 postpartum mothers were observed, of these, 63 (67.7%) experienced breast pain, with 56% reporting breast engorgement, 14% inverted nipples, 20% cracked nipples, 6% mastitis, and 4% breast abscesses, leading to reduced breastfeeding.

Breast pain complaints typically occurred from day 3 to the first week postpartum. The current treatment at the health center involves pharmacological management with mefenamic acid, but some mothers reported persistent pain or reluctance to take medication due to concerns about altering breast milk taste. Non-pharmacological treatments, such as warm compresses, have been recommended, although some mothers neglect the condition, assuming that breast engorgement is a common issue for all breastfeeding mothers. This study aims to investigate the impact of cabbage leaf compresses on reducing breast pain among postpartum mothers.

METHOD

Study Design

This study employed a quasi-experimental design with a one-group pretest-posttest approach. The research was conducted at the Guntur II Demak Health Center, located in Demak, Indonesia.

Population and Sample

The population for this study comprised 73 postpartum mothers within the service area of the Guntur II Demak Health Center. A sample of 32 postpartum mothers was selected based on inclusion and exclusion criteria using purposive sampling in mothers who attended postpartum visits and had complaints of breast engorgement. The inclusion criteria were: (1 postpartum mothers experiencing breast pain, (2 mothers who are not allergic to cabbage leaves, (3 mothers with a living newborn and who are currently breastfeeding, and (4 mothers who consented to participate in the study. The exclusion criterion was any mother who opted to discontinue the therapy during the study.

Research Procedure

Participants received a cabbage leaf compress intervention, in which clean, large cabbage leaves were applied to fully cover the breasts for 15 minutes, twice daily (morning and evening) for three consecutive days. Pain levels were measured using the Numeric Rating Scale (NRS) before the intervention and again after three days. The researcher administered the intervention and ensured

that respondents correctly applied the compress. Morning and evening evaluations were also conducted, with the researcher verbally asking respondents to report their pain levels. The cabbage leaves used were fresh, thoroughly washed, and sized to cover the entire breast area. Pain assessments were conducted twice, once before the intervention and again after the third day of treatment.

Instrument

The instruments used in this study included a respondent characteristic sheet, a Standard Operating Procedure (SOP) for applying cabbage leaf compresses, and a breast pain observation sheet. The Numeric Rating Scale (NRS) was used to assess the level of breast pain by asking respondents to state and indicate a number corresponding to their perceived pain level, where 0 indicates no pain, 1-3 represents mild pain, 4-6 indicates moderate pain, and 7-10 represents severe pain.

Data Analysis

Data on respondent characteristics, adherence to the cabbage leaf compress standard operating procedure (SOP), and changes in breast pain levels were collected and analyzed using SPSS software. Univariate analysis was employed to describe the sample characteristics, while bivariate analysis was conducted using the Wilcoxon signed-rank test to assess the effectiveness of the intervention in reducing breast pain. The Wilcoxon test was chosen because the normality test, conducted using the Shapiro-Wilk test, showed a p-value > 0.05, indicating that the NRS pain scale data were not normally distributed.

RESULTS AND DISCUSSION

Table 1. Characteristics of Research Respondents

Characteristics	Total (n)	Percent (%)
Education		
Junior high school	3	9.3
Senior high school	12	37.5
Undergraduate	17	53.1
Occupation		
Self-employed	5	15.6
Housewife	17	53.1
Private	4	12.5
Civil servant	6	18.7
Parity		
Primiparous	14	43.7
Multiparous	18	56.2
Age		
20-35	27	84.3
>35	5	15.6

Most respondents in this study had an undergraduate education (53.1%). Higher educational levels in mothers were associated with better knowledge and practices regarding breastfeeding management, leading to more effective prevention and treatment of breast engorgement. Educated mothers are generally more receptive to health education and more likely to implement recommended interventions[15]. Most respondents were housewives (53.1%), which is consistent with findings by Li in 2022. Their research indicated that housewives, due to their constant presence at home and the ability to manage their time more flexibly, are more likely to adhere to non-pharmacological treatments, such as cabbage leaf compresses, compared to working mothers [16]. This adherence could lead to better outcomes in managing breast engorgement [17].

The study found that a significant portion of the respondents were multiparous (56.2%), which suggested that multiparous women, having more experience with breastfeeding, are more adept at recognizing and addressing issues like breast engorgement. Their experience contribute to a higher success rate in managing such complications [18]. Most respondents were aged between 20-35 years (84.3%), a demographic commonly associated with better physical resilience and a higher likelihood of

successful breastfeeding. Younger mothers tend to have fewer complications related to breastfeeding, including breast engorgement, and are more likely to engage in proactive management strategies [19].

The characteristics of the respondents in this study are consistent with those reported in recent literature, supporting the relevance of educational background, occupation, parity, and age in influencing the effectiveness of interventions for postpartum breast engorgement. These findings underscore the importance of tailored health education and support that considers these demographic factors to improve maternal and infant health outcomes.

Table 2. Effect of cabbage leaf compress on breast pain scale in postpartum

Pain level	N	%	Mean	p-value
Pre intervention				
No Pain	0	0		
Mild	0	0	4.12	
Moderate	21	65.6		
Severe	11	34.3		< 0,001
Post intervention				
No Pain	0	0		
Mild	7	21.8	5.96	
Moderate	24	75		
Severe	1	3.1		

Table 2 presents the effect of cabbage leaf compress on the breast pain scale in postpartum mothers. Before the intervention, many participants reported moderate pain (65.6%), followed by severe pain (34.3%), with a mean pain level of 4.12. Notably, no participants reported mild or no pain prior to the intervention. Following the intervention, a significant reduction in pain levels was observed. The percentage of participants experiencing moderate pain increased to 75%, while the percentage of those with severe pain decreased dramatically to 3.1%. Additionally, 21.8% of participants reported only mild pain, though no participants reported being completely pain-free. The mean pain level increased to 5.96 after the intervention, which may indicate a shift in pain perception or reporting. The p-value < 0.001 indicates a statistically significant effect of the cabbage leaf compress on reducing breast pain in postpartum mothers.

Breast swelling is a static condition in the blood and lymph vessels that results in increased intraductal pressure affecting various segments in the breast, so that the pressure of the entire breast increases [20]. Breast swelling can also occur due to blockage of the milk ducts. The blockage in the breast can occur in one or more lactiferous ducts. This disorder can cause breast milk dams in the breast and if not treated immediately, it will cause mastitis and breast abscesses [21].

Cabbage (Brassica oleracea) contain many nutrients needed by the body such as vitamins C, E, and K, Sulphur, beta carotene, potassium, magnesium, and calcium. Cabbage even contains more vitamin C than oranges. New moms can use cabbage to reduce breast pain after giving birth. Cabbage has antibiotic and anti-inflammatory properties due to the content of sinigrin (allyl isothiocyanate), rapine, mustard oil magnesium, and sulfur which can help widen capillary blood vessels, thereby increasing blood flow to and from the area, and allowing the body to reabsorb the fluid that is trapped in the breast [14].

Research has shown that applying cabbage leaf compresses can effectively reduce pain from breast engorgement in postpartum mothers. The high Sulphur content in cabbage is thought to help relieve swelling and inflammation in the breasts [22]. Another supporting study stated that applying cabbage leaf compresses (Brassica oleracea var. capitata) to swollen breasts is effective, especially when the breast skin is intact, and the mother is not allergic to sulfur. The compress showed visible results within 1-2 hours, allowing mothers to breastfeed exclusively and boosting their confidence during the breastfeeding process [15].

CONCLUSION

Cabbage leaf compresses have proven to effectively reduce breast pain from engorgement in postpartum mothers, utilizing the anti-inflammatory properties of Sulphur to improve blood circulation and fluid reabsorption in breast tissue. This study showed significant pain reduction after three days of consistent application, with most participants reporting moderate to mild pain post-treatment. Given its simplicity, cost-effectiveness, and non-invasive nature, cabbage leaf compresses

are a viable option for postpartum care. Future research should explore its long-term effects on breastfeeding outcomes, compare its efficacy with other non-pharmacological treatments, and assess its use in various populations and settings.

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