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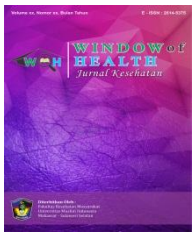

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Effectiveness of Herbal Compress Ball on Reducing Back Pain in Postpartum Women

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ABSTRACT

Postpartum women tend to experience low back pain disorders due to the labor process and muscle tension, especially when breastfeeding their babies. Efforts to overcome back pain in postpartum women include the use of compresses. One of the non-pharmacological interventions employed is using herbal compress balls, which have aromatherapeutic properties and facilitate heat conduction. This intervention aims to enhance local blood circulation in pain-affected regions. The study was to determine the effectiveness of herbal compress balls in reducing back pain in postpartum women. The measuring tool for assessing the pain scale is the NRS. The method research is an experimental "one-group pre-post test design". 96 respondents were selected via non-probability sampling in the form of an accidental sampling technique. Data analysis using the "Wilcoxon signed rank test". **Results**: the study showed a reduction in the back pain scale of postpartum women after the use of the herbal compress ball "p-value = 0.000 (p <0.05)". **Conclusion**: The herbal compress ball has been proven effective in overcoming back pain in postpartum women. It is hoped that further research can use methods comparing herbal compress balls with other intervention methods.

Keywords: Herbal; Compress; Puerperal; Back; Pain.

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INTRODUCTION

The puerperium begins after the expulsion of the placenta and ends with the restoration of the uterus to its pre-pregnancy state, lasting six weeks or about 40 days.[1] The postpartum period is often uncomfortable, including pain due to involution, lactation, and muscle disorders. Muscle disorders occur in the calf area, chest, abdomen, buttocks, and lower back and can be triggered by the long labor process. Postpartum mothers tend to experience low back pain disorders due to the labor process, which can also be caused by muscle tension or improper posture, especially when breastfeeding their babies.[2]

The relationship between physical, environmental, and psychosocial factors and the incidence of chronic back pain and disability. Women have a 13% risk of experiencing low back pain compared to men. This condition is due to women's anatomical and physiological forms and is also related to the ability to bear children.[3] Back pain can be affected by non-ergonomic body positions such as sitting, squatting, and standing.[18] Based on the results of studies on the prevalence of back pain in the United States, Europe, and Africa in pregnant women ranging from 30-78% of pregnant women will experience back pain, and there is a possibility that it will continue or recur and be accompanied by a decrease in health conditions.[4] Back pain can affect several aspects of an individual's psychological well-being, social interactions, and overall quality of life. Postpartum mothers who experience back pain can disrupt the circulation of oxygen-carrying blood. As a result, individuals suffering from this condition will experience higher levels of discomfort if immediate interventions are not made, which will hinder engagement in physical, mental, social, and cognitive activities. [5]

Compress as a non-pharmacological treatment is currently growing, one of which is the Herbal Compress Ball. The effect of the Herbal Compress Ball comes from heat conduction to increase regional blood flow to the affected area, anti-inflammatory effects of herbal ingredients, and relaxation effects of aromatic essential oils from herbal ingredients.[6] The results of the study "Thailand Effectiveness of hot herbal compress versus topical diclofenac in treating patients with myofascial pain syndrome treatment" stated that herbal compresses containing ginger, turmeric, lemongrass and other herbal ingredients obtained VAS results increased 59.43% with a P value of 0.01.[7] The use of Herbal Compress Ball can reduce pain in the muscles and through heat applied to the muscles can make blood vessels become vasodilated, reducing blood viscosity thereby increasing blood flow in the body. Herbal Compress Ball can also reduce muscle tension and increase muscle flexibility. The results of another study stated that there was a significant difference between ginger herbal compresses compared to warm compresses in patients experiencing osteoarthritis pain with a pvalue of <0.001.[8] Based on an initial survey of 10 postpartum women in Bengkulu City, 6 (60%) of them experienced back pain. Many herbal plants are found in the tropical Rejang Lebong region of Bengkulu Province. Researchers tried to make alternative innovations by using local ingredients widely grown in Bengkulu Province, especially in the tropical region of Rejang Lebong. Spices as an alternative non-pharmacological treatment that is utilized in reducing back pain in postpartum women by compressing in the form of Herbal Compress Ball. This

study aimed to determine the effectiveness of the Herbal Compress Ball in reducing back pain in postpartum women.

METHODS

This study used a quasi-experiment with a one-group pre- and post-test design, namely, one group, for an assessment before and after being given an herbal compress ball. The measuring instrument used to assess pain levels is the NRS (Numeric Rating Scale) scale sheet. The population of this study was all postpartum women who gave birth in independent midwife practices in Bengkulu City. The sample used in the study was 96 respondents using the Lemeshow formula. The sampling technique for this study was non-probability sampling in the form of accidental sampling technique, namely, "samples were taken from respondents or cases that happened to exist." Inclusion criteria: 1) Postpartum mothers, 6 hours to 6 days in Bengkulu City, 2) do not have complications or comorbidities.

How the research works: Before the treatment of postpartum women, the level of pain will be measured using the NRS measuring scale. Herbal compresses are made by means of ingredients such as ginger, turmeric, lemongrass, lime, pandanus leaves, and camphor, which are sliced first, then all the spices that have been sliced are packed in cloth and tied in the shape of a ball. Then, after forming the herbal compress ball, steaming is carried out for 10-15 minutes with a temperature of 200- 225°F. Then position the patient as comfortably as possible, take the herbal compress ball from the steamer then, wrap it with a towel that is not too thick to protect the patient's skin from excessive heat, and try it first on the back of the hand to measure heat, then apply it to the patient's back, compress for 20 minutes. After compressing, reassess the level of back pain. Data analysis in the form of univariate analysis includes mean, minimum, maximum, and standard deviation values, as well as bivariate analysis of the Wilcoxon Signed Rank Test comparison test, to determine differences in the dependent variable before and after treatment with a p-value <0.05..

Research ethics using informed consent and consent from respondents. Ethical clearance Faculty of Nursing, University of Jember: No. 301/UN25.1.14/KEPK/2023 dated July 21, 2023.

RESULTS

Univariate Analysis

Characteristics of respondents based on age, education, occupation, and parity. Listed in the following table:

Table 1. Age Characteristics

Characteristics	n	%
Age		
< 25 years	24	25.0
25-35 years	68	70.8
>35 years	4	4.2
Total	96	100

Based on Table 1, it can be seen that most of the respondents were aged 25-35 years, 68 people (70.8%), while the youngest age was> 35 years, 4 people (4.2%).

Table 2. Education Characteristics

Characteristics Education	n	%
Elementary	14	14.6
Intermediate	45	46.9
High	37	38.5
Total	96	100

Based on Table 2, it can be seen that most of the respondents had characteristics of secondary education, 45 (46.9%), while the lowest education level was elementary education, 14 (14.6%).

Table 3. Jobs Characteristics

Characteristics Jons	n	%
Housewife	4	4.2
Private	83	86.5
Civil Servant	9	9.4
Total	96	100

Table 3 shows that most respondents were employed mostly privately (86.5%), while the least employed were housewives (4.2%).

Table 4. Parity Characteristics

Characteristics Parity	n	%
1	27	28.1
2-3	47	49.0
4-5 or more	22	22.9
Total	96	100

Table 4 shows that most respondents had parity, mostly 2-3 parities (49.0%), while the least parities were 4-5 or more (22.9%).

Table 5. The intensity of the pain scale before and after being given the Herbal Compress Ball

Pain Level	n	%	Median	Min	Max
5	44	45.8			
6	13	13.5			
7	25	26.0	6	5	8
8	14	14.6			
Total	96	100.0			

Based on Table 5 above, the back pain of postpartum women before being given the Herbal Compress Ball obtained data that the intensity of back pain in postpartum women was mostly at pain level five, with 44 people, or 45.8%. The lowest score (Min) was five, the highest (Max) was eight, and the median was six.

Table 6. The intensity of the pain scale after being given the Herbal Compress Ball

Pain Level	n	%	Median	Min	Max
2	26	27.1			
3	56	58.3	3	2	4
4	14	14.6			
Total	96	100			

Based on Table 6 above, the level of pain after being given an Herbal Compress Ball obtained data that the most pain intensity was at pain level three for as many as 56 people or 58.3%, the lowest score (Min) was two, the highest (Max) was four, and the median was three.

Bivariate Analysis

The Effect of Herbal Therapy Compress Ball on Reducing Back Pain in Postpartum Women.

Table 7. Effect of Herbal Therapy Compress Ball on Reducing Back Pain in Postpartum Women

Herbal Compress Ball	Pain Level Score				
	Median	Minimum	Maksimum	Value Z	*P* Value
Before	6	5	8	-8.592[a]	0,000
After	3	2	4		

Table 7 shows a decrease in the back pain scale in postpartum women after applying the intervention. The median value before the intervention showed a higher magnitude, specifically six, which then decreased to three after the intervention, resulting in a median value difference of three. Differences were seen in the minimum and maximum pain levels. "The results of the bivariate analysis test with the Wilcoxon Test obtained a Z value of -8.892 with a p value = 0.000 (a <0.005).

DISCUSSION

The ingredients used in making herbal compress balls are: ginger contains *zingiberol* and *curcumanoids* which are useful for reducing inflammation in the joints, relieving pain and muscle spasm, turmeric has a substance called curcumine that works to inhibit the *cyclooxygenase* (COX-2) reaction so as to inhibit inflammation and reduce pain, lemongrass plants (*Cymbopogon Citratus*) contain *cyclo-oxygenation enzymes* that are useful for relieving pain, lime aroma can cause physical and psychological relaxation effects because it contains bioactive substances *linalool* and *linalyl* acetate, lime also contains high ester substances that provide analgesic effects. Pandan leaves contain *alkaloids, terpenoids,*

steroids, flavonoids, and saponins. These compounds have the potential as natural antioxidants and contain anti-inflammatory properties, and finally, camphor (Cinnamomum camphora) provides a cooling effect that soothes the skin.[19,20]

The results showed a decrease in the intensity of postpartum women's back pain after the intervention. The median value before the intervention was higher at six and decreased after the intervention to three, with a difference in the median value of three. Differences were also seen in the minimum and maximum pain intensity. Postpartum women generally experience back pain due to increased physical strain on the spine and back muscles. Various factors can cause this phenomenon, including stretching of the abdominal muscles, weight gain, musculoskeletal strain due to the birthing position, and hormonal fluctuations that occur during pregnancy.[9] Postpartum back pain is a common symptom experienced by mothers, arising from postural strain on the musculoskeletal system due to the position taken during the labor process, which can cause pain in the back area.[10,21]

In this study, the intensity of back pain in postpartum women before getting herbal compress ball intervention was found to be median on a moderate pain scale; the lowest pain intensity was on a scale of 5 (moderate pain and the highest value was on a scale of 8 (severe). Skin stimulation is known as one of the treatments used in pain management. The utilization of adjunctive therapy involves the integration of warm compress techniques with herbal components administered through herbal compress balls. The effect of the herbal compress ball comes from heat conduction in flowing blood to the painful area, anti-inflammatory, and essential oil aroma that provides a relaxing effect. The herbal compress ball's content depends on the herb's availability but is generally made from ginger, turmeric, and camfhor. In line with the results of Konkong's research (2018) to find out the clinical response to the treatment of knee osteoarthritis in the elderly with herbal compresses, the results show significant differences in pain levels with a value of p = 0.001.[11] Likewise, the results of Setiana's research (2020) combining gymball and herbal compresses proved to reduce the pain intensity of laboring women during the active phase.[12]

Previous research has shown that herbal compress ball therapy is effective in reducing pain levels and improving overall quality of life.[13] The results of research on the benefits of herbal compresses performed on third-trimester pregnant women proved. [22] Effective Herbal compress therapy has the same clinical response as ibuprofen drug administration, in line with the results of Chiranthanut's research proving the clinical response between Thai massage and Thai herbal compress (THC) with ibuprofen with a randomized controlled sample after treatment was carried out for three weeks where the trend of the greatest improvement occurred in patients in the THC group, so that the THC group generally provides clinical effects comparable to oral ibuprofen after administering therapy for three week. [14]

The results of this study indicate that the intensity of back pain in postpartum women before and after being given an herbal compress ball decreases, with a p-value = 0.000 (α <0.05). There is a decrease in the minimum, maximum, and median values at the level of pain felt by respondents before

and after being given an herbal compress ball. In theory, Herbal Compress Ball therapy is a non-pharmacological treatment that combines warm compress therapy and aroma therapy, warm compress techniques utilize a heat mechanism that can reduce endorphine hormones, close nerves so that pain impulses that are channeled to the spinal cord and oblongata are also inhibited and can increase blood flow in the mother's body. It makes oxygenation circulation smooth and can prevent muscle stiffness and spasms, as well as reduce pain intensity. [15] Study results: A Randomized Controlled Trial to estimate and compare the effects of short-term therapy on myogenous pain in temporomandibular (TMD) patients receiving Thai herbal compress (THC) or warm placebo compress (PC). The sample consisted of 31 subjects (n=16 in the THC group). Both THC and PC were associated with significantly lower mean VAS, CPI, and PDS scores in the same group. Maximum pain-free mouth opening was significantly increased only in the THC group (p = 0.028). [23]

Herbal compress ball in reducing back pain, in addition to compresses, also utilizes aroma therapy; Aromatherapy is a therapeutic modality that involves the utilization of essential oils to improve a person's physical and psychological well-being. Sensors located within the cilia are directly related to the olfactory nerve, which is located at the end of the olfactory tract. The olfactory system converts olfactory stimuli into electrical signals, which are then communicated to the brain via the olfactory bulb. All neural signals are transmitted to the limbic system, the region responsible for regulating mood, memory, emotions, and learning. Olfactory stimuli sent to the limbic system have a chemical impact on a person's emotional state.[16, 24]

The results of Setiana's research (2022) combining gymball and herbal compresses proved to reduce the pain intensity of laboring women during the active phase.[12] The results of the Putri research (2020) also conveyed that herbal aromatherapy (lemongrass) and finger grasping techniques effectively reduced post-sectio caesarean pain. Findings examining the efficacy of lemongrass aromatherapy (Cymbopogon Nardus) and murotal on labor pain levels during the early active phase showed a marked variation in pain levels before and after treatment.[17] Relaxing and Stress-reducing Effects: Aromatherapy stimulates the limbic system in the brain, which plays a role in regulating emotions and behavior. This stimulation can produce a relaxing effect, reducing stress and anxiety, which is often experienced by postpartum mothers, and improve mood and Emotional well-being. [25]

CONCLUSIONS AND RECOMMENDATIONS

Giving an Herbal Compress Ball for 20 minutes effectively reduced back pain in postpartum women. There was a reduction in pain before and after being given the Herbal Compress Ball, and it also provided a relaxed atmosphere for postpartum women. Therefore, the herbal compress ball can be used as an alternative non-pharmacological treatment in reducing back pain in postpartum women. It is hoped that further research can use methods comparing the herbal compress ball with other intervention methods.

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