

Postpartum Massage and Traditional Herbs on Accelerating Uterine Involution in Postpartum Mothers

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ABSTRACT

OBJECTIVE: To analyze the effect of postpartum massage and traditional herbs on the acceleration of uterine involution in postpartum mothers

METHODOLOGY: A purposive sampling technique was used to select participants from among postpartum mothers who visited the health center. This study included 120 postpartum mothers aged 18-35 who had given birth normally. Participants were excluded due to potential complications during labour. The study, conducted at the Puuwatu Health Centre in Kendari, Indonesia, employed a quasi-experimental design with a pretest-posttest control group approach involving postpartum mothers. Data collection tools included questionnaires for demographic assessment, as well as experiences with postpartum massage and herbal treatment, and tapes for the direct measurement of UFH at baseline and post-intervention intervals. Data were collected at four postpartum intervals, and the results were analyzed using the Kruskal-Wallis and Mann-Whitney tests.

RESULTS: There was a significant difference in the acceleration of uterine involution between Groups 1 and 2 and the control group ($p = 0.001$). The comparison between intervention group 1 and the control group yielded a p -value of 0.000, indicating a statistically significant difference in the acceleration of uterine involution, with intervention group 1 showing the most favourable results. The comparison between intervention group 2 and the control group yielded a p -value of 0.001, indicating a statistically significant difference, with intervention group 2 showing better results than the control group.

CONCLUSION: Postpartum massage intervention and the use of traditional herbs had a significant positive effect on the acceleration of uterine involution in postpartum mothers.

KEYWORDS: Massage, Postpartum Mothers, Traditional Herb, Uterine Involution

INTRODUCTION

Recovery is complicated for new mothers during the postpartum phase because of the many difficulties that arise during this time, including emotional, physical, and psychological aspects. Postpartum depression and anxiety are common emotional changes that can seriously impair a mother's capacity to form bonds with her baby and other family members, which can affect the welfare of both mother and child¹. The postpartum period is a critical phase in a woman's life, marked by significant physiological and psychological changes as the body returns to its pre-pregnancy state. Uterine involution, the process by which the uterus returns to its normal size and condition after delivery, is an essential aspect of postpartum recovery. Various traditional practices, including postpartum massage and herbal remedies, are believed to facilitate this process. In many cultures, particularly in Asian societies, these practices are deeply rooted in tradition and are often used to promote maternal health and well-being during this vulnerable period².

Postpartum massage, particularly techniques such as effleurage, has been shown to reduce discomfort associated with uterine involution. This gentle massage promotes relaxation and helps relieve pain, thereby supporting the mother's recovery process³. The physiological benefits of massage not only provide a sense of comfort but can also improve blood circulation and lymphatic drainage, which are essential for effective healing after childbirth⁴. Additionally, the psychological benefits of massage, including reduced anxiety and improved mood, contribute to a more positive postpartum experience for the mother⁵.

About massage, the use of traditional herbs to support postpartum recovery is common in many cultures. For example, in Indonesian culture, the consumption of herbal concoctions is a common practice aimed at restoring health after childbirth. These herbal concoctions are believed to cleanse the body, stimulate lactation, and accelerate overall recovery⁶. Research shows that certain herbs can help uterine involution, potentially accelerating the recovery process for mothers after giving birth². However, it is important to be careful when using herbal medicines because of the potential for side effects and interactions with other drugs⁷.

According to recent research, consumption of turmeric and tamarind may aid in the healing of postpartum wounds, especially those involving the perineum.

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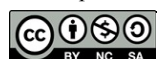
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Although there are few thorough studies on the combined effects of these herbs on uterine involution, these findings suggest that they may be beneficial for postpartum recovery. Ginger may aid digestion and reduce inflammation, thereby improving overall maternal health⁸. Literature indicates that these botanical components have been used traditionally with few documented negative effects, indicating the safety of such herbal remedies. However, few specific clinical studies have examined the combined impact of these factors on uterine involution. Turmeric can be safely consumed in culinary amounts, according to individual studies⁹. Tamarind also has a long history of use in traditional medicine, and when taken correctly, it usually doesn't cause any serious side effects⁸.

The combination of postpartum massage and traditional herbal medicine presents a multifaceted approach to enhancing uterine involution and supporting maternal health. Although this practice is deeply embedded in cultural traditions, further research is required to validate its effectiveness and safety. As healthcare providers increasingly recognize the importance of culturally sensitive care, integrating this traditional practice with evidence-based medicine may offer a novel approach to improving postpartum outcomes for mothers worldwide¹⁰. In the past, postpartum rituals such as massage and herbal remedies have been an integral part of many cultures, particularly in Asia, where they are frequently regarded as crucial elements of maternal care during the confinement period¹¹. In particular, traditional herbal remedies, such as Sheng-hua-tang formulas, have been used for centuries because they are believed to promote uterine healing and enhance the overall health of mothers¹².

A fundamental understanding of postpartum difficulties, encompassing the interplay between emotional, physical, and psychological aspects, is established by the existing literature. Nonetheless, there are significant research gaps concerning the effectiveness of combining herbal remedies for uterine involution with conventional methods, such as postpartum massage. Although the advantages of certain elements, such as massage techniques and specific herbs like tamarind and turmeric, have been acknowledged, little empirical research has been conducted to evaluate the combined therapeutic effects of these elements on maternal health outcomes.

In this study, an herbal mixture of boiled tamarind and turmeric was used. This concoction is believed to have anti-inflammatory and antimicrobial properties that can aid in the postpartum healing process. By combining traditional herbal medicine with massage practices, we may be able to provide more comprehensive care to postpartum women. This study highlights the benefits of postpartum massage and conventional herbs in promoting uterine involution among postpartum mothers in Kendari City. In

addition to enhancing our understanding of maternal care practices, these findings offer a crucial resource for medical professionals by clarifying the therapeutic benefits of these interventions. Beyond the advantages of personal health, ramifications can influence public health regulations and advance culturally sensitive medical practice.

METHODOLOGY

Design

This study used a quasi-experimental design with a pretest–posttest control group approach. This design is suitable because it allows the comparison of outcomes between groups receiving various interventions (postpartum massage and traditional herbs) and the control group, thus providing insights into the efficacy of these interventions on uterine involution. The primary outcome will be the rate of uterine involution, as measured by changes in uterine fundal height (UFH) over time, which serves as an indicator of postpartum uterine recovery. This study was conducted at the Puuwatu Health Center, Kendari City, Indonesia, between July and December 2024.

Sampling Techniques

Participants were chosen from postpartum mothers who visited the health center using a purposive sampling technique. Mothers between the ages of 18 and 35 years who had given birth vaginally and consented to participate in the study met the inclusion criteria. Those with uterine atony or severe bleeding during labor were excluded because of the possibility that these conditions could skew the results. The study sample consisted of 120 mothers, divided into three groups, each with 40 participants.

Instrument

The primary instruments for data collection included a questionnaire used to gather information such as age, parity, and basic details from respondents. A measuring tape was used to directly measure UFH, which was recorded at baseline and specific post-intervention intervals.

Traditional Herb

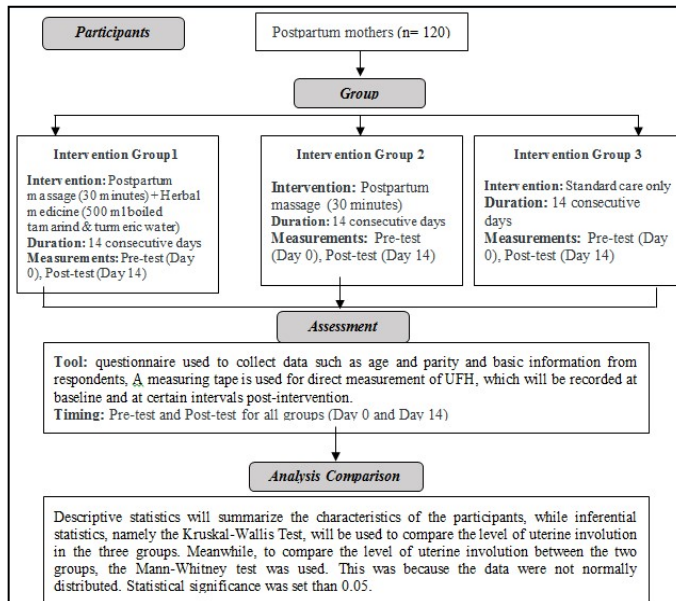
First, boil water in a saucepan to make 500 ml of tamarind and turmeric boiled water. To aid in softening, approximately 30 g of fresh tamarind was added to a small amount of warm water simultaneously. The soaked tamarind was then added to boiling water. To improve the boiling results, two teaspoons of turmeric powder were added to the tamarind mixture and simmered for 5–10 minutes. To remove any solid residue, the mixture was strained using a cheesecloth or a fine sieve. This mixture was used immediately after cooling.

Group

The treatment group received intervention 1, consisting of a 30-minute postpartum massage and traditional herbal medicine (500 ml of boiled tamarind and turmeric water) in the morning, for 14 consecutive days. Intervention group 2 received a postpartum massage simultaneously. The control group received

only standard care. Furthermore, the acceleration of uterine involution in postpartum mothers was assessed.

Figure I: Flow Chart



Data collection

Data will be collected at four intervals: early (within 24 h postpartum), 3 days postpartum, 7 days postpartum, and 14 days postpartum. Participants will be randomly assigned to one of three groups: the massage group, the herbal medicine group, and the control group, which will receive standard care. The massage group will receive postpartum massage techniques, whereas the herbal group will receive traditional herbal treatments that support uterine health. The data collectors were certified midwives.

Data analysis

Statistical analysis was performed using SPSS software. Descriptive statistics will summarise the characteristics of the participants. In contrast, inferential statistics, specifically the Kruskal-Wallis Test, will be used to compare the levels of uterine involution among the three groups. Meanwhile, to compare the level of uterine involution between the two groups, the Mann-Whitney test was used. This was due to the non-normal distribution of the data. Both tests reliably detect statistically significant differences and provide acceptable substitutes in cases where variables do not satisfy the assumption of normalcy. Statistical significance was set at $p < 0.05$. This analysis will help determine the effectiveness of the intervention in improving uterine involution.

Ethical Permission

Ethical approval was obtained from the Institutional Review Board (IRB) of the UNSOED Health Sciences Health Research Ethics Commission, Indonesia (number 314/EC/KEPK/2024). Informed consent was obtained from all participants before enrolment to ensure that they understood the purpose, procedures,

potential risks, and benefits of the study. Confidentiality will be maintained throughout the study, and participants will have the right to withdraw at any time without any consequences.

RESULTS

Table I shows that most postpartum mothers in all groups were between 20 and 35 years of age. Older mothers (those over 35 years old) comprised a smaller subset across all groups. The majority of mothers reported having two to four children, accounting for almost half of the sample in each group. In every group, high-parity mothers (>IV) consistently made up approximately one-third of the sample.

Table I: Characteristics of postpartum mothers by age and parity

Variables	Group					
	Intervention 1		Intervention 2		Control	
	N	%	N	%	N	%
Age						
< 20 years	2	5	0	0	1	2
20-35 years	28	70	30	75	32	80
>35 years	10	25	10	25	7	18
Total	40	100	40	100	40	100
Parity						
I	5	12	3	8	7	18
II-IV	20	50	18	45	18	45
>IV	15	38	19	48	15	38
Total	40	100	40	100	40	100

Table II shows a significant decrease in the uterine fundal height. For instance, the intervention group demonstrated a substantial decline in the "Before" and "After" measurements, particularly in the "Not palpable" measurement (from 31 to 28 in Intervention 2), and an increase in values for the lower fundal height. In terms of lochia, all post-intervention groups experienced a decline in rubra during the rubra-to-alba transition, which was consistent with normal physiological development. The intervention group specifically displayed a more noticeable change in sanguinolenta, suggesting that the intervention may have had an impact on variations in recovery trajectory. Sanguinolenta, for instance, decreased significantly from 15 to 5 in Intervention 1, but only from 18 to 12 in the control.

The analysis in **Table III** shows that postpartum massage has a significant effect on the acceleration of uterine involution in postpartum mothers in Kendari City, with a p-value of 0.001 for the intervention group. These results indicate that the rate of uterine involution is significantly different between the massage, traditional herbal, and control groups. Given the clinical significance of these findings, postpartum massage may be a helpful strategy to accelerate

Table II: Changes in uterine fundal height (UFH) and lochia over time

Variables	Intervention 1		Intervention 2		Control	
	Before Intervention 1	After Intervention 1	Before Intervention 2	After Intervention 2	Before	After
TFU						
3 fingers bring the middle	12	-	12	-	11	-
2 fingers bring the middle	5	-	7	-	9	-
1/2 Symphysis Center	22	-	19	-	18	-
3 fingers above the symphysis	1	-	2	-	2	-
2 Fingers Above Symphysis	-	3	-	5	-	2
1 Finger Above Symphysis	-	6	-	7	-	21
Not palpable	-	31	-	28	-	17
Lochia						
Rubra	25	-	24	-	22	-
Sanguinolenta	15	5	16	8	18	12
Alba	-	35	-	32	-	28

uterine recovery and reduce the risk of problems associated with delayed involution.

Table III: Statistical analysis of postpartum interventions on uterine involution

Variables	Group	P
Acceleration of Uterine Involution	Intervention Group 1	0.001
	Intervention Group 2	
	Control Group	

Kruskal-walis

Table IV shows no significant difference in uterine involution acceleration between intervention groups 1 and 2; however, an important difference was observed between intervention group 1 and the control group, with intervention group 1 showing better results. The same difference was observed between Intervention Group 2 and the Control Group.

Table IV: Differences in uterine involution acceleration in each group

Variables	Difference	P
Acceleration of Uterine Involution	Intervention Group 1 toward Intervention Group 2	0.076
	Intervention Group 1 toward Control Group	0.000
	Intervention Group 2 toward the control group	0.001

Mann Whitney

Table V shows that the average height of the uterine fundus in the intervention 1 group was lower than that in the intervention 2 and control groups on all measurement days, especially on the seventh and fourteenth days. This indicates that the intervention applied in the intervention 1 group was more effective in accelerating involution of the uterine fundus after delivery.

Table V: The uterine fundus height (cm) was measured from the upper edge of the symphysis in postpartum women

Postpartum Day	Intervention 1		Intervention 2		Control	
	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation
1	13.588	0.47118	13.423	0.49124	13.379	0.4191
3	6.3425	0.43414	6.5342	0.41233	9.1233	0.4332
7	3.1223	0.41112	5.2040	0.42227	6.2291	0.3362
14	0.0000	0.00001	0.0033	0.01143	0.4660	0.0420

DISCUSSION

From the data presented, it is evident that the number of mothers experiencing lochia rubra and sanguinolenta decreased after the intervention, suggesting the potential effectiveness of the intervention in reducing postpartum haemorrhage. This decrease can be attributed to the intervention carried out, which focused on improving mothers' understanding and skills in caring for themselves after giving birth, as well as managing their physical conditions, including FHU and lochia¹³.

The intervention appeared to have a positive impact on the management of TFU, as the number of mothers with palpable TFU decreased significantly after the intervention. This suggests that the intervention successfully increased maternal awareness and knowledge regarding the importance of monitoring TFU after delivery. A previous study has shown that appropriate education and support can improve postpartum maternal health outcomes, including the management of TFU and lochia¹⁴. In addition, the decrease in the number of mothers with lochia rubra and sanguinolenta also shows that the intervention contributed to reducing the risk of postpartum complications related to bleeding¹⁵.

Although the results varied, the consistent reduction in the number of mothers with lochia rubra and sanguinolenta suggests that this intervention may improve overall postpartum health. Other studies have shown that community-based interventions and social support can improve maternal and infant health outcomes, as well as reduce the risk of postpartum complications¹⁶. The consistent reduction in the number of mothers experiencing lochia rubra and sanguinolenta highlights the potential effectiveness of community-based interventions for enhancing postpartum health. Such interventions, particularly those that incorporate social support, have been shown to improve maternal and infant health outcomes and mitigate postpartum complications¹⁷. For instance, A study indicated that peer support groups create a destigmatizing environment, facilitating better coping mechanisms for new mothers¹⁸. Furthermore, technology-driven approaches, such as SMS reminders and online courses, have been effective in increasing postpartum care-seeking behaviours and enhancing knowledge of maternal health. It is essential to integrate community and technological resources to promote better health practices among postpartum women, ultimately leading to improved health outcomes¹⁹.

Compared to standard care, postpartum massage dramatically accelerates uterine involution in postpartum mothers, according to the analysis shown in **Table III**. The notable improvement in the intervention group raises the possibility that postpartum massage could be incorporated into Kendari City's maternal care procedures. Additionally, combining massage with traditional herbal medicine may provide a complementary approach, although further research is needed to assess its relative effects. These results highlight the possibility for healthcare providers to maximize postpartum care by demonstrating the potential of non-pharmacological interventions to aid the recovery of mothers after giving birth. Mothers in comparable situations may experience better health outcomes if these interventions are implemented. This finding aligns with previous studies demonstrating that massage, particularly oxytocin massage, can stimulate uterine muscle contractions and accelerate the uterine involution process²⁰.

Postpartum massage, including oxytocin massage techniques, is effective in increasing myometrial contractions, a crucial factor in the process of uterine involution²¹. Hadianti and Sriwenda demonstrated that oxytocin massage can accelerate uterine involution by stimulating the contractions of the smooth muscles of the uterus²¹. In addition, massage can also reduce anxiety and increase the comfort of postpartum mothers, which contributes to a better recovery process²². However, the use of traditional herbs in combination with massage yielded positive results.

Research by Karimah showed that hot herbal compresses can accelerate uterine involution and reduce postpartum pain²³. This suggests that a holistic approach combining massage and traditional herbs may provide significant benefits to postpartum maternal health.

Table IV highlights the effectiveness of the applied intervention in promoting uterine involution, showing a clear difference in outcomes between Intervention Group 1 and the Control Group. This striking disparity suggests that the intervention in Group 1 may improve the physiological mechanisms underlying postpartum recovery. Crucially, these results have significant implications for clinical procedures in postpartum care, suggesting that combining these interventions may improve maternal health outcomes. Early initiation of breastfeeding has been shown to significantly accelerate uterine involution, with studies reporting a mean difference in uterine fundal height reduction of 3.76 cm in mothers who practiced this technique compared to those who did not²⁵. Additionally, interventions such as oxytocin massage have demonstrated a marked improvement in the involution process, with studies indicating faster recovery times in treated groups²⁰. Furthermore, the role of dietary supplements and physical exercises, such as yoga, has been highlighted as beneficial in promoting uterine health and accelerating involution²⁶. Collectively, these findings suggest that targeted interventions can play a crucial role in enhancing postpartum recovery, with implications for clinical practice in maternal care.

In comparison to the control group, the analysis highlighted the effectiveness of the intervention used in intervention group 2. According to the statistically significant results, the intervention's strategic measures significantly improved desired outcomes. This finding raises concerns about the mechanisms underlying these outcomes and suggests that similar interventions may be more effective in practice. This result is consistent with the literature, which shows that well-designed interventions can produce better outcomes in the context of maternal and child health²⁷. Fundal involution of the uterus is an essential process after childbirth in which the uterus returns to its normal size and position. Previous studies have shown that various interventions, including physical exercise and herbal therapy, can contribute to the acceleration of this process²⁸. For example, postpartum exercise is beneficial in improving maternal circulation and supporting uterine involution²⁸. In addition, the use of herbal therapy, such as pineapple juice, has also been reported to be effective in accelerating the involution of the uterine fundus²⁹.

The observed variations in fundal height between groups showed a clear pattern in the effectiveness of the interventions. In comparison to the other groups,

the Intervention 1 group showed a significantly lower mean fundal height, suggesting that this intervention may accelerate the postpartum recovery process. This result indicates that the strategies employed in Intervention 1 may lead to improved uterine involution, a crucial factor in postpartum recovery. Measuring the fundal height of the uterus may be an important indicator in assessing postpartum health and the effectiveness of the intervention applied²⁸. The results showed that the study groups had significantly different rates of uterine involution. The fact that the Intervention 1 group attained optimal involution indicates that the interventions used were very successful in accelerating postpartum recovery. Conversely, both the Intervention 2 and control groups showed delayed involution, underscoring the critical need for successful postnatal care. The significant variations in uterine fundus height suggest that customized strategies can lead to improved postpartum health outcomes for mothers. This is in line with research showing that an integrated approach to postpartum management can yield better results in terms of maternal health recovery²⁸. According to the data in **Table V**, the uterine fundus height of the intervention 1 group was consistently lower than that of the intervention 2 and control groups on all measurement days, especially on days 7 and 14 after giving birth. This implies that uterine involution after delivery was more successfully promoted by the intervention in the Intervention 1 group. Research supports the notion that specific postpartum exercises can significantly enhance the rate of uterine involution, resulting in a more rapid decrease in fundal height compared to non-exercising groups³⁰. Additionally, interventions that include physical activity have been shown to facilitate uterine contractions and recovery, thereby accelerating the involution process³¹. The findings align with existing literature that emphasizes the importance of targeted postpartum interventions for improving maternal health outcomes³².

Limitation

Geographical limitations may affect the effectiveness of interventions for various populations, particularly in diverse healthcare settings. Although not thoroughly examined in this study, variables such as socioeconomic status and access to healthcare resources may also influence the results.

CONCLUSION

Maternal health outcomes have shown notable improvements when interventions are implemented in postpartum care. The participants who received these interventions experienced notably accelerated uterine involution and a significant decrease in the prevalence of lochia rubra and sanguinolenta. This finding suggests that effective self-care techniques are crucial

for reducing the risk of postpartum haemorrhage. The effectiveness of community-based and holistic approaches was further supported by the particularly successful outcomes of interventions, such as postpartum massage and the use of traditional herbal medicine. Taken together, the findings support the incorporation of customized postpartum techniques to maximize maternal recovery and health outcomes, which is consistent with previous research highlighting the value of education and comprehensive support in enhancing the effectiveness of postpartum care. However, while the results support the efficacy of these interventions, it is critical to consider the broader sociocultural context in which they are deployed. The acceptance and accessibility of such strategies in diverse communities are essential for their success. Future studies should, therefore, examine the systemic obstacles and enablers that influence the adoption of these interventions across various populations in addition to validating them.

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AUTHOR CONTRIBUTION

Arsulfa A: Conception, analysis, interpretation, Drafting, revising, Final approval

Heyrani H: Analysis, interpretation, Drafting, revising, Final approval

Aisa S: Interpretation, Drafting, Revising, Final approval

Resyana H: Drafting, revising, Final approval

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