

Comparison of Oxytocin Massage And Warm Compress Herbal Results In Reducing Uterine Fundus Heightfor Post-Partum Mothers at TpmB Midwife Rosida Purwakarta Plered 2025

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Abstract.

Postpartum hemorrhage is one of the main causes of high maternal mortality rates and is often associated with slow uterine involution. Various non-pharmacological interventions, such as oxytocin massage and warm herbal compresses, have been developed to stimulate uterine contractions and accelerate the reduction of uterine fundal height (FHH). **Objective:** This study aims to compare the effectiveness of oxytocin massage and warm herbal compresses on reducing uterine fundal height in postpartum mothers at TPMB Bidan Rosida Plered, Purwakarta Regency. **Methods:** The study used a quasi-experimental design with a two- group pretest–posttest design. A total of 62 postpartum mothers were selected using accidental sampling technique and divided into two intervention groups, namely oxytocin massage and warm herbal compresses. TFU measurements were performed before and after the intervention. Data were analyzed univariately and bivariate using the Wilcoxon and Mann–Whitney tests with a significance level of $p < 0.05$. **Results:** Oxytocin massage showed a significant effect on reducing uterine fundal height ($p = 0.018$), while warm herbal compresses did not show a statistically significant effect ($p = 0.637$). However, the Mann–Whitney test results showed no significant difference in effectiveness between the two groups after the intervention ($p = 0.148$). **Conclusion:** Oxytocin massage was more effective than warm herbal compresses in accelerating the reduction of uterine fundal height in postpartum mothers. Although oxytocin massage provided greater changes in its group, the effectiveness of both interventions was not statistically different directly, so both interventions can be considered as alternative non-pharmacological therapies in postpartum care to support uterine involution and help prevent uterine subinvolution.

Keywords: postpartum mothers, uterine involution, warm herbal compresses, oxytocin massage and uterine fundal height.

I. INTRODUCTION

The postpartum period is crucial for the success of efforts to reduce maternal mortality rates (MMR) and infant mortality rates (IMR). Postpartum care, provided from 6 hours to 42 days postpartum, according to standards, plays a crucial role in detecting and managing complications, given that approximately half of maternal deaths occur within the first 24

hours after delivery. Complications such as postpartum hemorrhage, infection, uterine involution disorders, lactation problems, and psychological disorders require prompt and appropriate treatment by healthcare professionals, particularly midwives, as the primary care provider the spearhead of maternal health services.

Furthermore, reducing maternal mortality is also a key target of the Sustainable Development Goals (SDGs), making improving the quality of postpartum care a priority in maternal health services.

Despite the implementation of various programs, the maternal mortality rate in Indonesia remains above the established target. Postpartum hemorrhage remains a leading cause of maternal death, alongside hypertension and infection. One contributing factor to postpartum hemorrhage is the inhibition of uterine involution due to suboptimal uterine contractions after placental separation. This situation highlights the need for interventions that can enhance uterine contractions so that the involution process proceeds physiologically and the risk of complications can be minimized.

The hormone oxytocin plays a crucial role in stimulating uterine smooth muscle contractions during labor and the postpartum period. Stimulating the release of this hormone can be achieved through non-

pharmacological interventions, such as oxytocin massage or warm herbal compresses. Oxytocin massage works by stimulating the release of the hormone oxytocin, thereby increasing myometrial contractions and accelerating uterine involution. Meanwhile, warm herbal compresses provide a relaxing effect, improve blood circulation, and help stimulate oxytocin secretion through the combination of heat and herbal ingredients. Several previous studies have reported that both interventions have the potential to accelerate uterine involution in postpartum mothers.

Based on data from the TPMB Plered District, there were 284 postpartum visits with a uterine subinvolution rate of 10.9% in 2025. The results of a preliminary study also showed that oxytocin massage and warm herbal compresses have not been routinely implemented in postpartum care, either to stimulate uterine contractions or prevent postpartum hemorrhage. This condition indicates a gap between scientific evidence regarding the benefits of non-pharmacological interventions and midwifery service practices in the field, so that research is needed that can provide a scientific basis for the application of both methods.

Based on this background, this study aims to compare the effectiveness of oxytocin massage and warm herbal compresses on reducing uterine fundal height in postpartum mothers at the Rosida Plered Midwifery Center in Purwakarta Regency. The results are expected to provide scientific evidence regarding more effective non- pharmacological interventions in accelerating uterine involution, as well as provide recommendations for midwives in improving the quality of postpartum care and supporting efforts to prevent postpartum complications.

II. METHODS

This study used a *quasi-experimental* design with a *two-group pretest–posttest design* to compare the effectiveness of oxytocin massage and warm herbal compresses on reducing uterine fundal height (FH) in postpartum mothers. Both groups underwent FH measurements before (pretest) and after (posttest) the intervention.

The study was conducted at the Independent Midwife Practice (TPMB) of Bidan Rosida, Plered District, Purwakarta Regency during the period of October–December 2025. The study population was all postpartum mothers who gave birth at TPMB Bidan Rosida, totaling 62 respondents. The sample was selected using a *non-probability sampling* technique with an *accidental sampling* method according to the research inclusion criteria.

Data were collected using an observation sheet to measure uterine fundal height before and after the intervention, a checklist to monitor the implementation of the intervention according to standard operating procedures, and a questionnaire to provide supporting data on respondent characteristics and adherence to the intervention. All respondents provided written *informed consent* before participating in the study.

Data analysis was conducted in stages through editing, coding/scoring, data entry, and cleaning. Univariate analysis was used to describe the characteristics of respondents and changes in TFU values before and after the intervention. Bivariate analysis was used to test the effectiveness of each intervention using the paired t-test or Wilcoxon test, and to compare the effectiveness of the two groups using the independent t-test or Mann–Whitney test according to the data distribution with a significance level of $p < 0.05$. The study applied ethical research principles including informed consent, anonymity, confidentiality, justice, veracity, non-maleficence, and beneficence.

III. RESULT AND DISCUSSION

Respondent Characteristics

Table 1. Respondent Characteristics

Variables	Oxytocin Massage		Warm Herbal Compress	
	N	%	N	%
Age				
No Risk 20-35 Year	28	90	22	71
At Risk (<20 Years dan 35 <Years	3	10	9	29

TOTAL	31	100	31	100
Parity				
Primipara	17	55	3	10
Multipara	14	45	27	87
Grande Multi para	0	0	1	3
TOTAL	31	100	31	100
Work				
Work	15	48	16	52
Doesn't work	16	52	15	48
TOTAL	31	100	31	100

Based on table 1, it shows that in the oxytocin massage group based on the age variable, the majority of respondents were in the non-risk category aged 20-35 years, namely 28 respondents (90%), while the fewest were in the risk category aged <20 years and >35 years, namely 3 respondents (10%). In the parity variable, the majority of respondents were in the primipara category, namely 17 respondents (55%), while the fewest were in the grande multipara category, namely 0 respondents (0%). In the employment variable, the majority of respondents were in the unemployed category, namely 16 respondents (52%), while the fewest were in the employed category, namely 15 respondents (48%).

Meanwhile, in the herbal warm compress group based on the age variable, the majority of respondents were in the non-risk category aged 20-35 years, namely 22 respondents (71%), while the fewest were in the risk category aged <20 years and >35 years, namely 9 respondents (29%). In the parity variable, the majority of respondents were in the multipara category, namely 27 respondents (87%), while the fewest were in the grande multipara category, namely 1 respondent (3%). In the occupation variable, the majority of respondents were in the working category, namely 16 respondents (52%), while the fewest were in the unemployed category, namely 15 respondents (48%).

Respondent characteristics indicate that most postpartum mothers are of healthy reproductive age (20–35 years) and range from primiparous to multiparous. This condition supports a more optimal uterine involution process because Reproductive age and parity are factors that influence uterine contractions after delivery. Furthermore, mobilization also contributes to accelerated uterine involution by increasing blood circulation and muscle activity, thus reducing the potential for bias in comparing the effectiveness of the two interventions.

Univariate Analysis

Table 2. Distribution of frequency of TFU decline before and after intervention

Variables	Oxytocin Massage		Warm Herbal Compress	
	N	%	N	%
TFU Before Intervention				
Fast	2	6	2	6
Normal	29	94	29	94
Slow	0	0	0	0
TOTAL	31	100	31	100
TFU Sesudah Intervensi				
Fast	15	48	10	32
Normal	13	42	15	49
Slow	3	10	6	19
TOTAL	31	100	31	100

Table 2 shows that in the oxytocin massage group, before the intervention, the majority of TFU reduction was in the normal category 29 respondents (94%), and the least was in the fast category 2 respondents (6%). After the intervention, the majority of TFU reduction was in the fast category 15 respondents (48%), and the least was in the slow category 3 respondents (10%).

Based on the data in table 4.2, it was found that in the herbal warm compress intervention group, before the intervention, the majority of TFU reduction was in the normal category, as many as 29 respondents (94%), and the least was in the fast category, as many as 2 respondents (6%). After the intervention, the majority of TFU reduction was in the normal category, as many as 15 respondents (48%), and the least was in the slow category, as many as 6 respondents (19%).

Bivariate Analysis

Table 3. Normality Test

TFU Decline	Statistics	P-Value	Information
Oxytocin Massage			
Pre-test	0.270	0,000	Abnormal
Pos-test	0.758	0,000	Abnormal
Warm Herbal Compress			
Pre-test	0.270	0,000	Abnormal
Pos-test	.0806	0,000	Abnormal

* Shapiro-Wilk Normality Test

Based on Table 3, the study has a significance value (p) below the threshold of 0.05. Specifically, the oxytocin massage group obtained a p value of 0.000 at both measurement stages, while the warm herbal compress group showed a p value of 0.000 at both measurement stages. In accordance with statistical decision- making criteria, a significance value smaller than 0.05 ($p < 0.05$) indicates that the decrease in TFU in postpartum mothers in this study was not normally distributed. Therefore, bivariate analysis was continued with non-parametric tests. To see the difference in scores before (pretest) and after (posttest) the intervention in each group, the *Wilcoxon test* was used, while to compare between groups (*Oxytocin Massage* and warm herbal compress) the *Man-Whitney test* was used. With this bivariate analysis, researchers can assess the difference in the intensity score of the decrease in TFU before and after the intervention.

Table 4. Wilcoxon Test

TFU Decline		Mean Rank	P-Value
Oxytocin Massage	Pre-test	9,50	0,018
	Posttest	9,50	
Warm Herbal Compress	Pre-test	7,50	0,637
	Posttest	8,75	

* Wilcoxon Test

Based on the results of table 4, the results of the analysis using the Wilcoxon test are shown. showed that oxytocin massage had a significant effect on reducing uterine fundal height ($p=0.018$), while warm herbal compresses did not show a statistically significant change ($p=0.637$). This suggests that oxytocin massage is more effective in increasing uterine involution by stimulating the release of the hormone oxytocin, which strengthens myometrial contractions, thereby accelerating the reduction in uterine fundal height.

These findings align with the theory that paravertebral stimulation can stimulate the release of the hormone oxytocin, thereby increasing myometrial contractions and accelerating uterine involution. Conversely, warm herbal compresses also provide clinical improvement through the heat effect, which increases blood circulation and stimulates oxytocin secretion, as well as the herbal phytochemicals that have anti-inflammatory and relaxant properties. Thus, both interventions have the potential to support postpartum maternal physiological recovery through different but complementary mechanisms.

Table 5. Man Whitney Test

Penurunan TFU	Mean Rank	P-Value
Oxytocin Massage	28,47	0,149
Warm Herbal Compress	34,53	

*Mann-Whitney Test

Based on the results of Table 5, the *Mann-Whitney* test shows that the post-test of the oxytocin massage group and the herbal warm compress group had a final residual value ($p=0.148$) >0.05 , so it can be concluded that there is no significant difference in effectiveness between the two groups after the intervention ($p=0.148$). Thus, although oxytocin massage resulted in greater changes in the oxytocin group, the effectiveness of the two interventions was not statistically significantly different.

The results of this study support the theory that oxytocin stimulation plays a key role in accelerating uterine involution by increasing myometrial contractions. Oxytocin massage works directly by stimulating

oxytocin release, while warm herbal compresses provide a relaxing effect, improve blood circulation, and help stimulate oxytocin secretion through their heat and herbal phytochemical properties. Both interventions have the potential to be used as non-pharmacological therapies to support postpartum maternal recovery and prevent uterine subinvolution, although oxytocin massage shows a trend towards greater clinical benefit. This study has limitations in the form of uncontrolled maternal mobilization factors during the postpartum period which can influence the decrease in uterine fundal height, as well as a relatively limited number of samples so that further research is recommended to involve more respondents with better control of confounding factors.

IV. CONCLUSION

Based on the results of the study, oxytocin massage and warm herbal compresses both showed improvements in the reduction of uterine fundal height (FH) in postpartum mothers. However, statistical analysis showed that oxytocin massage had a significant effect on accelerating the reduction of FH ($p=0.018$), while warm herbal compresses did not show a statistically significant effect ($p=0.637$). Thus, oxytocin massage was more effective than warm herbal compresses in accelerating the reduction of uterine fundal height in postpartum mothers.

Oxytocin massage has been shown to produce statistically significant changes, potentially recommending it as a non-pharmacological intervention in postpartum care. Although warm herbal compresses also produced clinical improvements, their effectiveness was not significantly different. Therefore, both interventions can be considered as alternative non-pharmacological therapies in postpartum care to support postpartum maternal physiological recovery and help prevent uterine subinvolution.

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Hopefully, the results of this study can improve midwifery services in providing postpartum care by adding complementary care in the form of oxytocin massage and warm herbal compresses. In particular, this study can be useful in reducing the risk of uterine subinvolution during the postpartum period. Appreciation is also expressed to the entire research team who have collaborated so that this study can be completed successfully.

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