

# The Influence of Oxytocin Massage and Nutmeg Aromatherapy on Relactation Success in the Public Health Center of Aceh Besar Regency Working Area, Indonesia

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**Abstract.** This study aimed to evaluate the effects of oxytocin massage and nutmeg aromatherapy on the success of relaxation among postpartum mothers in the Public Health Center of Aceh Besar Regency working area. The research employed a Quasi-Experimental design with a post-test Only Control Group Design. The study population consisted of non-exclusive breastfeeding mothers with infants under 12 months old. The sampling technique used was purposive sampling, resulting in a sample size of 34 respondents divided into two groups: the group interested in relaxation (Group A) and the group not interested in peace (Group B). The intervention involved providing oxytocin massage and nutmeg aromatherapy for three weeks. Data collected included pre-test and post-test scores using the LATCH assessment instrument. Data analysis was conducted using the Wilcoxon test and the Mann-Whitney test. The analysis results indicated significant differences between the pre-test and post-test scores in both groups, both interested and not interested in relaxation ( $p < 0.05$ ). This suggests that using oxytocin massage and nutmeg aromatherapy positively influences relaxation success. In the Mann-Whitney test, there was also a significant difference in the LATCH scores between the group interested and not interested in relaxation ( $p < 0.05$ ). The group interested exhibited higher LATCH scores compared to the group not interested.

In conclusion, oxytocin massage and nutmeg aromatherapy significantly improve relaxation success among postpartum mothers. These interventions can serve as effective alternatives in assisting mothers interested in continuing exclusive breastfeeding. However, further research with more robust designs and larger sample sizes is needed to reinforce these findings.

**Keywords:** oxytocin massage; nutmeg aromatherapy; relaxation success; postpartum mothers.

## INTRODUCTION

Breastfeeding is the best investment for the survival and improvement of health and individuals' and nations' social and economic development [1]. Despite relatively high breastfeeding initiation rates globally, there are still challenges in achieving optimal breastfeeding practices. Data shows that only 40% of infants under six

months of age receive exclusive breastfeeding, and only 45% receive breastfeeding until 24 months of age [2]. Breastfeeding practices in line with recommendations can prevent more than 823,000 child deaths and 20,000 maternal deaths yearly [3]. Furthermore, not breastfeeding is associated with lower intelligence levels in children and results in an economic loss of approximately \$302 billion annually [4].

According to the Basic Health Research 2021, there is concerning data that only 52.5% of 2.3 million infants under six months of age in Indonesia receive exclusive breastfeeding [5]. This indicates a 12% decrease compared to the figures in 2019. Early breastfeeding initiation (IMD) declined from 58.2% in 2019 to 48.6% in 2021 [6]. Data also indicates that the coverage of exclusive breastfeeding in Aceh in 2021 was recorded at 66.6%, which is still below the national target of 80% [6].

One of the efforts to increase the coverage of exclusive breastfeeding is by promoting and supporting lactation practices. Lactation is a natural process where mothers breastfeed their babies by providing exclusive breastfeeding for the first six months of their lives [2]. Lactation practices have extensive benefits for both infants and mothers. Lactation can aid in postpartum recovery by accelerating uterine contractions and reducing the risk of postpartum haemorrhage. Breastfeeding also helps mothers regain their pre-pregnancy weight faster and reduces the risk of breast and ovarian cancer [7]. Furthermore, lactation provides economic benefits, eliminating the need to purchase formula milk [1].

Relactation, which involves restarting or increasing breast milk production after breastfeeding inactivity, can be challenging for some mothers. Stress, fatigue, anxiety, or physical issues can influence relaxation success. Therefore, many mothers seek natural methods to help increase breast milk production and facilitate breastfeeding [8]. Oxytocin massage and aromatherapy with *Cananga odorata* oil are two methods for relaxation [9, 10].

Oxytocin massage and aromatherapy with *Cananga odorata* oil are widely used to facilitate relaxation with various benefits. Oxytocin massage is performed on the breasts to stimulate the production and release of oxytocin hormone. Oxytocin is crucial in the breastfeeding process and uterine contractions during childbirth. Through gentle breast massage, blood flow to the mammary glands can be enhanced, stimulating breast milk production. On the other hand, aromatherapy using *Cananga odorata* oil can provide significant benefits in the relaxation process. *Cananga odorata* oil is known for its calming properties and ability to reduce stress. During breastfeeding, it is essential for mothers to feel relaxed and comfortable, as this can positively impact milk production. Using *Cananga odorata* oil in aroma-

therapy can help create a positive mood and reduce anxiety levels, ultimately contributing to relaxation success.

In some cases, in the Aceh region, many mothers still adhere to cultural or traditional postpartum care practices that can influence their healthy lifestyle behaviours. For example, some postpartum mothers still practice "madeung/sale" (burning), "toet batee" (heating stones), adhere to dietary restrictions and consume herbal concoctions to achieve beautiful, clean skin and a slim body. However, these practices can have an impact on the mother's health, which ultimately affects the nutrition of the breastfeeding infant.

This study investigates whether oxytocin massage and aromatherapy with *Cananga odorata* oil can enhance breast milk production and facilitate the relocation process in mothers in Aceh Besar Regency.

## METHODS

The study utilized a Quasi-Experimental design with a Post-test Only Control Group Design to analyze the effects of oxytocin massage and *Cananga odorata* aromatherapy on the success of relaxation in the working area of Puskesmas in Aceh Regency. The population of this study consisted of non-exclusive postpartum mothers with infants under 12 months old, with a total sample size of 34 respondents divided into two groups. Group A consisted of 17 respondents with a strong desire to relocate, while Group B consisted of 17 respondents with a weak passion. The sampling technique employed the purposive sampling method.

The dependent variable in this study was the success of relaxation, while the independent variables were oxytocin massage and *Cananga odorata* aromatherapy administered to Groups A and B. The research process was conducted in three stages: Pre-Intervention, Intervention, and Post-Intervention. During the Pre-Intervention stage, a one-day briefing session was held with the research enumerators to ensure a common understanding of the research implementation. Initial data on breastfeeding mothers were collected through preliminary data exploration and assessment of breastfeeding interest/motivation using a questionnaire. The respondents were then grouped into Groups A and B based on the assessment results.

Subsequently, the same intervention was conducted on both groups, involving oxytocin massage and *Cananga odorata* aromatherapy performed twice daily (morning and afternoon) for three weeks. In the Post-Intervention stage, the success of relaxation was measured after three weeks of intervention using the LATCH assessment instrument. The collected data were then analyzed using the SPSS statistical software program.

**RESULTS AND DISCUSSION**

Recognizing these demographic characteristics is essential in the context of relaxation research. This information can assist researchers and healthcare practitioners in designing appropriate interventions and providing tailored support to mothers striving to continue exclusive breastfeeding. By understanding the mother's age, the age of the child, the duration of previous breastfeeding, and the days since breastfeeding, interventions can be tailored to meet the specific needs of each group. For instance, mothers in Group A who strongly desire to relocate may require more intensive support and guidance to restart breastfeeding successfully. On the other hand, mothers in Group B who have a weak desire to relocate may benefit from targeted interventions to address any barriers or concerns. Considering these demographic factors can help optimize the effectiveness of relaxation interventions and promote successful exclusive breastfeeding practices.

Table 1 – Demographic Characteristics of Breastfeeding Mothers

Characteristic	Group A	Group B
	n(%)	
Age of Mother		
20-35 years	17 (100)	16 (94.1)
>35 years	0 (0)	1 (5.9)
Total	17 (100)	17 (100)
Age of Child		
≤7 months	9 (53)	10 (59)
>7 months	8 (47)	7 (41)
Total	17 (100)	17 (100)
Duration of Breastfeeding		
≤7 months	12 (71)	9 (53)
>7 months	5 (29)	8 (47)
Total	17 (100)	17 (100)
Days Since Breastfeeding		
≤7 days	13(76)	1(6)
>7 days	4(24)	16(94)

Total	17(100)	17(100)
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Table 1 presents the demographic characteristics of two groups of breastfeeding mothers: Group A (mothers with a strong desire to relocate) and Group B (mothers with a weak willingness to relocate). Group A predominantly consists of mothers aged between 20-35 years, with the majority having infants aged ≤7 months and having stopped breastfeeding for ≤7 months. Most mothers in Group A also experienced the onset of lactation within ≤7 days after delivery. On the other hand, Group B exhibits similar characteristics, albeit with slight differences in maternal age, infant age, duration of breastfeeding cessation, and days since lactation cessation. This information provides insights into the demographic variations between the two groups and can potentially influence the success of relaxation efforts.

Table 2 – Wilcoxon Test Results for Average Pre and Post-Test LATCH Scores in Interested and Not-Interested Groups

Group	N	Mean		Difference	Sign
		Pre-test	Post-test		
Interested	17	5,94	9,29	3,35	0,000
Not Interested	17	5,76	7,12	1,36	0,000
Total	34				

Table 2 presents the results of the Wilcoxon test conducted to analyze the mean difference between pre-test and post-test scores using the LATCH assessment instrument in the interested and not interested groups in relation. The interested group had 17 respondents with a mean pre-test score of 5.94 and a mean post-test score of 9.29. The difference between these scores was 3.35. The test results indicated this difference was highly significant, with a significance level (sign) 0.000.

In the not-interested group, there were also 17 respondents with a mean pre-test score of 5.76 and a mean post-test score of 7.12. The difference between these scores was 1.36. The test results showed that this difference was also highly significant, with a significance level (sign) of 0.000. Overall, the Wilcoxon test results demonstrated a significant difference between the pre-test and post-test scores in the interested and not interested groups to relaxation. This indicates

that using oxytocin massage and *Cananga odorata* aromatherapy significantly improves LATCH scores in mothers striving to relocate.

Table 3 – Mann-Whitney Test Results for Interested and Not-Interested Groups

Group	N	Mean Rank	sig.
Interested	17	25,47	0.000
Not Interested	17	9,53	
Total	34		

Table 3 shows the results of the Mann-Whitney test to compare the interested and not interested groups in relation. The interested group had 17 respondents with a mean rank of 25.47. On the other hand, there were also 17 respondents with a mean grade of 9.53 in the not interested group. The Mann-Whitney test results indicated that these two groups' differences were highly significant, with a significance level (sig.) 0.000. This suggests a significant difference in the relaxation success between the interested and not-interested groups. Overall, the Mann-Whitney test results demonstrate that the interested group in relactation has higher mean ranks than the non-interested group. This indicates that the interested group tends to have a higher relaxation success than the not-interested group.

In this study, the Wilcoxon and Mann-Whitney tests were conducted to examine the effects of oxytocin massage and nilam aromatherapy on the success of relaxation in both interested and not-interested groups. The Wilcoxon test results showed significant differences between the pre-test and post-test scores in the curious and not-interested groups. In the interested group, the mean LATCH score increased from 5.94 in the pre-test to 9.29 in the post-test, with a difference of 3.35 ( $p < 0.001$ ). Similarly, in the not-interested group, the mean LATCH score increased from 5.76 in the pre-test to 7.12 in the post-test, with a difference of 1.36 ( $p < 0.001$ ). Furthermore, the Mann-Whitney test revealed a highly significant difference between the interested and not-interested groups. The mean rank in the interested group was 25.47, while in the not-interested group, it was 9.53 ( $p < 0.001$ ). This indicates that the interested group had a higher success rate than the not-interested group.

These findings are consistent with previous studies investigating the effects of oxytocin massage and nilam aromatherapy on the success of relaxation in postpartum mothers. For example, au-

thors [11] conducted a study to evaluate the impact of oxytocin massage on breast milk production and lactation success in postpartum mothers. The study involved providing oxytocin massage sessions to mothers experiencing relaxation problems over several weeks. The results showed that oxytocin massage could increase breast milk production and aid relaxation.

Similarly, a study [12] examined the use of aromatherapy with nilam oil in mothers experiencing difficulties with relaxation. The study demonstrated that nilam aromatherapy could increase breast milk production, improve milk flow, and increase relaxation success. Another survey [13] tested the effectiveness of combining oxytocin massage and nilam aromatherapy in enhancing relaxation success in postpartum mothers. The findings indicated that the variety of these interventions could increase breast milk production, improve milk flow, and support relaxation success. Authors [14] also investigated the effects of oxytocin massage and nilam aromatherapy on increasing breast milk production in postpartum mothers. The findings showed that both interventions significantly increased breast milk production and contributed to relaxation success.

Furthermore, authors [15] conducted a study involving using aromatherapy with nilam oil in mothers experiencing difficulties with relaxation. The results demonstrated that nilam aromatherapy could increase breast milk production, improve milk flow, and assist in relaxation.

The findings of this study have important implications for improving relaxation success. The interventions of oxytocin massage and nilam aromatherapy can be effective alternatives in assisting mothers who wish to continue exclusive breastfeeding. By increasing LATCH scores and the success rate of relaxation, mothers can obtain optimal breastfeeding benefits for their infants' health and development.

However, it is essential to acknowledge the limitations of this study, such as the relatively small sample size and the limited research location in the Puskesmas Kabupaten Aceh working area. Therefore, further research with a larger population and in broader places is needed to confirm these findings.

The results of this study indicate that oxytocin massage and nilam aromatherapy have the potential to be effective interventions in improving relaxation success in postpartum mothers. Nev-

ertheless, it is essential to note that each individual may have unique responses to these methods, and other factors may also influence relaxation success. Therefore, further research is needed to validate these findings and identify additional factors that play a role in relaxation success.

## CONCLUSIONS

The research findings demonstrate a significant difference in LATCH scores (relaxation success) before and after applying oxytocin massage and nilam aromatherapy in mothers interested in relaxation and not interested in peace for their infants. Furthermore, the two groups have a significant difference in LATCH scores. These findings

indicate that oxytocin massage and nilam aromatherapy can improve relaxation success in postpartum mothers. Therefore, it is recommended to consider using oxytocin massage and nilam aromatherapy as additional therapeutic approaches to support the relocation process. However, further research with more robust designs and larger sample sizes is needed to strengthen these findings and identify the underlying mechanisms of how oxytocin massage and nilam aromatherapy influence relaxation success.

## Conflict of interest

The authors declare no conflict of interest.

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