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Emotional Freedom Techniques and Oxytocin Stimulation Massages that Effectively Reduce Anxiety and Increase Smooth Breast Milk Production of Nursing Mothers

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ABSTRACT

Introduction: Maternal anxiety is potentially increased by postpartum psychological changes and the perceived inability to breastfeed effectively. The increase in adrenaline levels could further reduce the resistance and trust of mothers, inhibiting oxytocin and the ability of prolactin to secrete and create milk. **Objective:** Therefore, this research aimed to determine the effectiveness of Oxytocin Stimulation Massage (OSM) and Emotional Freedom Therapy (EFT) in reducing anxiety and increasing smooth breast milk production. **Methods:** The quantitative method was used with a control group to assess the effects of intervention and investigate the relationship between anxiety and the smooth breast milk production of nursing mothers in Public Health Centers, Tasikmalaya. **Results:** The results showed a difference in average anxiety scores of the nursing mothers before and after the therapy. The intervention group had a lower score of 1.19 compared to the control group, r = 0.432 ($r > 0.05$). Furthermore, there was a difference in the average smooth breast milk production before and after the therapy, with the intervention group having a lower score of 8.3 compared to the control group of $r = 0.129$ ($r > 0.05$). This research showed that the intervention group had a negative and weak correlation between anxiety and smooth breast milk production after the therapy, with a Pearson correlation of -0.037, R-count, and R-count < R-table at a significance value of 0.854. Finally, EFT was effectively applied to reduce the anxiety of nursing mothers (Cohen's D value = 1.76) and increase smooth breast milk production (Cohen's D value = 1.51). **Conclusion:** The study highlights the effectiveness of Oxytocin Stimulation Massage (OSM) and Emotional Freedom Therapy (EFT) in reducing maternal anxiety and enhancing smooth breast milk production. Although the correlation between anxiety reduction and milk production was weak, EFT notably reduced anxiety and improved lactation. These therapies show promises for supporting postpartum mothers and could be further developed into accessible, therapeutic applications for maternal care.

Keywords: Anxiety; EFT; Milk Production; OSM

INTRODUCTION

Breast milk is a complex substance, containing proteins, fats, carbohydrates, vitamins, minerals, enzymes, hormones, and other nutrients supporting the immune system, brain development, as well as the physical growth of a baby safely and economically. Breastfeeding is the optimal way to fulfil a baby's nutritional needs for growth and development (Jamzuri *et al*., 2019). Breastfeeding for infants is related to the prevention of growth and development problems due to malnutrition in all conditions, including in crises

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during the pandemic (Chen *et al.*, 2020).

The concerns include insufficient milk production for satisfaction after each feeding, crying, and refusal to breastfeed activities (Sari, Salimo & Budihastuti, 2017). This is attributed to several challenges posed by crises, such as the pandemic and the increasing anxiety of mothers giving birth. Moreover, postpartum mothers frequently experience psychological problems in the first days of childbirth. Puerperal mothers, particularly those experiencing motherhood for the first time, often grapple with anxiety about their ability to care for babies. This anxiety can reduce breast milk production (Putri, 2019; Lubbe *et al.*, 2020; Hendriyani, Suryaningsih & Suharto, 2019), as postpartum mothers develop stress, which disrupts their minds and triggers the release of adrenaline. The release of adrenaline affects the reflex letdown and inhibits the flow of breast milk (Hafid, 2019).

The scope of exclusive breastfeeding can be improved by reducing maternal stress to enhance smooth breast milk production. This reduction in stress is carried out using non-pharmacological therapies, such as Oxytocin Stimulation Massage (OSM), relaxation therapy, and Emotional Freedom Therapy (EFT). Relaxation therapy during breastfeeding can benefit mothers, as it reduces stress and increases the volume of breast milk (Shukri *et al*., 2017). Oxytocin massage is an effort to overcome insufficient breast milk production, increasing the oxytocin hormone to calm mothers for efficient production. Meanwhile, EFT is a non-pharmacological therapy to reduce the anxiety of mothers and improve breastfeeding (Latifah & Ramawati, 2014).

Previous investigations have shown that OSM reduced anxiety and EFT increased breastmilk production. Therefore, this research aimed to determine the effectiveness of OSM and EFT on the reduction of maternal anxiety and smooth breast milk production.

METHODOLOGY

This research used a quasi-experimental design with a control group to obtain a size effect on breastfeeding mothers (Kabakcıoğlu & Ayaz-Alkaya, 2024; Krishnan, 2024). Both the control and the intervention groups consisted of 27 respondents, which were expected to create conformity and equivalence, thereby reducing data bias. The inclusion criteria of respondents are that the mother has an infant age 0–6 months; a history of normal birth (mature, BW>2500 gr without disability); the mother does not give formula milk or other additional food to the baby; the mother does not have upper extremity movement problems; and the mother has a family member who can help with OSM for 2 weeks. Exclusion criteria of respondents are that the patient experienced illness during the intervention period; the infant becomes ill or dies; and the family member assisting the OSM is unable to complete the program.

The data were collected using a simple random sampling method. The control group received only OSM, while the intervention group was administered both OSM and EFT. The experiment was conducted at Cibeureum and Cihideung Public Health Centres, Tasikmalaya, Indonesia. The instruments were the observation sheets of the smooth breastmilk in the exclusive breastfeeding guidelines from the Ministry of Health of the Republic of Indonesia and the Hamilton Anxiety Rating Scale (HARS) to measure maternal anxiety (Drozdowicz-Jastrzębska *et al.*, 2023; Rasdiani & Tahun, 2023). The data obtained were analysed using the univariate and bivariate analyses.

Ethical Consideration

This research obtained ethical permission from the Health Research Ethics Commission of Poltekkes Kemenkes Tasikmalaya with reference number 2021/KEPK/PE/VI/ on 9th October, 2021.

RESULTS

Table 1: Characteristics of Respondents in the Intervention and Control Groups ($n_1 = n_2 = 27$)

Variables	Intervention Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
Education Levels				
Elementary School	4	14.8%	0	0
Junior High School	10	37.0%	14	51.9%
Senior High School	11	40.7%	10	37.0%
University	2	7.4%	3	11.1%
Contact with Medical Staff				
Integrated Healthcare Centers/Public Health Centers	12	44.4%	10	37.0%
Private Clinics	15	55.6%	17	63.0%
Sources of Information				
Not Found	3	11.1%	8	29.6%
Family	4	14.8%	5	18.5%
Social Media	20	74.1%	14	51.9%

Table 1 shows that the majority of the intervention group had a high school level (40%), frequently conducted regular contact with health workers in private clinics (55.6%), and gained information from social media (74.1%). In contrast, the majority of the control group had junior high school education (51.9%), regularly contacted health workers in private clinics (63%), and gained information from social media (51.9%).

Table 2: Average Age of Respondents in Intervention and Control Groups ($n_1 = n_2 = 27$)

Groups	Mean Age (years)	SD	Min-Max (Year)
After therapies	29.63	6.95	18–42
Control	25.00	5.48	20–42

Table 2 shows that the average age of the intervention and control groups was 29.63 and 25 years old, respectively. These results showed that the respondents in both groups were almost the same age.

Table 3: Differences in Average Scores of Smooth Breast Milk Production of Nursing Mothers before and after Therapies

Variables	Average Score of Smooth Breast Milk Production	SD	Mean Differences	*r -value*
Smooth Breast Milk Production Score before Therapies	58.63	24.68	30.07	0.0001
Smooth Breast Milk Production Score after Therapies	88.70	14.80		

The results showed that the average smooth breast milk production score of nursing mothers in the intervention group increased by 30.07 points after receiving EFT and OSM therapies. The paired *t*-test produced a significance value of $r = 0.0001$ ($r < 0.05$). This score indicates the rejection of H0 or a significant difference in the smooth breastmilk production of nursing mothers in the intervention group before and after receiving EFT and OSM therapies (Table 3).

Average Test of Two Unpaired Groups (Independent)

Table 4: Average Differences in Anxiety Scores of Nursing Mothers in Intervention and Control Groups before and after Therapies

Variables	Mean Anxiety Score	SD	Mean Differences	*r -value*
Anxiety Scores of Intervention Group	8.48	2.59	1.19	0.432
Anxiety Scores of Control Group	9.67	3.46		

The *t*-test obtained an *r*-value = 0.432, showing a value >0.05, or there is no significant difference in the average anxiety scores of nursing mothers in the intervention and control groups after the therapies. Meanwhile, the average anxiety of the intervention group after receiving EFT and OSM therapies is 1.19 points, which is lower than the control group (Table 4).

Table 5: Average Differences of Smooth Breast Milk Production Scores of Nursing Mothers in Intervention and Control Groups before and after Therapies

Variables	Average Scores of Smooth Breast Milk Production	SD/ Min-Max	Mean Differences	*r -value*
Smooth Breast Milk Production Scores of Intervention Group	88.70	14.80	8.3	*0.129*
Smooth Breast Milk Production Scores of Control Group	97.00	50–100		

The Mann-Whitney test has an *r*-value of 0.129, which is >0.05, showing the absence of a significant difference in the average scores of smooth breast milk production of nursing mothers in the intervention and control groups after the therapies. Moreover, after receiving EFT and OSM therapies, the average score of smooth breast milk production of the intervention group is 8.3 points, lower than the control group (Table 5).

Correlation Test between Anxiety and Smooth Breast Milk Production of Nursing Mothers in Intervention Group after Therapies

Table 6: Correlation Test Between Anxiety and Smooth Breast Milk Production of Nursing Mothers in the Intervention Group after Receiving Therapies

Variables	Mean	SD	R-count	*r -value*
Anxiety Score	8.48	2.59	0.037	0.854
Smooth Breast Milk Production Scores	88.70	14.80		

The Pearson correlation test has an *r*-count of 0.037, while the value of the *r*-table at $\alpha = 5\%$ with $N = 27$ is 0.381, showing that *R*-count <*R*-table, with a significance (*r*) value of 0.854. These results show that the correlation between anxiety and smooth breast milk production scores is not significant. The Pearson correlation value of -0.037 indicates a weak negative relationship (Table 6).

Cohen's D Effect Sizes

Table 7: Effect Sizes of Anxiety Scores of Nursing Mothers in Intervention Group Before and After Therapies

Variables	Mean	Elementary School	Combined Sd	Mean Differences	Cohen's D Effect Sizes
Anxiety Score before Therapies	16.81	6.19	4.74	8.33	1.76
Anxiety Score after Therapies	8.48	2.59			

The calculated results of Cohen's d effect size presented in Table 7 show a value of 1.76 or greater than 0.8, indicating a very strong size effect.

DISCUSSION

Breast milk is the best nutrition for babies, but its quality is influenced by various factors capable of preventing successful weaning (Februanti, Hartono & Kartilah, 2019; Damanik, 2018; Rios-Leyvraz & Yao, 2023; De Boer *et al*., 2023). This condition is caused by anxiety, the most prevalent psychological disorder globally, which requires a high demand for effective and affordable treatments. Previous research has established a correlation between less emotion regulation for any threatening stimuli and anxiety (König *et al*., 2019). Anxiety in nursing mothers is related to physiological postpartum changes due to various factors. These include shifts in hormone levels, physical transformations, alterations in family dynamics due to the addition of a new family member, decreased personal time, financial stress, and reduced social engagement (Akca, Turan

& Songut, 2024; Arefadib, Shafiei & Cooklin, 2023). The most recognised among these factors are related to the appropriate demands of baby, body weight, and nourishment.

During lactation, there are two reflex mechanisms in mothers, namely the prolactin and oxytocin reflexes. These mechanisms play a crucial role in breast milk production, expression, and uterine involution, particularly in the puerperium. Anxiety is related to an increase in adrenaline hormones capable of suppressing activities of lactation hormones, specifically oxytocin, which functions in breast milk ejection. Postpartum mothers who breastfeed can induce an immediate and short-lasting release of oxytocin for 20 minutes. The number of oxytocin beats during early breastfeeding is associated with the amount of breast milk production and a longer duration of lactation, which can be reduced by stress. Breastfeeding-induced oxytocin release is associated with high prolactin levels, reduced Adrenocorticotropic Hormone (ACTH), cortisol (stress hormones), and somatostatin (gastrointestinal hormones), elevated socialisation, and minimal anxiety. These conditions suggest that oxytocin induces physiological and psychological adaptation in mothers (Dağli & Çelikb, 2021; UvnäsMoberg *et al*., 2020).

Oxytocin is capable of reducing amygdala activities, serving as a mechanism to decrease stress levels (Skvortsova *et al*., 2020). A well-sucking baby would stimulate more efficient oxytocin releases, as expressed by the high variance of oxytocin, thereby improving the stimulation of breastmilk production (Takahashi *et al*., 2021). A non-pharmacological therapy to increase breast milk production is oxytocin stimulation massage (OSM) (Bach *et al*., 2019; Kartilah & Februanti, 2023; Triansyah *et al.*, 2021). The implementation of oxytocin massage and breast acupressure for postpartum mothers aims to promote the early release of breast milk, contributing to the success of early breastfeeding program (Pinem *et al*., 2021)

A non-pharmacological therapy to overcome anxiety is EFT, which refers to an evidence-based method for depression and anxiety (Church & House, 2018; Bach *et al*., 2019) This Endometrial Function Test (EFT) is a simple self-help method and is frequently called tapping (Wahyuni, Effendi & Mukarima, 2022). Furthermore, it combines elements of exposure, cognitive-behavioural, and somatic stimulation. Physical, emotional, and spiritual elements combined with a spiritual balance of prayer, meditation, and breathing exercises result in a more relaxed body, which lowers anxiety and increases alpha waves in the brain to usher in the early stages of sleep. Catecholamine release increases the sympathetic nervous system's capacity to control the body's circadian rhythm and causes the brainstem to go into paradoxical sleep and relax (Lisarni *et al*., 2022). When using the tapping method, SEFT concentrates on repeating specific words or sentences in a rhythmic manner while submitting to God's plan. When a sufferer prays (with a sincere heart and resignation), their body will become calm. The patient will experience calmness and have normal heart and respiration rates. The patient will feel more at ease as a result of the blood circulation system working smoothly. This illness can help individuals feel less anxious (Marifah, Setyowati & Afiyanti, 2022). Meta-analysis shows that EFT effectively decreases anxiety, depression, and post-traumatic stress disorder (PTSD) (Coyle, 2017; Church *et al*., 2018).

This research showed that the anxiety of nursing mothers could decrease after receiving oxytocin stimulation massage and EFT. Moreover, the combination of these two non-pharmacological therapies could reduce the anxiety of nursing mothers with a p-value of 0.0001 (p-value < 0.05), which improves smooth breast milk production. Since OSM and EFT therapies reduce the anxiety of nursing mothers and improve smooth breastmilk production, wider access is required (Februanti, Kartilah & Subu, 2024; Februanti, Kartilah & Subu, 2023). Consequently, nursing mothers who experience anxiety could improve their smooth breast milk production by applying OSM and EFT therapies. These results offer initial support for further research that creates an application to reduce anxiety and applies EFT to professional mental health care. This application has promising potential, providing accessible and convenient therapeutic benefits (Church, Stapleton & Sabot, 2020).

Limitations

The number of respondents are few in one working area of the community health center. The respondents were in the family, and the observation of the respondents was not throughout the day, so the respondents' activities could not be strictly controlled.

CONCLUSION

This study showed that the decrease in anxiety scores in breastfeeding mothers in the control group is

greater than the control group. In addition, there is no difference in breast milk production in the intervention and control groups in increasing breast milk production after receiving the intervention, as indicated by the paired *t*-test score. However, although breast milk production did not differ in the intervention and control groups, EFT therapy was significantly effective in significantly reducing anxiety scores in breastfeeding mothers. Future studies should focus on assessing the capacity of breastfeeding mothers to provide exclusive breastfeeding for up to 24 months and its impact on the growth and development of infants.

Conflict of Interest

The authors declare that there are no competing interests.

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