Effect of using Korsimu on Oxytocin Levels of Breastfeeding Mothers Post Sectio Caesarea

Pariqa Annisa[1], Mufdlilah[2], Anjarwati[3]
Universitas 'Aisyiyah Yogyakarta
[1]Email: pariqaannisa05@gmail.com

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ABSTRACT

The World Health Organisation states that only 47% of babies are breastfed within the first 1 hour of birth, and only 48% of babies under 6 months are exclusively breastfed, with a global target of 70%. The Breastfeeding Mother Oxytocin Chair (KORSIMU) is an innovation that aims to increase levels of the hormone oxytocin, which plays a role in breast milk production. However, there are no quantitative studies that specifically discuss the effect of KORSIMU on oxytocin levels in post sectio caesarea (SC) breastfeeding mothers. To analyse the effect of using KORSIMU on increasing oxytocin levels in post-SC breastfeeding mothers at PKU Muhammadiyah Hospital Yogyakarta. Pre-experimental research design with a one group pretest-posttest design approach with total sampling technique, namely the entire population from April to July was sampled, namely 30 respondents. The intervention given in this study was the use of KORSIMU for 20 minutes. Data analysis using the Wilcoxon test. The results showed an increase in oxytocin hormone levels after the KORSIMU intervention, the p-value of 0.001 <0.05, indicating a significant effect of KORSIMU on oxytocin levels of post-SC breastfeeding mothers. The use of KORSIMU is effective in increasing the oxytocin levels of post-SC breastfeeding mothers and can be an innovative strategy to support optimal breastfeeding, especially mothers who have milk production problems.

INTRODUCTION

The World Health Organization (WHO) and *the United Nations Children's Fund* (UNICEF) recommend that infants only be breastfed for at least 6 months, and breastfeeding continues until the child is two years old (Ene et al., 2022). Based on WHO data in 2022, globally the achievement of infants who are breastfed 1 hour after birth is 47% and exclusive breastfeeding in infants aged less than 6 months is 48% with a target achievement of 70% by 2030 (WHO, 2022). The Ministry of Health of the Republic of Indonesia (KEMENKES RI) in 2021 stated that the achievement of exclusive breastfeeding in infants aged 0-6 months in Indonesia was around 69.7% with a national target of around 45%

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(Ene et al., 2022). Yogyakarta City has exclusive breastfeeding coverage for infants aged 6 months of 69.8%, in 2022 with a national target of above 50%. However, the coverage in 2022 was lower than in 2021, which was 71.8% (DHO Yogyakarta, 2022).

Public views on increasing breastmilk production through complementary therapies are increasingly positive as their benefits in supporting breastfeeding mothers are recognised. Many are beginning to regard complementary therapies, such as the use of herbs or relaxation techniques, as safe and effective ways to increase breastmilk production naturally, providing additional support for mothers who have difficulty in exclusive breastfeeding (Salam et al., 2023). The hormones that play an important role in milk production are prolactin and oxytocin. These two hormones are equally influential in breast milk production. One way to increase breast milk production is through increasing oxytocin hormone levels using complementary therapy Kursi Oksitosin Ibu Menyusui (KORSIMU). KORSIMU is an innovation of technological advances by combining electro massage on a chair on the back and additional music therapy that aims to increase breast milk production through massage and music therapy that can make breastfeeding mothers feel comfortable and relaxed. KORSIMU is designed to be an oxytocin massage facility that can be used by the mother herself. The massage is able to stimulate the oxytocin reflex or *let down reflex* (Mufdlilah et al., 2022).

The results of previous research found that the use of KORSIMU for once 24 hours with a duration of 10 - 20 minutes can increase the hormone oxytocin so that it can facilitate milk production. The advantages of KORSIMU are also proven to provide comfort for mothers while breastfeeding. The results of the KORSIMU trial on six breastfeeding mothers were smooth milk production and mothers felt comfortable with the electro-massage on the spinal area so that the mother's body was more relaxed and calm while breastfeeding (Mufdlilah et al., 2022). Oxytocin hormone levels can increase in postpartum mothers through oxytocin massage, this was conveyed in a previous study where oxytocin hormone levels in the group that received

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massage were 47.16 pg / ml, compared to the group that did not get massage had oxytocin hormone levels of 29.86 pg / ml. This proves that oxytocin massage can affect oxytocin hormone levels in postpartum mothers (Sarli et al., 2015).

Based on several previous studies, the majority used qualitative studies that explored various complementary therapies to increase breast milk production. For this reason, the novelty in the research to be carried out is to use quantitative research. Based on preliminary studies conducted at PKU Muhammadiyah Hospital Yogyakarta, the number of *post-sectiocaesarea* mothers in 2022 was 228 and in 2023 was 220. However, exclusive breastfeeding coverage is difficult to evaluate until the age of 6 months, because basically the data on the success of exclusive breastfeeding is more complete at the Puskesmas or clinic. In addition, there are still some mothers who do not breastfeed because the milk has not come out and the fatigue and pain factors experienced by *post sectiocaesarea* mothers. The purpose of this study was to analyse the effect of using KORSIMU on oxytocin levels of *post sectiocaesarea* breastfeeding mothers at PKU Muhammadiyah Yogyakarta Hospital.

RESEARCH METHODS

This study used a pre-experimental design with a *one group pretest-posttest design* approach, which was tested twice, before treatment (*pretest*) and after treatment (*posttest)*. The population in this study were breastfeeding mothers in the postpartum period day 3 at PKU Muhammadiyah Yogyakarta Hospital with the target research time from April to July 2024. Sampling using *total sampling* technique which means that the entire population will be sampled by researchers, namely as many as 30 breastfeeding mothers in the puerperium at PKU Muhammadiyah Yogyakarta Hospital who are willing to become respondents and have signed *informed consent*.

The intervention provided in this study was the use of KORSIMU (Counselling for Postpartum Mothers Using Sensory Testing) with the KORSIMU Standard Operating Procedure (SOP), a therapy designed to provide additional care for postpartum mothers after the delivery process, especially after delivery by the sectio caesarea (SC) method. KORSIMU aims

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to assist mothers in postpartum recovery by optimising their physical and sensory aspects through a series of standardised procedures. Each postpartum mother who became a research respondent was asked to use KORSIMU twice a day. Each usage session lasted for 30 minutes, until the researcher confirmed that this duration was sufficient to provide therapeutic effects without making the mother feel exhausted or distracted with other activities. Respondents in this study used KORSIMU for 5 consecutive days, until all respondents met the researcher's target according to the number of respondents achieved

Researchers ensured that all mothers were in similar conditions before starting the therapy. Each mother was instructed to start using KORSIMU about 6 hours after giving birth by sectio caesarea (SC) method, ensuring that the mother was in a stable enough physical condition to do the therapy. In addition, each respondent received the same therapy in accordance with standard hospital procedures, and was encouraged to eat before each KORSIMU session. This aims to ensure that mothers are in optimal condition physically and mentally when undergoing therapy, which in turn helps to minimise bias that may arise from differences in baseline conditions between respondents

Measurement of oxytocin levels before and after the KORSIMU intervention was conducted by midwives as enumerators working at PKU Muhammadiyah Hospital, in charge of drawing blood and then conducted *Enzyme-Linked Immunosorbent Assay* (ELISA) examination. Data analysis used univariate and bivariate. Univariate analysis described oxytocin levels, while bivariate analysis in hypothesis testing was carried out using the *Wilcoxon* test, which is to test the hypothesis difference between two groups of paired samples. This research has been approved by the Research Ethics Committee with Number 00147/KT.7.4/IV/2024.

RESULTS AND DISCUSSION

Based on research conducted on 30 respondents, the following results were obtained:

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Respondent Characteristics

Table 1. Frequency Distribution of Respondents' Parity at PKU Muhammadiyah Hospital Yogyakarta

Parity	Frequency (f)	Percentage (%)
Primiparous	13	43,3
Multiparous	17	56,7
Total	30	100

Table 3 shows that out of 30 respondents there were 43.3% of respondents with primiparous parity.

Table 2. Average Oxytocin Levels Before and After Using KORSIMU

Results	YOUR CORRECTION					
	N	Min	Max	Mean	SD	*p-value*
Pretest	30	30,15	306,51	76,08	58,26	0,001
Posttest	30	29,15	382,56	93,45	66,57	

Table 2 shows that of the 30 respondents before using KORSIMU, the lowest oxytocin level was 30.15, the highest was 306.512, and the average was 76.083 with a standard deviation of 58.262. After using KORSIMU, the lowest oxytocin level was 29.146, the highest was 382.563, the average was 93.447 with a standard deviation of 66.569. Table 1 shows that there is a significant effect of using the Oxytocin Chair for Breastfeeding Mothers (KORSIMU) on increasing oxytocin levels in post-sectio caesarean breastfeeding mothers. This chair is specifically designed to support maternal comfort during breastfeeding, which is an important period in the formation of the bond between mother and baby. The comfort offered by KORSIMU, such as ergonomic design and optimal support, is believed to help reduce stress and increase relaxation, which in turn stimulates oxytocin release.

Oxytocin, often referred to as the love hormone, plays an important role in the breastfeeding process, including stimulating the milk ejection reflex and strengthening the emotional connection between mother and baby. In the context of mothers who have undergone a caesarean section, the challenges of breastfeeding are often greater due to pain and limited movement. The use of KORSIMU provides a practical solution by creating an environment conducive to breastfeeding, helping mothers focus more on interacting with their babies without being distracted by physical discomfort.

These results confirm the importance of innovative support in supporting breastfeeding, especially in

post-sectio caesarean mothers. KORSIMU not only helps to increase oxytocin levels, but also supports overall breastfeeding success, which contributes to the long-term health of mother and baby.

Following sectio caesarea (SC) surgery, mothers often face challenges with breastfeeding. Physically, the surgical incision can cause significant pain, limit mobility and affect a mother's comfort when breastfeeding. Mums may have difficulty finding a comfortable breastfeeding position and often require assistance to position the baby correctly. Uncomfortable breastfeeding positions and pain in the incision area can be a barrier to successful breastfeeding. Research shows that post-SC women tend to experience delays in breastfeeding initiation and face a higher risk of stopping breastfeeding early compared to women who deliver vaginally (Rowe-Murray & Fisher, 2020).

Hormonally, oxytocin plays an important role in the breastfeeding process. Oxytocin, also known as the "love hormone," is responsible for stimulating the contraction of muscle cells around the breast alveoli so that milk can be released. Following SC surgery, oxytocin levels can be affected by several factors, including stress, pain, and delays in skin-to-skin contact between mother and baby. The stress and pain experienced by the mother may inhibit oxytocin release, which in turn may affect milk flow and breastfeeding success. However, adequate support and appropriate interventions, such as the use of comfortable breastfeeding methods and effective pain management, can help increase oxytocin levels and support breastfeeding (Uvnäs-Moberg et al., 2021).

Theory suggests that oxytocin is a hormone that plays an important role in social bonding, stress reduction, and increased happiness. The results of previous research found that the use of KORSIMU (Oxytocin Chair for Breastfeeding Mothers) for once 24 hours with a duration of 10 - 20 minutes can increase the hormone oxytocin so that it can facilitate milk production. The advantages of KORSIMU are also proven to provide comfort for mothers while breastfeeding. The results of KORSIMU research on six breastfeeding mothers were smooth milk production and mothers felt comfortable with the electro-massage of

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the spinal region so that the mother's body was more relaxed and calm while breastfeeding (Mufdlilah et al., 2022).

KORSIMU oxytocin levels of post-sectio caesarean breastfeeding mothers significantly increased after using the Oxytocin Chair for Breastfeeding Mothers (KORSIMU). Before the use of KORSIMU, oxytocin levels ranged from 30.15 to 306.512, with a mean of 76.083 and a standard deviation of 58.262. After the use of KORSIMU, oxytocin levels increased with a range of 29.146 to 382.563, a mean of 93.447, and a standard deviation of 66.569. This increase shows the effectiveness of KORSIMU in stimulating oxytocin production in breastfeeding mothers.

Based on the results, it is important for researchers to compare these results with previous relevant research. Related research suggests that oxytocin stimulation through oxytocin massage techniques or the use of comfortable breastfeeding positions can help reduce stress and increase oxytocin release. These results in line with research findings that maternal comfort during breastfeeding has a positive effect on increasing the hormone oxytocin, which plays an important role in the let-down reflex process.

let down reflex (Mufdlilah et al., 2022).

The researcher's assumption in this study is that the increase in oxytocin levels following the use of KORSIMU indicates the effectiveness of the programme in improving the emotional and social well-being of respondents. The researcher assumed that KORSIMU, which may be designed to increase social interaction, provide emotional support, or other positive stimulation, directly affects oxytocin levels.

Table 2. Effect of Using the Oxytocin Chair for Breastfeeding Mothers (KORSIMU) on Oxytocin Levels of *Post sectiocaesarea* Breastfeeding Mothers.

Results	N	Mean	SD	*p-value*
Pretest	30	76,08	58,26	0,001
Posttest	30	93,45	66,57	

Table 2 shows a *p-value* of 0.001 <0.05, indicating a significant effect between the use of the Oxytocin Chair for Breastfeeding Mothers (KORSIMU) on oxytocin levels in *post sectio caesarea* breastfeeding mothers. This chair is specially designed to provide optimal comfort and support during breastfeeding, which is a critical period for bonding between mother and

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baby and increasing oxytocin production.

Theoretically, oxytocin is a very important hormone in breastfeeding and mother-child bonding. Oxytocin plays a role in stimulating the let down reflex, which allows milk to flow more smoothly during breastfeeding. KORSIMU, with its ergonomic design that supports optimal breastfeeding positions, helps to reduce maternal tension and stress, which in turn can increase oxytocin production. The physical comfort provided by this chair can reduce pain and discomfort, which are important factors in stimulating oxytocin production.

KORSIMU works by several mechanisms that support increased oxytocin levels. Firstly, the chair's ergonomic design ensures that the mother can breastfeed in a comfortable and relaxed position, reducing pressure on the back and shoulders which is often a source of discomfort during breastfeeding. Secondly, this chair may be equipped with features such as special padding and arm support that help the mother maintain the correct position of the baby, allowing the baby to feed effectively. In addition, the comfort provided by KORSIMU may help reduce the level of cortisol, a stress hormone, in the mother's body. This decrease in cortisol allows oxytocin to be more dominant in the mother's system, supporting more efficient breastfeeding and building a strong emotional bond with the baby (Sari et al., 2020).

This study is in line with existing theory and several previous studies on the influence of physical and emotional comfort on oxytocin production. According to neurobiological theory, oxytocin plays an important role in responding to stress and forming social bonds, including the bond between mother and baby during breastfeeding. Research by Handayani et al. (2021) found that mothers who breastfed in a comfortable position had higher oxytocin levels compared to mothers who felt uncomfortable during breastfeeding. In addition, research by Sari et al. (2020) showed that physical and emotional support during breastfeeding, including the use of assistive devices such as breastfeeding pillows or specialised chairs, can increase oxytocin production and improve the overall breastfeeding experience. The results of this study confirm that KORSIMU, as a tool that

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provides comfort and support during breastfeeding, is effective in increasing oxytocin levels in *post sectio caesarean* breastfeeding mothers.

The researcher's assumption was that the increase in oxytocin levels following the use of KORSIMU was a result of the increased physical comfort and emotional support provided by the chair. The researcher assumed that the optimal breastfeeding position and emotionally supportive environment played an important role in increasing oxytocin levels. However, it is important to consider other factors that may have influenced the results of this study. For example, individual differences in response to breastfeeding aids, initial stress levels and the general health of the breastfeeding mother may also affect oxytocin levels. Researchers should ensure that the observed results are truly caused by the KORSIMU intervention and not by other uncontrolled variables. Further research with larger samples and more rigorous research designs is needed to strengthen these findings.

CONCLUSIONS

The study shows that the use of KORSIMU can increase oxytocin levels in *post sectiocaesarea* breastfeeding mothers, this can be seen from the average increase in oxytocin levels before using KORSIMU of 76.083 to 93.447 after using KORSIMU so that it is concluded that there is a significant influence between the use of KORSIMU on oxytocin levels in *post sectiocaesarea* breastfeeding mothers with a *p-value* of 0.001. It is recommended to respondents to perform relaxation techniques such as oxytocin massage or relaxation therapy, besides that the results of this study are also expected to be used as a guide to make it easier for health workers to provide education about the effect of using the Oxytocin Chair for Breastfeeding Mothers (KORSIMU).

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