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Differences in Postpartum Depression and Breast Milk Production in Postpartum Mothers After Implementing Postnatal Yoga

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A B S T R A C T

Breastfeeding is an important event for women that involves physical and psychosocial changes. One form of physical activity is yoga. Yoga is a type of exercise that is done during the postpartum period. It is hoped that it can help mothers improve their mental health, relax, stabilize their emotions, and be more confident in facing their new role as mothers. This research aims to determine the differences in postpartum depression and breast milk production in postpartum mothers after implementing postnatal yoga. The method in this research is a quasi-experiment with a pretest-posttest control group design. The sample size in this study was 32: 16 control and 16 intervention groups. The sampling technique uses a random sampling technique. The results of the paired sample T-test on postpartum depression during the pretest-posttest in the intervention group showed significant results, namely a p-value of 0.004 (p-value <0.05). Meanwhile, breast milk production in the intervention group showed significant results, namely a p-value of 0.000 (p-value < 0.05). In the control group, postpartum depression showed a p-value of 0.090 (p-value> 0.05), while breast milk production showed a p-value of 0.110 (p-value> 0.05). The conclusion is that there are differences in postpartum depression and breast milk production in postpartum mothers after implementing postnatal yoga.

Introduction

The postpartum period is an essential period for a mother. Women transition into mothers, partners into parents, and partners into families. During the postpartum stage, mothers may be more susceptible to stress. Postpartum mothers can experience psychological disorders around 85%—however, 10 to 15% experience significant symptoms such as depression. Depression during the postpartum period in Indonesia ranges from 50-70%. Depression during the postpartum period has several negative impacts on children's developmental outcomes, one of which is delayed language (Poreddi et al., 2021). Depression during the postpartum period, or what can be called postpartum depression, can also have a severe impact on the mother, baby (e.g., cognitive, behavioral, and emotional development problems), and family members (Teychenne et al., 2021). Suicide and infanticide can result from severe postpartum depression (Liu et al., 2022).

The causes of postpartum depression are influenced by the levels of the hormones estrogen, progesterone, prolactin, and cortisol, which are unstable which are biological factors that result in postpartum depression. The more significant the reduction in estrogen and progesterone levels after

delivering birth, the more likely a woman is to develop depression during the first ten days of postpartum (Indisari., 2017 in Mulyani Cici, Ayu Dekawaty, Suzanna, 2022).

Ways to treat postpartum depression can be done with Psychotherapy, lifestyle adjustments, a supportive environment, or any combination of these are all options. Although medication is an option, many women face challenges as a result of continuing to breastfeed. As a result, exercise can be a viable option for overcoming postpartum depression (Marconcin et al., 2021). Several researchers have studied ways to overcome the psychological problems that occur during the postpartum period, namely by increasing the supportive role of husbands' special training for mothers and babies. Counseling therapy, mood and behavior management, and yoga (Winarni L M et al., 2020). Yoga can be used as a stress-reduction therapy that incorporates the entire human body, and it is more commonly used as a therapy for anxiety or depression than medication therapy since it has fewer adverse effects and more benefits (Nabila T & Endang Dwiyanti., 2022)

During the postpartum period, the body changes hormonally and takes care of itself. Women experience challenges in breastfeeding and caring for newborns (Gila et al., 2021). In the 2015-2020 period, according to WHO, babies aged 0-6 months were exclusively breastfed worldwide, only 44% of the 50% target for breastfeeding (WHO, 2021). The prevalence of infants receiving exclusive breast milk in 2020 is 66.06%. This figure exceeds the Strategic Plan target for 2020 by 40%. The presentation of coverage of babies receiving exclusive breastfeeding in East Java in 2020 is 80.0% of the target of 40% (East Java Health Profile, 2020). In Kediri City, the prevalence of exclusive breastfeeding in 2021 is 51.9% of the target of 40% (Kediri City Health Office, 2022). In 2022, the target for exclusive breastfeeding is 45%, based on data from September, but exclusive breastfeeding is still 33.02% (Central Statistics Agency, 2022). The results of a preliminary study conducted at the Kediri City Health Service at the Balowerti Health Center show that the achievement rate for exclusive breastfeeding in 2021 has reached 36.5% of the target of 40%. At the Ngletih Health Center, the achievement rate for exclusive breastfeeding is still low, reaching 41.2% of the target of 40%.

Failure to breastfeed, since there is an inadequate milk supply, can create a number of issues in the baby's early life (Ravi & Joseph, 2020). WHO is actively promoting breast milk as the best supply of nutrients for infants and toddlers (Fungtammasan & Phupong, 2022). One of the essential factors moms face during nursing that causes them to discontinue breastfeeding is a shortage of breast milk, concern about a lack of breast milk, and the belief that the infant is not complete (Erdoğan & Turan, 2022).

The impact of irregular flow and production of breast milk can cause issues for both mother and baby, such as the emergence of breast abscesses, enlarged breasts, plugged milk ducts, mastitis, jaundice, and frequent screaming (Marmi, 2016 in Yeni et al., 2022). Breast milk production can be increased using both pharmaceutical and non-pharmacological therapies. Safe non-pharmacological therapies such as massage, postpartum exercises, acupressure, therapeutic touch, and mind-body healing are provided. Several research conducted in Indonesia indicate that postpartum yoga and postpartum exercise can be used to help stimulate breast milk production after delivery (Arefti et al., 2022).

One form of physical activity, namely yoga, helps stabilize emotions, strengthen determination and courage, increase self-confidence and focus, and build positive affirmations and strength of mind. Therefore, yoga performed during the postpartum period is expected to help mothers improve their psychological condition, strengthen body muscles, relax, stabilize emotions, and increase their confidence in facing their new role as mothers. With mindful breathing techniques, gentle movements, relaxation, and meditation, yoga can help mothers increase energy and endurance, relieve stress and anxiety, improve sleep quality, and reduce muscle tension and other physical complaints such as back pain. In the area around the thighs and waist (Fatonah et al., 2022). Other benefits of postpartum yoga include increasing breast milk production, fighting post-pregnancy depression, reducing stress, and preventing depression after giving birth (Ekajayanti et al., 2022).

Methods

This research is experimental research, with a pretest-posttest control group design. The sample size in this study was 32: 16 control and 16 intervention groups. The intervention group was given postnatal yoga, and the control group was not given postnatal yoga intervention.

This research involved all postpartum mothers at the Balowerti Community Health Center and Ngletih Community Health Center, Kediri City. The sample for this study consisted of postpartum mothers who met the inclusion criteria at the Balowerti Community Health Center and Ngletih Community Health Center, Kediri City. Inclusion criteria: (1) subjects who consented; (2) postpartum subjects starting on day 28; and (3) subjects with a history of normal labor. This research was conducted at the Balowerti Community Health Center and the Ngletih Community Health Center in Kediri City. The research was conducted from May to July 2023. To assess postnatal depression using the EPDS (Edinburgh Postnatal Depression Scale) sheet and to evaluate breast milk production using an observation sheet containing the respondent's data and the amount of breast milk before and after being given postnatal yoga in the intervention group. The control group was also the same; the only difference was that they were not given a postnatal yoga intervention.

The stages carried out before the research are as follows: (1) The researcher takes care of a preliminary study permit to obtain initial data by bringing a permit from Campus 4 of the Kediri Applied Midwifery Undergraduate Study Program addressed to the Kediri City Health Service. (2) After receiving a reply from the Kediri City Health Service, the researcher arranged for research permits at the Kediri City Investment Service to be addressed to the Head of the Balowerti Health Center and the Ngletih Kediri City Health Center. (3) The researcher submitted a request for initial data regarding the data required by the researcher to the Head of the Balowerti Health Center and Ngletih Health Center. (4) After obtaining initial data, the researcher determined the research location, namely in the Balowerti Health Center and Ngletih Health Center Working Area. The researcher coordinated with the midwives of the Balowerti Health Center and Ngletih Health Center to determine the sample according to the established criteria. Next, the researchers divided the respondents into intervention and control groups using a simple random sampling technique. The following procedure was done: (1) Researchers identify

themselves and share information about their study objectives and methodologies. (2) If the respondent is agreeable, the researcher offers an informed consent form for the respondent to sign. (1) In the intervention group, the researcher administered the EPDS questionnaire to the mother and examined the mother's breast milk production before administering postnatal yoga on the first day. The results were recorded on an observation sheet. (2) Respondents received postnatal yoga intervention four times in two weeks, according to the researchers. (3) The researcher gave the mother the EPDS questionnaire to fill out, examined the mother's breast milk production following postnatal yoga intervention on the 15th day, and documented it on the observation sheet. In the control group, the researcher gave the mother the EPDS questionnaire to complete, examined the mother's breast milk production on the first day, and documented the data on an observation sheet. (2) The researcher handed the mother the EPDS questionnaire to complete and examined the mother's breast milk output on the 15th day, which was noted on the observation sheet. The data is then processed and examined. The paired sample t-test was used to analyze the data.

Results

Table 1. Characteristics of Respondents in the Intervention Group and Control Group

Characteristics	Intervention Group (n=16)		Control Group (n=16)		*P Value*
	F/M	%/SD	F/M	%/SD	
Education					0,480
Baase	5	31,25%	3	18,75%	
Intermediate	6	37,5%	10	62,5%	
Tall	5	31,25%	3	18,75%	
Parity					0,433
Primipara	3	18,75%	6	37,5%	
Multiparous	13	81,25%	10	62,5%	
Work					1,000
Work	3	18,75%	5	31,25%	
Does not work	13	81,25%	11	68,75%	

Based on Table 1, the highest level of education in the intervention group was secondary school, with as many as 6 out of 16 respondents (37.5%). While in the control group, most of the highest level of education was secondary school, as many as 10 of 16 respondents (62.5%). In the intervention group, the majority were multiparous, 13 out of 16 respondents (81.25%). Meanwhile, in the control group, the majority were multiparous, 10 out of 16 respondents (62.5%). In the intervention group, most jobs were not working, 13 out of 16 respondents (81.25%). Meanwhile, in the control group, most jobs were not working, as many as 11 of 16 respondents (68.75%).

Table 2. Postpartum Depression Before and After Postnatal Yoga in the Intervention Group

Postpartum Depression (EPDS)	Intervention Group n=16		P-Value
	Before	After	
Not experiencing depression	8	12	
Possible depression	2	3	
The possibility of depression is relatively high	3	1	
Depression is very possible	3	0	0,016
Total	16	16	

Based on Table 2, which shows the distribution of the frequency of postpartum depression in the intervention group, eight respondents did not experience depression before receiving postnatal yoga, two respondents probably had depression, three respondents probably had relatively high depression,

and three respondents had a very high probability of depression. After receiving postnatal yoga, 12 respondents did not suffer depression, three likely experienced depression, 1 had a reasonably high likelihood of depression, and 0 had a very high probability of depression.

Table 3. Postpartum Depression in the Control Group

Postpartum Depression (EPDS)	Control Group (n=16)		P-Value
	Before	After	
Not experiencing depression	7	4	
Possible depression	4	7	
The possibility of depression is relatively high	3	3	
Depression is very possible	2	2	0,083
Total	16	16	

Based on Table 3, the frequency distribution of postpartum depression in the control group, seven respondents did not have depression prior to receiving postnatal yoga, four respondents probably had depression, three respondents probably had moderate depression, and two respondents had a very high probability of depression. After receiving postnatal yoga, four respondents did not have depression, seven likely experienced depression, 3 had a reasonably high likelihood of depression, and 2 had a very high probability of depression.

Table 4. Differences in Postpartum Depression (EPDS) in both the Intervention and Control Groups

Variabel	(n=16) Group Intervention		(n=16) The Control Group		*P-value*
	Mean	±SD	Mean	±SD	
Postpartum Depression (EPDS)	6,94	3.172	10,00	4.412	0,032

Based on Table 4, The independent t-test was used to determine the difference in postpartum depression between the two groups, namely the intervention group and the control group. The independent tests on postnatal depression in both groups showed significant results, namely 0.032 (p-value < 0.05). This shows that there are differences in postpartum depression between the intervention group and the control group.

Table 5. Mother's Milk Production in the Intervention Group Before and After Postnatal Yoga

Mother's milk production	Group Intervention (n=16)		P-Value
	Before	After	
Not enough	7	0	
Enough	9	12	
More	0	4	0.001
Total	16	16	

Based on Table 5, based on the frequency distribution of breast milk production in the intervention group, seven respondents did not experience a decrease in breast milk production, nine respondents experienced sufficient breast milk production, and 0 respondents experienced greater breast milk production before doing postnatal yoga. After receiving postnatal yoga, 0 respondents experienced less breast milk production, 12 respondents experienced sufficient breast milk production, and four respondents experienced increased breast milk production.

Table 6. Control Group Breast Milk Production

Production of breast milk	The Control Group (n=16)		P-Value
	Before	After	
Not enough	3	0	
Enough	13	16	
More	0	0	0.087
Total	16	16	

According to Table 6, which shows the frequency distribution of breast milk production in the control group, three respondents had no less breast milk production, 13 had enough breast milk production, and 0 had more breast milk production. After two weeks, 0 respondents had reduced breast milk production, 16 had adequate breast milk production, and 0 had increased breast milk production.

Table 7. Differences in Breast Milk Production in both the Intervention and Control Groups

	Group Intervention (n=16)		**The Control Group (n=16)**		**P value**
Variabel	**Mean**	**±SD**	**Mean**	**±SD**	
Breast milk production	737,50	89.405	648,75	54.513	0,002

Based on Table 7, the independent t-test was used to determine differences in breast milk production between the two groups, namely the intervention group and the control group. The independent tests on breast milk production in both groups showed significant results, namely 0.002 (p-value < 0.05). This shows that there are differences in postpartum depression between the intervention group and the control group.

Discussion

According to the findings of the research conducted, it was found that postpartum depression in the experimental group decreased, and the production of breast milk increased. During the postpartum period, physiological changes such as ideal body weight and improved body image compared to conditions experienced during pregnancy can be influenced by physical activity. Physical activity can also help reduce levels of postpartum depression (0zkan et al., 2020).

Yoga-based physical exercise as a holistic behavior has been proven effective in improving psychological well-being, helping to recover physical strength after giving birth, and providing social support to postpartum mothers (Putu et al., 2019). Yoga practice reduces body muscle tension, which is one of the causes of depression. Through physical exercises that calm breathing and relaxation techniques, a person can provide peace of mind without using medication (Murtiyani et al., 2018). Other research explains that after doing yoga, serum cortisol in the blood decreases and changes brain waves to alpha waves. Alpha waves are waves in the brain at 8-13 Hz. Usually, these waves appear when humans rest by closing their eyes at the beginning of bedtime (Winarni, 2020).

Breast milk production can increase after doing postnatal yoga because yoga movements for breastfeeding mothers stimulate the pituitary gland, increasing the hormone prolactin to produce more breast milk (Sutrisna et al., 2023). Breast milk does not come out after giving birth, which usually happens. Therefore, mothers do not need to be confused. Mothers can move around the chest and back to expand breast milk production. (Arefti et al., 2022). Other research results also show that yoga influences breast milk production in postpartum mothers in the Andalas Health Center working area, Padang City (p-value = 0.000) (Yoga., 2019).

Treatment for postpartum depression includes medication, psychological and psychosocial therapy, and non-drug treatments such as exercise, acupuncture, and massage therapy. Other research shows that postpartum mothers who received efflurage massage therapy showed that massage therapy using efflurage techniques was more effective in preventing postpartum depression (Kusumastuti et al.,

2022). According to researchers, in the control group who were not given any intervention, the rate of postpartum depression experienced a change. However, it was not significant because, according to existing theory, other risk factors for postpartum depression include various social and physiological factors (Patel et al., 2012; Wita et al., 2022). According to researchers, some factors influence the control group, namely the environmental conditions of postpartum mothers, the number of children born, and the birthing process.

The success of breast milk production in the control group differs from that of the intervention group. The figures increased in the intervention group. It is possible to conclude that postnatal yoga can affect postpartum depression and breast milk production.

Conclusions

From the research results, it was concluded that (1) Postpartum depression experienced changes before and after being given postnatal yoga in the intervention group for postpartum mothers. (2) Postpartum depression experienced changes in the control group. (3) Postpartum depression levels differed between the intervention and control groups. (4) Breast milk production changed before and after postnatal yoga in the intervention group for postpartum women, and (5) breast milk production changed in the control group. (6) The intervention and control groups produced different amounts of breast milk.

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