

Effect of Benson Relaxation Technique versus Foot Massage on Postpartum Blues among Postnatal Mothers

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Abstract

Background: Mood changes in the early days of postpartum are particularly common. Postpartum blues are a common mental health problem during the early postpartum period. There are many alternative therapies to treat this. However, many studies reported that non-pharmacological and complementary interventions are easy to perform without any risk, and with minimal expenses, They decrease the cortisol level in the bloodstream which causes stress and leads to a decrease in the postpartum blues. **Therefore current study aimed to** evaluate the effect of the Benson relaxation technique versus foot massage on postpartum blues among postnatal mothers. **Study design:** A quasi-experimental research design was used to accomplish this study pre-test post-test control group design. **Methods:** the study was carried out at the Postpartum Unit at Damietta University Hospital and home visit. **Subject:** the study included a purposive sampling technique was 200 postnatal mothers, they were divided into three groups (foot reflexology, Benson relaxation, and control group). **Two tools** were used: The postnatal mother's assessment sheet and the postnatal mother's Obstetric and Postpartum data. **Results:** a statistically significant difference between the groups was reported regarding postpartum blues at ($P=0.001$) post-Benson relaxation technique versus foot massage application and the improvement was more significant in the reflexology group than the Benson group. Also, a statistically significant difference between the groups was reported about postpartum blues levels. **Conclusion:** Benson relaxation technique versus foot massage application has a significant reduction in mean post-test postpartum blues scores among postnatal mothers and was found to be cost-effective, non-invasive, non-pharmacological management used to reduce postpartum blues. A higher significant improvement was observed in the reflexology group compared to Benson's relaxation group. **Recommendations:** Applying a training program for postnatal mothers during the antenatal period about the importance of the Benson relaxation technique versus foot massage applying to be able to use them as a part of routine care during the postpartum period.

Keywords: Foot massage, Benson's relaxation, Postnatal mothers, Postpartum blues.

Introduction:

A depressed mood and modest signs of self-limiting transience are referred to as postpartum "blues." Sorrow, sobbing, tiredness, agitation, nervousness, lack of sleep, difficulty focusing, and mood swings are some of the symptoms of depression. Within two to three days following giving birth, these symptoms usually start to appear, peak over the next few

days, and then go away on their own in two weeks (Howard et al., 2019).

Postpartum blues might arise as a result of multiple risk factors. These include a history of significant depression or dysthymia, a history of mood swings linked to the menstrual cycle or pregnancy, a higher number of pregnancies during one's lifetime, or a family history of postpartum depression. Low income, ethnic or racial background, gravidity status (primiparous vs. multiparous), planned vs. unplanned pregnancy, spontaneous pregnancy vs. IVF,

mode of delivery (vaginal vs. cesarean), family history of mood disorders, or history of postpartum depression in the past are the factors that, when present, do not predispose a patient to the development of postpartum blues (**Bloch et al., 2020**).

Most of the pathogenesis remains unknown. On the other hand, it has long been hypothesized that hormonal fluctuations are one of the main causes of postpartum mood swings. Estradiol, progesterone, and prolactin levels usually drop sharply in the postpartum period. The emotional swings that happen throughout the menstrual cycle, including those seen in premenstrual dysphoric disorder, are also linked to a decrease in these hormones. Additional research has suggested that significant risk factors or etiological characteristics that may predispose a woman to the development of postpartum blues include elevated monoamine oxidase levels and decreased serotonergic activity in the immediate postpartum period (**O'Hara & Wisner, 2018**).

Postpartum blues are incredibly frequent, affecting at least 50% of women during the first few weeks following childbirth, according to estimates. Women who experience postpartum blues are roughly 4–11 times more likely to experience postpartum severe depression. The interview is the primary diagnostic tool, as it is for all mental disorders. A diagnosis of postpartum blues can be made in the case of a female patient who appears either right away after delivery or within two weeks of it, based on her low mood and depressive symptoms that don't fit the criteria for major depressive disorder. A postpartum blues diagnosis should not be given if the symptoms of major depressive illness are present or if the mood disorders last longer than two weeks after delivery (**Ghaffari & Ghaznein, 2020**).

Crying, dysphoric affect, irritability, anxiety, insomnia, and changes in appetite are all signs of postpartum blues. When these symptoms do arise, they shouldn't be consistent with major depressive disorder or postpartum depression, if they happen during the postpartum phase. For the symptoms to be considered consistent with postpartum blues, they must typically appear two to three days after delivery and go away in two weeks. The

diagnostic criteria for postpartum depression are met if the symptoms last longer than two weeks (**O'Hara & Wisner, 2018**).

It is possible to think of peripartum mood disorders as existing on a spectrum, with postpartum depression being more incapacitating and postpartum "blues" being milder and self-limited. Postpartum blues, according to its diagnostic criteria, are temporary and self-limiting. As a result, it resolves itself and doesn't need any medical intervention other than psychosocial assistance, education, validation, and assurance (**Seyfried LS, Marcus, 2020**).

Patients experiencing postpartum blues should undergo a thorough evaluation to see whether they meet the requirements for postpartum depression diagnosis. Making sure the symptoms don't match the criteria for a depressive episode at the time of presentation and that they don't last longer than two weeks would be necessary to achieve this. The doctor should start an antidepressant and supportive psychotherapy treatment plan as soon as postpartum depression, also known as depression with peripartum onset, is officially diagnosed. Antipsychotics should be taken into consideration concurrently with a diagnosis of postpartum depression in case psychotic symptoms are observed (**Zanardo et al., 2020**).

Even if the symptoms of postpartum depression are minor, fleeting, and self-limiting, patients should nonetheless undergo a thorough screening for signs of paranoia, suicidal thoughts, or thoughts of killing the baby. To ensure the patient gets enough sleep, home help should be hired. Cognitive therapy and/or medication therapy may be suggested if insomnia is not resolved. Mood swings associated with postpartum blues are usually moderate, fleeting, and self-limiting. On the other hand, a postpartum blues diagnosis may put a person at risk for postpartum depression or anxiety disorders. Individuals who experience mood or anxiety symptoms during pregnancy are at a much higher risk of having postpartum depression when they have the "baby blues" (**Sacher et al., 2020**).

Those who are diagnosed with postpartum depression or postpartum psychosis are more likely to experience postpartum blues symptoms. According to a specific study carried out in Africa, women who were diagnosed with "postpartum blues" on the fifth day after giving birth were twelve times more likely to receive a postpartum depression diagnosis one month later, and ten times more likely to receive a postpartum depression diagnosis two months later (Zanardo et al., 2020).

Women with postpartum depression typically have higher levels of co-morbid anxiety, even though postpartum depression, the most common and well-known complication of postpartum "blues," shares many traits and is diagnosed using the same criteria as major depressive disorder. Additionally, compared to women with major depressive illness without a peripartum beginning, these women have a higher chance of developing bipolar disorder in the future (Brummelte & Galea, 2022).

Primary care physicians, including obstetricians, need to be skilled in diagnosing and treating postpartum depression and be aware of its symptoms. In addition to educating patients, obstetric nurses should keep an eye out for the disorder's symptoms. A pharmacist should be consulted if the patient needs antidepressant therapy to ensure that the right agent is chosen, that the dosage is correct and that medication reconciliation is done to avoid drug interactions. The prescriber/treating clinician must be informed of any problems by both the pharmacy and the nursing staff. By using these interprofessional techniques, patient outcomes will be maximized (Halbreich et al., 2022).

Although foot massage is one of the most well-known alternative therapies, its precise mode of action is still unknown. Foot massage is said to include the movement of energy through vertical zones, from the leg into the head, to distribute energy throughout the body. Thus, pressure on an organ's reflecting point can have an impact on all organs, glands, bones, and muscles. Because the body's organs can be seen reflected in the foot, palm, and ear, foot massage practitioners believe that the

hands and feet act as the body's mirror and map (Brummelte & Galea, 2022).

Reducing stress and tension through foot massage creates a feeling of safety. Applying deep pressure to particular body regions can help relieve pain. There are numerous methods for unwinding. The concept proposed by Herbert Benson in 1970 is regarded as especially excellent. Benson's relaxation technique is easy to use and doesn't require complex equipment or specialized knowledge to grasp. Furthermore, people of all ages can benefit from this therapy. According to Brummelte and Galea (2022), the method can help lower stress and anxiety levels by lessening sympathetic activity and the detrimental effects of an overactive sympathetic nervous system in a range of individuals.

Previous research indicates that Benson's relaxation considerably lessens somatic contractions, the body's defense mechanism against tension, which lessens the negative effects of stress on the body and mind (Jabbari, et al, 2019). In critical care settings and after cardiac surgery, the nurse plays a crucial role in stabilizing the patient's condition and controlling, managing, and reducing acute post-operative pain. Given the high expense of pharmaceuticals, more nurses must receive training on the use of non-pharmacological therapies in intensive care units (ICUs). Benson's relaxation technique and foot reflexology are also useful because they are simple, inexpensive, and pose little to no risk to the patients.

Significant of the study:

There are various phases in a woman's life, and with them come various duties, responsibilities, positions, expectations, and goals. Out of all of these motherhoods, one is deemed to be particularly significant. because being a mother completes a woman. For women, giving birth is a very significant time in their lives. The postnatal period is a normal state that lasts for six life-changing weeks. During these weeks, anticipation and planning are high. All women desire to relish the blissful postpartum phase with their child, but this isn't always the case; occasionally, it's linked to small issues.

Being one of the important occasions, the postnatal period requires extra attention. Among the most prevalent postpartum mood disorders, postpartum blues are usually fleeting, lasting anywhere from a few hours to a week. Crying fits and depressive episodes are typical symptoms of postpartum blues. Irritability, generalized anxiety, and emotional reactivity are further symptoms. These symptoms often start three to four days after delivery, peak on the fifth day, and go away by the tenth postpartum day. The postpartum blues can be lessened by numerous therapies.

Patients can attain optimal pain management using a range of pharmacological and non-pharmacological therapies; however, individual patient responses vary. Pain medication is currently the gold standard for managing acute postoperative pain. Around the world, people are turning to alternative modalities and non-pharmacological pain management treatments like massage to avoid the unfavorable side effects of drugs (**Jacob Annamma, 2018**).

One of the most popular massage techniques in all alternative therapies is foot massage. Although it can be a little unpleasant at first, the approach that helps with pain alleviation is typically rather comforting. The foot massage stimulates cutaneous mechanoreceptors, which in turn activates large primary afferents. Endorphins are released by them, and these block neurotransmitters released by primary nociceptive neurons resulting in depressive reactions in the receptive part of the pain pathway. Tactile stimulation from massage passes through fibers with a large diameter. Faster data transmission is another benefit of these fibers. According to **Basavanthappa (2018)**, pain treatment needs to be safe, and effective, and not get in the way of the patient's daily activities.

Aim of the study

To evaluate the effect of Benson relaxation technique versus foot massage on postpartum blues among postnatal mothers

Research hypothesis:

H1: Postnatal mothers who applied the Benson relaxation technique will experience lower

mean scores of postpartum blues level than those who do not.

H2: Postnatal mothers who applied foot massage will experience less mean scores of postpartum blues level than those who did not.

Subjects and Methods:

Research design:

A quasi-experimental research design was used to accomplish this study pre-test and post-test control group design. It is used for establishing the cause-and-effect relationship between an independent and dependent variable.

Setting:

The study was carried out at the Postpartum Unit at Damietta University Hospital and home visit.

Sample:

The study included a convenience sampling technique which consisted of 210 postnatal mothers, they were divided into three groups (foot reflexology, Benson relaxation, and control group). In the previously chosen settings, the control group received normal treatment; the intervention group, on the other hand, received a foot massage in addition to normal treatment. Also, the third group received a Benson relaxation in addition to normal treatment.

Tools of data collection:

Tool (I): Postnatal mother's assessment sheet: Used to collect data regarding demographic data, it consisted of (age, educational level, occupation, and residence) (4 items).

Tool II: Postnatal mother's Obstetric and Postpartum data: Used to collect data regarding obstetric history such as (gravidity, parity, and multiple pregnancies, methods of current delivery, number of living children).

Tools validity and reliability

The tool was tested for content validity by a jury of three experts in the field of Obstetrics and Gynecological nursing staff and two experts community health nursing professors who reviewed the instruments for clarity, relevance, comprehensiveness, understanding, applicability, and easiness, in establishing the reliability and statistically done Alpha Cronbach way to check the stability of

the internal consistency of the instrument was 0.810.

Pilot study

After developing the tools, a pilot study was conducted on 10% (21 postnatal mothers) of cases to test the feasibility and applicability of the tools used in the current study for data collection as well as to determine the time required to be applied and modifications were done of some items of the questionnaire and the postnatal mothers who were tested in the pilot study weren't included in the study sample.

Ethical considerations:

Written initial approval was obtained from the dean of the Faculty of Nursing and the research ethics committee of the Faculty of Nursing. The researchers met both medical and nursing directors of the selected settings to clarify the purpose of the study and get their approval. Written consent was obtained from the postnatal mothers to participate in the study after the objective of the study was explained to them. The researchers informed the postnatal mothers that, the study was voluntary, they were allowed not to participate and they had the right to withdraw from the study at any time, without giving any reason. Moreover, they were assured that their information would be confidential.

Fieldwork:

Three days a week, from 9 am to 1 pm, the researchers have visited the previously chosen sites. They introduced themselves to postnatal mothers and met them one-on-one before explaining the purpose of the study. From the start of July and the end of November 2023, a period of six months was used to gather data. Every interview tool took between forty and fifty minutes to complete.

Implementation phase:

- - Seventy eligible postpartum moms who took part in the study were chosen for the control group during this phase, and their matches. In addition, 140 new moms were included in the study to form the Benson and reflexology groups.
- "- The baseline data from their records was used to evaluate the three groups based on demographic and obstetric data.

- - Control group: The maternity nurses on the unit provided the customary treatment to new moms.
- For the foot massage group, the postpartum blues were recorded both before and twice (immediately and an hour after the intervention), before beginning the foot massage treatment.
- - The researcher began by removing any metal objects (such as a ring) from her hands, washing and warming them, then lubricating them with baby oil to make massaging easier. This procedure had no additional therapeutic purpose. After that, the patient's legs were cleaned and dried.
- "-The massage procedure involved the following steps: the patient was initially made to lie down on a pillow under their feet, with their head at a 30- to 45-degree angle and their feet slightly bent.
- The type of massage therapy that is most frequently employed is massage. It's sometimes called a gentle or relaxation massage. Massage treatment improves overall health and well-being by promoting circulation, relieving muscle tension, and raising energy levels in the body. Among the massage methods are effleurage, petrissage, friction, and tapotement. The process of effleurage involves applying lubricant to the skin evenly while simultaneously influencing the tissues on the skin's surface. Warming the tissue's outer layer and promoting relaxation are the goals before starting more treatments. Effleurage is followed by petrissage, a type of kneading. A rhythmic series of fast taps using the fingers or edge of the hand is called tambore, commonly referred to as beating percussion, or cupped palms. Deep, circular motions that attempt to brush against something are called friction to enhance blood flow (Stone, 2010 and Salvo, 2015)
- - The women's extremities were massaged for five minutes each, following the postpartum mothers' comfortable positioning. Stretching, gripping, and flexing on multiple foot areas without focusing on a single spot were the main maneuvers utilized in specialized massage. Friction refers to deep, circular movements that attempt to rub tissue layers against one another to improve blood flow.
- *The following massage techniques were used:*

- To equally spread the lubricant (olive oil), participants' feet were rubbed from toes to ankles using effleurage.
- Roll your fingers, toes, and feet in a swift, delicate motion to apply petrissage.
- Tapotement, or pounding or drumming, was done with short fingers tapping.
- Friction was applied to the tissue layers to promote blood flow.
- The postpartum blues of the new mothers were documented twice (immediately and an hour after the intervention), after the foot reflexology massage technique.
- For the Benson group: The postpartum blues of the new mothers were recorded both before and after the Benson relaxation technique began (immediately and one hour post the intervention).

- The term "relaxation reaction" was first used in the 1970s by Dr. Herbert Benson to characterize the body's capacity to suppress the fight-or-flight response and reduce physiological and psychological distress markers, such as blood pressure, heart rate, and anxiety (Benson, 2000).

-Benson's four easy steps make up his relaxation response technique: (1) Taking a comfortable, relaxed seat and closing or softly focusing one's eyes. (2) Calming the entire body, starting at the toes and working up to the head. (3) Breathing at a comfortable rate for the person and repeating a word or phrase (such as "calm") as they exhale. (4) Retaining an attitude devoid of resistance (**Benson, 2000**). Benson (2000) states that to reap the full benefits of the intervention, each of the four elements of his relaxation response approach needs to be practiced. Maintaining a nonresistant attitude encourages the person to refrain from focusing on thoughts that cross their mind and instead refocus on the chosen word. Finally, sitting comfortably with your eyes closed or with a soft gaze gives your mind the chance to reduce or eliminate any external distractions that may be present. Selecting and repeating a word or phrase while exhaling reduces internal distractions within the brain and helps you clear your mind. Relaxing your entire body releases unwanted or unknown tension within the

muscles, allowing your body to further progress toward a state of relaxation.

The postpartum blues of the new mothers were recorded twice after using the Benson relaxation technique (immediately and one hour post the intervention).

-The community health researcher conducted one-day home visits with each of the patients in the three groups during the following three weeks of follow-up.

Statistical analysis:

The SPSS version (19) was used for both data entry and analysis. Numbers, percentages, and mean standard deviations were used to display the data. The qualitative variables were compared using a chi-square test. Quantitative data were reported as mean standard deviation (SD) if they were normally distributed. Either the Fisher's exact test or the Chi-Square test was used to assess how comparable the demographic attributes of the two groups were. To look for variations in physiological parameters across the groups, the repeated measurements of analysis of variance (RM-ANOVA) test was used. P-Values less than 0.05 are regarded as statistically significant.

Results:

Table (1): illustrates that 52.86 %, 51.42%, and 54.28% of the studied sample in foot massage, Benson, and control groups were in age group from 25-35 year years old. A high percentage of the studied sample was male 65.71%, 57.14%, and 68.57 respectively in foot massage, Benson, and control groups, and shows that the height percent of the studied sample were university educated in foot massage, Benson, and control groups (47.14%, 45.72, and 50% respectively.No statically significant difference between the three groups about demographic data.

Table (2):- Shows About past obstetric history of the studied sample, while the high percentage of them in foot massage, Benson, and control groups (65.71%, 57.14%, and 68.57% respectively) had from 1-3 **gravidity** and the majority of them was multipara in the

studied groups and control group (71.42, 68.57%, and 70% respectively) and most of them their delivery was normal (85.71%, 100.0%, 92.85 % respectively). Regarding **the Number of living children**, 71.42, 68.57, and 50.0 % respectively have 1-3 living children in foot massage, Benson, and control groups. The table shows no statistically significant difference between the three groups about all items of **Obstetric history**.

Table (3):- Shows statistically significant decrease in mean scores of the **postpartum blues** Following the intervention, foot massage, and Benson groups were compared to the control group **at different phases of follow-up** with a statistically significant difference at $P < 0.001$ **during**, 2^{ed}, and the 3rd week.

Figure 1 predicts that after the

intervention therapy the level of postpartum blues, there was a significant reduction in the level of postpartum blues among the studied postnatal mothers in the Control, foot massage, and Benson groups at different phases of follow-up during 1st, the 2^{ed}, and the 3rd week. Also, there was an observed reduction in the level of postpartum blues in the foot massage group more than Benson group.

Table 4: following the application of the intervention, there was a statistically significant difference (p -value < 0.001) between Benson and Control as well as between foot massage and Control. However, there was no statistically significant difference between the groups in the first week before the intervention. Additionally, from the first to the third week, the table shows that there was no statistically significant difference between foot massage and Benson.

Table (1): Demographic data distribution of the studied postnatal mothers in the Control, foot massage, and Benson groups

Groups Variables	Control group (n=70)		foot massage group (n=70)		Benson Group (n=70)		Significant test	P. value
	No	%	No	%	No	%		
Age								
from 18-25 year	37	52.86	36	51.42	38	54.28	$\chi^2 = 1.440$	0.487
from 25-35 year	33	47.14	34	48.58	32	45.71		
Gender								
Male	46	65.71	40	57.14	48	68.57	$\chi^2 = 1.993$	0.381
Female	24	34.29	30	42.86	22	31.43		
Residence								
Urban	50	71.42	48	68.57	49	70	$\chi^2 = 4.091$	0.394
Rural	20	28.58	22	31.43	21	30		
Education								
Illiterate	3	4.2	2	2.85	2	2.85	$\chi^2 = 9.132$	0.166
Primary	15	21.42	16	22.85	18	25.72		
Secondary	19	27.14	10	14.28	15	21.42		
University	33	47.14	32	45.72	35	50.0		

Chi-square analysis of the qualitative differences between the two groups Quantitative Oneway Anova test data between at least three groups

Table (2): Obstetric history distribution of the studied postnatal mothers in the Control, foot massage, and Benson groups

Variables	Control group (n=70)		foot massage group (n=70)		Benson Group (n=70)		Significant test	P. value
	No	%	No	%	No	%		
Gravidity								
1-3	46	65.71	40	57.14	48	68.57	$\chi^2= 22.869$	0.117
3-5	24	34.29	30	42.86	22	31.43		
Parity								
Nulipara	20	28.58	22	31.43	21	30	$\chi^2= 2.756$	0.252
Multipara	50	71.42	48	68.57	49	70		
Methods of current delivery								
Normal	60	85.71	70	100.0	65	92.85	$\chi^2=3.214$	0.200
Casearen	10	14.29	0	0.0	5	7.15		
Number of living children								
1-3	50	71.42	48	68.57	35	50.0	$\chi^2= 3.291$	0.193
3 and more	20	28.58	22	31.43	35	50.0		

Table (3): Differences in mean scores between the studied postnatal mothers in the Control, foot massage, and Benson groups regarding postpartum blues at different phases of follow-up during 1st, the 2nd, and the 3rd week

Postpartum blues	Groups	Before intervention	immediately after intervention	1hr.after intervention	-ANOVA Between Groups
		Mean \pm SD	Mean \pm SD	Mean \pm SD	
1 st week	Control	66.22 \pm 9.33	66.33 \pm 9.56	66.11 \pm 9.67	F=2.178 P=0.015* Partial $\eta^2=0.070$
	foot massage	45.43 \pm 8.22	45.34 \pm 8.78	45.12 \pm 8.02	
	Benson	46.1 \pm 11.99	46.83 \pm 10.24	46.27 \pm 8.87	
2 nd week	Control	62.19 \pm 8.33	62.22 \pm 9.77	62.41 \pm 9.55	F=3.144 P=<0.001** Partial $\eta^2=0.098$
	foot massage	35.36 \pm 10.66	35.23 \pm 10.66	35.12 \pm 10.22	
	Benson	36.12 \pm 22.32	36.03 \pm 10.89	36.87 \pm 9.5	
3 rd week	Control	60.10 \pm 9.80	60.10 \pm 8.77	60.7 \pm 9.44	F=11.217 P=<0.001** Partial $\eta^2=0.279$
	foot massage	25.22 \pm 10.55	25.08 \pm 10.44	25.03 \pm 4.29	
	Benson	26.71 \pm 9.32	26.66 \pm 9.61	26.53 \pm 9.53	

*Repeated measures of analysis of variance (RM-ANOVA) test*Significant level at P value < 0.05, **Significant level at P value < 0.01*

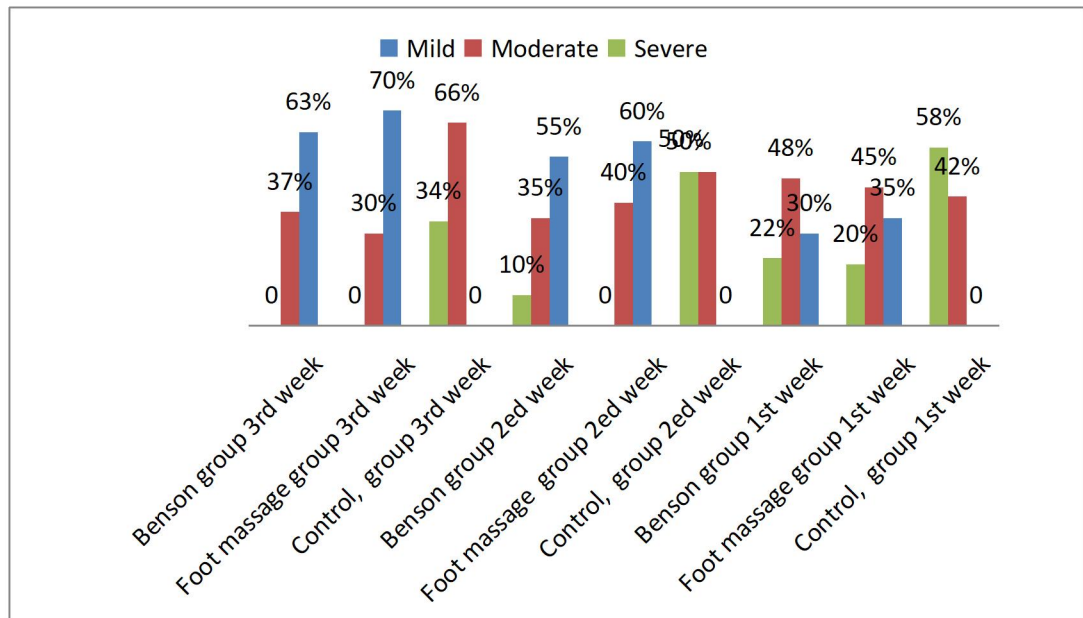


Figure 1: Total Postpartum Blues levels among the studied postnatal mothers in the Control, foot massage, and Benson groups at different phases of follow-up during 1st, the 2^{ed}, and th^{ird} week

Table (4): Correlation between mean Postpartum Blues score in the Control, Foot Massage, and Benson groups pre and post-intervention.

Group	Postpartum Blues	
	Before	After
1st week		
foot massage and Control	0.062	<0.001**
foot massage and Benson	0.387	0.314
Benson and Control	0.063	<0.001**
2nd week		
foot massage and Control	0.047*	<0.001**
foot massage and Benson	0.622	0.057
Benson and Control	0.033*	<0.001**
3rd week		
foot massage and Control	0.013*	<0.001**
foot massage and Benson	0.008**	0.442
Benson and Control	0.063	<0.001**

Discussion:

Relaxation techniques have been shown as an effective adjunctive therapy for anxiety and depression and can be applied after a brief training (Jorm et al., 2022 Beck & Driscoll, 2019). The positive effects of relaxation are attributed to the fact that it can decrease the arousal of autonomic and central nervous systems and increase in parasympathetic activity (Kwekkeboom et al., 2018). Some of the evidence showed that two sessions of

relaxation can increase the positive mood (Watanabe et al., 2022). and decrease the severity of PPD (Abd El-Aziz & Mamdouh, 2019). However, Field et al. have reported that relaxation techniques were not as effective as massage therapy in postnatal depression (Field et al., 2020).

According to the current study's findings, there was no significant difference in the two groups' obstetrical and demographic histories. The baseline levels of postpartum blues were

comparable in the two groups, according to the researchers.

The results of the current study revealed that there was a statistically significant decrease in mean scores of the **postpartum blues** in foot massage and Benson groups after the intervention compared to the control group **at different phases of follow-up** with statistically significant differences **during** 1st, 2nd, and 3rd week. According to the researchers, this outcome illustrates the beneficial effects of applying foot massages and the Benson technique, which satisfy the demands of postnatal mothers and lessen their anxiety levels.

Benson's relaxation technique depresses the sympathetic nerves' activity, thereby reducing the consumption of oxygen by the body, with associated muscle relaxation producing a feeling of calm and comfort (**Benson & Klipper, 1975**). Once the relaxation is achieved, the parasympathetic system dominates, and the participants become more comfortable and overcome conventional symptoms such as stress. Hence, the mechanism of the Benson relaxation technique in reducing stress is based on the regulation of the hypothalamus, the inhibition of sympathetic activity, and the reduction of adrenaline secretion (**Heidari Gorji et al., 2020; Mahdavi et al., 2019**). Eventually, BRT affects many physical and psychological signs and symptoms (**Elsayed et al., 2019**).

The results of the current study revealed that after the intervention therapy the level of postpartum blues, there was a significant reduction in the level of postpartum blues among the studied postnatal mothers in the Control, foot massage, and Benson groups at different phases of follow up during 1st, the 2nd, and the 3rd week. Also, there was an observed reduction in the level of postpartum blues in the Reflexology group more than in the Benson group. From the researcher's point of view, it reflected the success both of foot massage and Benson techniques in a significant reduction in the level of postpartum blues among the studied postnatal mothers which was observed more in the foot massage group. This result was supported by the results conducted by **Semra & Incedal. (2020)** studied "The Effect of reflexology on Labor Pain, anxiety, Labor

Duration, and Birth Satisfaction in Primiparous Pregnant Women" and found that foot massage can effectively reduce anxiety levels. Similarly, **Nasiri et al., (2018)** showed that relaxation can reduce the severity of depressive symptoms among postnatal women.

The results of the current study revealed the presence of a statically significant difference between foot massage and Control and also between Benson and Control after applying the intervention from the 1st to the 3rd week regarding **postpartum blues levels**. From the researcher's point of view, it reflected the success both of foot massage and Benson techniques. Also, this result is matched with **Paramban et al., (2019)** to identify the efficiency of BRT in reducing stress levels in women, where the mean score before intervention was 26.33 and the post-stress mean score was 17.1 with a t-value 7.21 which was statistically significant. In addition, other studies found the same results (**Degner, 2017**) and **Erkek, & Aktas, (2018)** that foot massage was effective in reducing anxiety and stress among mothers. Furthermore, **Navaee et al., (2019)** studied the Effect of pre-cesarean foot reflexology massage on the anxiety of primiparous women and reported that foot massage has a positive effect on the anxiety of primiparous women.

The results of the study showed that the pregnant women in the intervention group had a highly significant improvement in their Postpartum Blues level both before and after the intervention. Additionally, the mean pretest and posttest scores of pregnant women in the intervention group showed a statistically significant change and a substantial decrease in the postpartum blues level. According to the researchers, this finding shows the beneficial effects of applying foot massage, which is appropriate for pregnant women and helps to enhance fatigue levels and lessen postpartum blues. Four research investigations (**Nasiri et al., (2019)**, **Navaee et al., (2019)**, **Sehhatti et al., (2020)**, and **Semra et al., (2020)**) demonstrated foot massage's effectiveness in reducing anxiety. The meta-analysis also supported the previously mentioned findings, particularly on reflexology's immediate effectiveness in lowering anxiety. Several

studies have confirmed the beneficial effects of relaxation therapy[conducted by (Lolak et al., 2018 and Ghaffari et al., 2018) and found that foot massage in the treatment of depression was as effective as antidepressant medication in patients with major depression

Conclusion:

It was determined based on the study's results and hypothesis that the Benson relaxation technique versus foot massage application has a significant reduction in mean post-test postpartum blues scores among postnatal mothers and was found to be cost-effective, non-invasive, non-pharmacological management used to reduce postpartum blues. A higher significant improvement was observed in the reflexology group compared to Benson's relaxation group.

Recommendations:

The following suggestions are put forth in light of the findings of the current study:

- Applying a training program for postnatal mothers during the antenatal period about the importance of the Benson relaxation technique versus foot massage applying to be able to use them as a part of routine care during the postpartum period.
- Additional research on the impact of various massage techniques on postpartum depression and exhaustion in expectant mothers to reduce the negative physical and psychological effects.
- Maternity nurses should participate in a training program that covers Benson's relaxation technique and foot massage as part of their standard nursing care for postpartum mothers.
- Every postnatal unit should include Benson's relaxation technique and an illustrated brochure explaining massage techniques.
- To enable generalization, more investigation and replication of this work with a bigger sample size are needed.

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