

Comparative Effectiveness of Emotional Freedom Technique and Benson Relaxation Technique on Bio-Psychological Parameters among Primi-Postnatal Mothers: A Quasi-Experimental Study

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Abstract:

Background: The postnatal period is characterized by substantial physiological and psychological adjustments. First-time mothers frequently experience elevated stress, anxiety, autonomic imbalance, sleep disturbances, and emotional vulnerability that may adversely affect maternal recovery and infant care. Non-pharmacological interventions such as Emotional Freedom Technique (EFT) and Benson Relaxation Technique (BRT) have emerged as safe and cost-effective approaches for stress management during the postpartum period.

Aim: To compare the effectiveness of Emotional Freedom Technique and Benson Relaxation Technique on selected bio-psychological parameters among primi-postnatal mothers.

Methods: A quasi-experimental pretest-posttest comparative study was conducted in the Department of General Medicine, Annapoorana Medical College and Hospitals (AMCH), Salem, Tamil Nadu, from January 2017 to December 2018. Sixty primi-postnatal mothers within seven days after delivery were recruited using purposive sampling and allocated into EFT (n=30) and BRT (n=30) groups. Participants received daily 20-minute intervention sessions for seven consecutive days. Physiological parameters including heart rate, systolic blood pressure, and diastolic blood pressure were recorded. Psychological outcomes were assessed using the Perceived Stress Scale (PSS-10) and State Anxiety Inventory (SAI). Data were analyzed using paired and independent t-tests.

Results: Both EFT and BRT significantly improved physiological and psychological outcomes ($p < 0.001$). EFT demonstrated greater reductions in perceived stress (12.4 ± 3.2 vs. 10.1 ± 2.9), anxiety (14.8 ± 4.1 vs. 11.6 ± 3.8), heart rate (8.0 ± 2.1 bpm vs. 6.1 ± 1.9 bpm), and blood pressure compared with BRT. Between-group differences were statistically significant ($p < 0.05$).

Conclusion: Both EFT and BRT effectively improved bio-psychological parameters among primi-postnatal mothers. EFT exhibited superior efficacy in reducing stress and anxiety and enhancing physiological relaxation. Incorporating these interventions into routine postpartum care may improve maternal well-being and recovery.

Keywords: Emotional Freedom Technique, Benson Relaxation Technique, Postnatal Mothers, Stress, Anxiety, Relaxation Therapy, Maternal Mental Health, Complementary Therapy.

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Introduction

Motherhood is a transformative life event accompanied by profound physiological, psychological, social, and emotional changes [1]. The postpartum period, particularly the first week following childbirth, represents a critical transition phase during which women are vulnerable to stress, anxiety, fatigue, hormonal fluctuations, and emotional instability [2]. Studies indicate that nearly 50–80% of mothers experience varying degrees of postpartum emotional disturbances, while approximately 10–20% develop clinically significant anxiety or depressive symptoms [3].

Physiological stress responses during the postpartum period involve activation of the hypothalamic-pituitary-adrenal (HPA) axis and sympathetic nervous system, resulting in elevated cortisol levels, increased heart rate, and altered blood pressure [4]. Persistent psychological distress may adversely affect maternal recovery, breastfeeding practices, mother-infant bonding, and overall quality of life [5].

Conventional pharmacological therapies may not always be desirable in breastfeeding mothers due to concerns regarding medication exposure and adverse effects. Consequently, increasing attention has been directed toward non-pharmacological interventions that are safe, economical, and easy to administer [6-7].

Emotional Freedom Technique (EFT) combines elements of cognitive restructuring and acupressure-based tapping on specific meridian points [8]. The technique aims to reduce psychological distress by modulating emotional processing and physiological stress responses [9]. Previous studies have demonstrated significant reductions in stress, anxiety, depression, and cortisol levels following EFT interventions [10].

The Benson Relaxation Technique (BRT), developed by Herbert Benson, induces a relaxation response characterized by de-

creased sympathetic activity, reduced oxygen consumption, lower heart rate, and improved emotional calmness. BRT utilizes focused breathing and repetitive words or phrases to elicit a state of deep relaxation [11-12].

Although both techniques have independently demonstrated beneficial effects on psychological health, direct comparisons between EFT and BRT among primipostnatal mothers remain scarce. Therefore, this study was undertaken to evaluate and compare their effectiveness on selected bio-psychological parameters in postpartum women receiving routine postnatal care.

Aim of the Study

To compare the effectiveness of Emotional Freedom Technique and Benson Relaxation Technique on bio-psychological parameters among primipostnatal mothers.

Objectives

1. To assess baseline physiological and psychological parameters among primipostnatal mothers.
2. To evaluate the effectiveness of Emotional Freedom Technique on stress, anxiety, heart rate, and blood pressure.
3. To evaluate the effectiveness of Benson Relaxation Technique on stress, anxiety, heart rate, and blood pressure.
4. To compare post-intervention outcomes between EFT and BRT groups.
5. To determine the superior intervention for improving maternal bio-psychological health during the immediate postpartum period.

Materials and Methods

This quasi-experimental two-group pretest–posttest study was conducted in the postnatal wards of the Department of General Medicine, Annapoorana Medical College and Hospitals (AMCH), Salem, Tamil Nadu, India, over a period of two years from January 2017 to December

2018. The study population comprised primi-postnatal mothers admitted within seven days following normal vaginal delivery or lower segment cesarean section. Based on previous studies evaluating relaxation interventions among postpartum women, considering an 80% statistical power and 5% level of significance, a total sample size of 60 participants was determined. Eligible participants were recruited using purposive sampling and sequentially allocated into two intervention groups: Emotional Freedom Technique (EFT) group (n=30) and Benson Relaxation Technique (BRT) group (n=30).

Primi-postnatal mothers aged between 20 and 35 years, within seven days after childbirth, hemodynamically stable, able to understand study instructions, and willing to provide written informed consent were included in the study. Mothers with a history of psychiatric illness, current use of anxiolytic or antidepressant medications, severe postpartum complications, obstetric emergencies, intensive care requirements, hearing impairment, or communication difficulties were excluded. Ethical clearance was obtained from the Institutional Ethics Committee of Annapoorana Medical College and Hospitals prior to the commencement of the study. Written informed consent was obtained from all participants, and confidentiality and anonymity were maintained throughout the study period.

Data were collected using a structured demographic and clinical proforma that included information on age, educational status, occupation, family type, mode of delivery, socioeconomic status, and place of residence. Physiological parameters assessed included heart rate and blood pressure. Heart rate was measured using a calibrated digital pulse monitor and recorded in beats per minute (bpm).

Blood pressure was measured using a standardized mercury sphygmomanometer

according to American Heart Association guidelines, and systolic blood pressure (SBP) and diastolic blood pressure (DBP) values were documented. Psychological parameters were evaluated using the Perceived Stress Scale (PSS-10) and the State Anxiety Inventory (SAI). The PSS-10, developed by Cohen et al., consists of 10 items scored on a five-point Likert scale, with total scores ranging from 0 to 40, where higher scores indicate greater perceived stress. The instrument has demonstrated good reliability with a Cronbach's alpha ranging from 0.82 to 0.89. Anxiety levels were assessed using the State Anxiety Inventory, a 20-item standardized questionnaire with scores ranging from 20 to 80, categorized as mild (20–39), moderate (40–59), and severe anxiety (60–80). The SAI has reported reliability coefficients exceeding 0.90.

Participants in the EFT group received standardized Emotional Freedom Technique sessions for 20 minutes daily over seven consecutive days. The intervention involved identification of emotional concerns, formulation of a setup affirmation statement, and tapping on specific meridian points including the karate chop point, eyebrow, side of the eye, under the eye, under the nose, chin, collarbone, under the arm, and top of the head, followed by deep breathing and relaxation exercises. Participants in the BRT group underwent Benson Relaxation Technique sessions for 20 minutes daily for seven consecutive days. The procedure included assuming a comfortable sitting position, closing the eyes, progressive muscle relaxation, slow diaphragmatic breathing, silent repetition of the word "one" during exhalation, and passive disregard of distracting thoughts.

Baseline physiological and psychological assessments were performed on Day 1 before initiation of the interventions. Participants subsequently received their assigned intervention daily for seven days in addition to routine postnatal care. Post-

intervention assessments were conducted on Day 7 using the same measurement tools and procedures employed during the baseline evaluation.

The collected data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version 22.0. Descriptive statistics including mean, standard deviation, frequency, and percentage were used to summarize the data.

Inferential statistical analyses included paired t-tests to compare pre- and post-intervention outcomes within each group, independent t-tests to compare post-test outcomes between the EFT and BRT

groups, and Chi-square tests to assess associations between demographic variables. A p-value of less than 0.05 was considered statistically significant for all analyses.

Results: A total of 60 primi-postnatal mothers completed the study, with 30 participants in the Emotional Freedom Technique (EFT) group and 30 participants in the Benson Relaxation Technique (BRT) group. No participant was lost to follow-up during the intervention period. Baseline demographic and clinical characteristics were comparable between groups.

Table 1. Baseline Demographic Characteristics of Study Participants (N = 60)

Variable	EFT Group (n=30)	BRT Group (n=30)	χ^2/t value	p-value
Age (years), Mean \pm SD	26.7 \pm 3.1	26.1 \pm 3.3	0.72	0.47
Secondary Education, n (%)	18 (60.0)	17 (56.7)	0.07	0.79
Homemakers, n (%)	22 (73.3)	21 (70.0)	0.08	0.77
Nuclear Family, n (%)	19 (63.3)	18 (60.0)	0.07	0.79
Vaginal Delivery, n (%)	20 (66.7)	19 (63.3)	0.08	0.78
Cesarean Section, n (%)	10 (33.3)	11 (36.7)	0.08	0.78

The baseline demographic characteristics were comparable between both groups with no statistically significant differences ($p > 0.05$), indicating homogeneity of the study population and suitability for intervention comparison (Table 1).

Table 2. Within-Group Comparison of Physiological Parameters before and After Intervention

Parameter	EFT Pre-test	EFT Post-test	t-value	p-value
Heart Rate (bpm)	86.2 \pm 4.8	78.1 \pm 3.2	7.14	<0.001
SBP (mmHg)	124.6 \pm 8.4	117.2 \pm 6.3	6.82	<0.001
DBP (mmHg)	81.4 \pm 5.6	75.1 \pm 4.3	6.11	<0.001
Parameter	BRT Pre-test	BRT Post-test	t-value	p-value
Heart Rate (bpm)	85.4 \pm 4.5	79.3 \pm 3.4	6.98	<0.001
SBP (mmHg)	123.8 \pm 7.9	118.9 \pm 6.5	5.41	<0.001
DBP (mmHg)	80.9 \pm 5.1	76.8 \pm 4.5	4.88	<0.001

Significant improvements were observed in all physiological parameters within both groups following intervention. The EFT group demonstrated a greater reduction in heart rate, systolic blood pressure, and diastolic blood pressure compared to the BRT group (Table 2).

Table 3. Within-Group Comparison of Psychological Parameters before and After Intervention

Parameter	EFT Pre-test	EFT Post-test	Mean Reduction	t-value	p-value
PSS Score	28.6 ± 4.1	16.2 ± 3.2	12.4 ± 3.2	8.56	<0.001
SAI Score	56.3 ± 7.2	41.5 ± 5.6	14.8 ± 4.1	9.12	<0.001
Parameter	BRT Pre-test	BRT Post-test	Mean Reduction	t-value	p-value
PSS Score	28.1 ± 3.9	18.0 ± 2.9	10.1 ± 2.9	7.22	<0.001
SAI Score	55.8 ± 6.9	44.2 ± 5.8	11.6 ± 3.8	7.84	<0.001

Both interventions significantly reduced stress and anxiety scores ($p < 0.001$). However, the magnitude of improvement was greater in the EFT group, suggesting enhanced psychological benefits compared with BRT (Table 3).

Table 4. Between-Group Comparison of Post-Test Outcomes

Parameter	EFT Group	BRT Group	Mean Difference	t-value	p-value
Heart Rate (bpm)	78.1 ± 3.2	79.3 ± 3.4	1.2	1.98	0.05
SBP (mmHg)	117.2 ± 6.3	118.9 ± 6.5	1.7	2.02	0.04
DBP (mmHg)	75.1 ± 4.3	76.8 ± 4.5	1.7	2.11	0.03
PSS Score	16.2 ± 3.2	18.0 ± 2.9	1.8	2.14	0.04
SAI Score	41.5 ± 5.6	44.2 ± 5.8	2.7	2.28	0.02

Post-test comparisons revealed significantly better outcomes in the EFT group than the BRT group for stress, anxiety, blood pressure, and heart rate. These findings suggest that EFT may offer superior therapeutic benefits in improving postpartum bio-psychological well-being (Table 4).

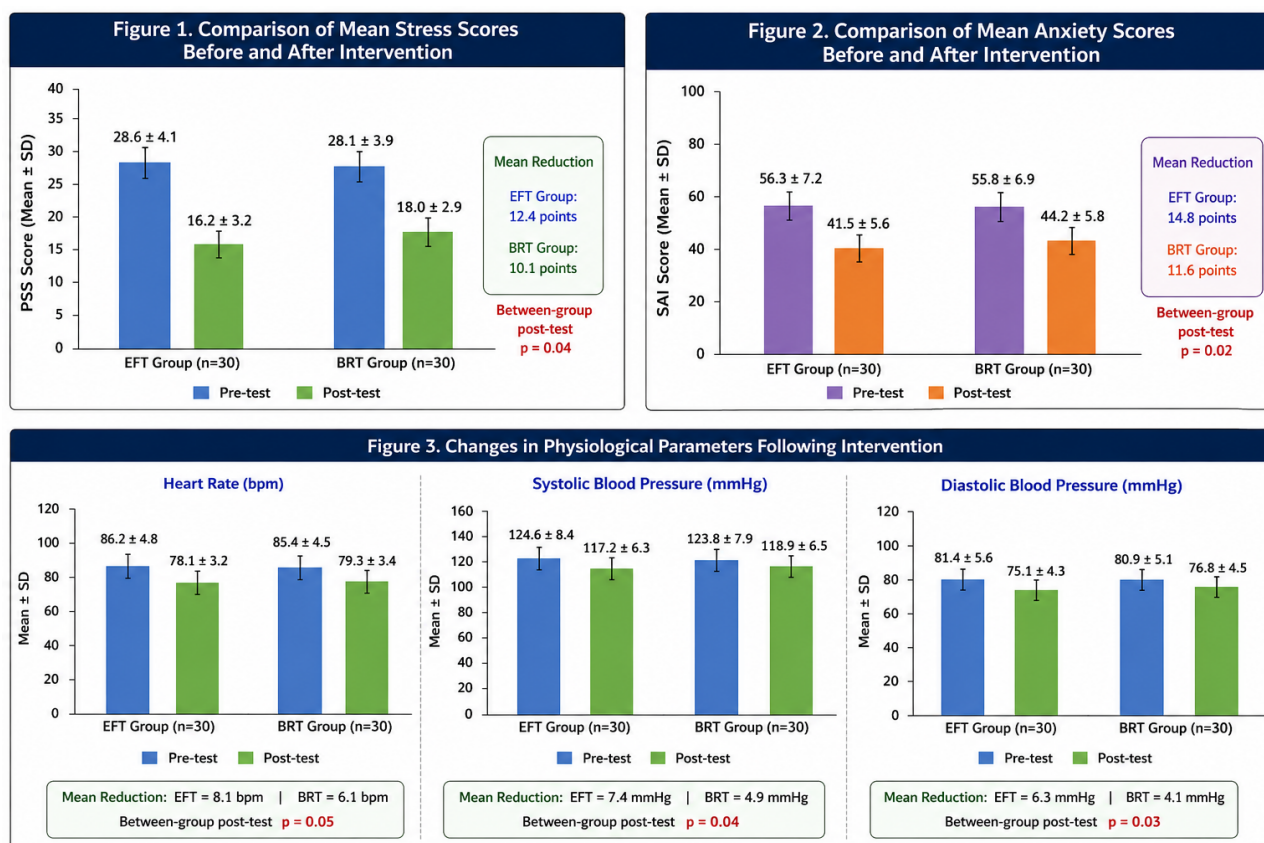


Figure 1–3:

Figures 1–3 illustrate the changes in biopsychological parameters among primipostnatal mothers following Emotional Freedom Technique (EFT) and Benson Relaxation Technique (BRT). Figure 1 demonstrates a significant reduction in Perceived Stress Scale (PSS) scores in both groups, with a greater decline observed in the EFT group. Figure 2 shows a significant decrease in State Anxiety Inventory (SAI) scores following both interventions, with EFT producing superior anxiety reduction. Figure 3 depicts improvements in physiological parameters, including heart rate, systolic blood pressure (SBP), and diastolic blood pressure (DBP), with greater reductions observed among participants receiving EFT. Overall, both interventions were effective; however, EFT demonstrated comparatively better outcomes in improving maternal psychological well-being and physiological relaxation. Abbreviations: EFT – Emotional Freedom Technique; BRT – Benson Relaxation Technique; PSS – Perceived Stress Scale; SAI – State Anxiety Inventory; SBP – Systolic Blood Pressure; DBP – Diastolic Blood Pressure.

Discussion

The present study evaluated and compared the effectiveness of Emotional Freedom Technique and Benson Relaxation Technique on selected bio-psychological parameters among primipostnatal mothers admitted to Annapoorana Medical College and Hospitals, Salem. Findings demonstrated that both interventions significantly improved physiological and psychological outcomes; however, EFT produced comparatively greater improvements.

The mean stress score in the EFT group decreased from 28.6 ± 4.1 to 16.2 ± 3.2 , whereas the BRT group demonstrated a reduction from 28.1 ± 3.9 to 18.0 ± 2.9 . These findings are consistent with Church et al., who reported significant reductions in psychological distress and cortisol levels following EFT interventions.

EFT may facilitate emotional processing by combining cognitive restructuring with acupuncture stimulation, thereby reducing activation of the stress response system.

Similarly, anxiety scores improved significantly in both groups. The EFT group exhibited a mean reduction of 14.8 points compared with 11.6 points in the BRT group.

These results support findings reported by Clond (2016), who observed significant anxiety reduction following EFT across diverse clinical populations. The superior efficacy of EFT may be attributable to its direct targeting of emotional distress and maladaptive cognitive patterns [13-15]. Significant reductions in heart rate and blood pressure were observed following both interventions.

These findings align with Benson's relaxation response theory, which proposes that focused breathing and repetitive mental activity reduce sympathetic nervous system activity and promote parasympathetic dominance. The present study demonstrated reductions of 8 beats per minute in heart rate among EFT participants and 6 beats per minute among BRT participants [16-17].

The observed physiological improvements are consistent with findings reported by Jain et al., who demonstrated beneficial cardiovascular effects associated with relaxation-based interventions. Reduced heart rate and blood pressure may contribute to improved postpartum recovery and enhanced maternal well-being [18-19].

Postpartum stress and anxiety have been associated with impaired mother-infant bonding, breastfeeding difficulties, and increased risk of postpartum depression. Czarnocka and Slade emphasized the importance of early psychological interventions during the postnatal period. The current findings reinforce the value of introducing evidence-based non-

pharmacological interventions as part of routine maternity care [20-25].

The superiority of EFT observed in the present study may result from its multidimensional approach involving somatic stimulation, cognitive affirmation, emotional regulation, and relaxation simultaneously. While BRT primarily focuses on physiological relaxation, EFT appears to influence both physiological and psychological pathways. Overall, the findings indicate that both interventions are safe, feasible, and effective methods for reducing postpartum stress and anxiety. However, EFT demonstrated statistically and clinically greater benefits across multiple outcome measures.

Conclusion

The study concludes that both Emotional Freedom Technique and Benson Relaxation Technique significantly improved biopsychological parameters among primipostnatal mothers.

Significant reductions were observed in stress, anxiety, heart rate, systolic blood pressure, and diastolic blood pressure following intervention.

Although both techniques were effective, Emotional Freedom Technique produced greater improvements in physiological and psychological outcomes than Benson Relaxation Technique. Therefore, EFT may be considered a superior complementary therapy for promoting maternal well-being during the immediate postpartum period.

Integration of these non-pharmacological interventions into routine postnatal care may enhance maternal recovery, emotional adjustment, and overall quality of life.

Limitations

1. Small sample size limiting generalizability.
2. Single-center study design.
3. Short duration of intervention.
4. Lack of long-term follow-up assessment.
5. Non-randomized group allocation.

6. Self-reported psychological outcomes may introduce reporting bias.

Recommendations

1. Incorporate EFT and BRT into routine postnatal nursing care.
2. Conduct multicenter randomized controlled trials with larger sample sizes.
3. Evaluate long-term effects on maternal mental health.
4. Assess effects on breastfeeding outcomes and mother-infant bonding.
5. Investigate hormonal biomarkers such as cortisol and oxytocin.
6. Develop structured training programs for healthcare professionals.

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