Effect of Benson Relaxation Technique on Anxiety Among Women with High-Risk Pregnancies in a Tertiary Care Hospital, Lahore, Pakistan

Benson Relaxation Technique in Reducing Anxiety Among Women

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ABSTRACT

Objective: To evaluate the effectiveness of the Benson Relaxation Technique in reducing anxiety among Women with high-risk pregnancies.

Study Design: A pre-post quasi-experimental study

Place and Duration of Study: This study was conducted at the Obstetrics and Gynecology Department of Services Hospital, Lahore, in collaboration with the Department of Nursing and Behavioral Sciences, University of Health Sciences, Lahore during April 2024 to December 2024.

Methods: A total of 40 Women with high-risk pregnancies were recruited and underwent Benson Relaxation Technique sessions for three consecutive days. Anxiety levels were assessed before and after the intervention using the Hamilton Anxiety Scale (HAM-A). Data were analyzed using paired sample t-tests for normally distributed data and the Wilcoxon signed-rank test for non-normally distributed data. A p-value of <0.05 was considered statistically significant.

Results: Anxiety, pre-intervention results showed that 3 (7.5%) Women had no anxiety, 7 (17.5%) had mild anxiety, 12 (30%) had moderate anxiety, and 18 (45%) experienced severe anxiety. Post-intervention, 21 (52.5%) had no anxiety, 16 (40%) had mild anxiety, and only 3 (7.5%) had moderate anxiety, demonstrating a substantial improvement.

Conclusion: The findings indicate that the Benson Relaxation Technique is an effective non-pharmacological intervention for reducing anxiety among Women with high-risk pregnancies. Its integration into prenatal care programs could improve maternal mental health and overall pregnancy outcomes.

Key Words: High-Risk Pregnancy (HRP), Benson Relaxation Technique (BRT).

INTRODUCTION

High-risk pregnancy denotes gestations complicated by maternal, fetal, or obstetric conditions that substantially increase the likelihood of maternal or perinatal morbidity and mortality; women with high-risk pregnancies experience elevated rates of psychiatric symptoms, particularly antenatal anxiety, compared with low-risk groups[1,2]. Systematic reviews and targeted studies indicate that anxiety among pregnant women is common and frequently higher in those with medical or obstetric complications, with several studies documenting heightened prevalence and symptom severity in high-risk cohorts and recommending routine screening in tertiary and specialized prenatal services[1,2,3.] In Pakistan and similar low- and middle-income settings, antenatal anxiety has been reported at substantial levels during recent years, including during the COVID-19 pandemic, highlighting the burden of perinatal anxiety in local clinical populations that attend tertiary hospitals [3].

Antenatal anxiety in high-risk pregnancies has clinically important consequences for both mother and fetus. Anxiety activates neuroendocrine and autonomic pathways notably the hypothalamic–pituitary–adrenal (HPA) axis and sympathetic nervous system leading to hormonal (e.g., cortisol, catecholamines) and cardiovascular responses that can adversely influence maternal hemodynamics and placental perfusion and have been implicated mechanistically in hypertensive disorders of pregnancy, such as preeclampsia, and other perinatal complications[4,5,6]. Non-pharmacological psychological interventions are recommended and increasingly studied for antenatal anxiety because of the need for low-risk, scalable options during pregnancy; systematic reviews show a breadth of practical

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approaches (mindfulness, CBT, relaxation, psychoeducation, breathing techniques) across low- and high-risk obstetric samples, and meta-analytic syntheses emphasize that relaxation approaches form a consistent, evidence-based component of multi-modal care for prenatal anxiety and stress.[2,7,8] In clinical practice, relaxation techniques including diaphragmatic breathing, progressive muscle relaxation (PMR), autogenic training, and mind-body methods such as Benson relaxation have been applied in pregnancy and in related medical populations with reported benefits for subjective anxiety, physiological stress markers (e.g., cortisol, blood pressure), and patient-centered outcomes[7,6,5].

The Benson Relaxation Technique (BRT) is a standardized, brief mind-body method that combines a focus word or phrase with passive return of attention and a relaxed posture to elicit the relaxation response; it has been adapted across medical contexts because it is brief, inexpensive, and amenable to self-practice [9]. Clinical and quasi-experimental evaluations in recent years document that BRT and related autogenic approaches can reduce self-reported anxiety and lower blood pressure in patients with cardiovascular conditions and other medical[10]. Although robust randomized evidence of BRT specifically in pregnancy remains limited, contemporary trial protocols and small intervention studies propose and examine BRT as an adjunct to routine prenatal care for hypertensive disorders and preeclampsia, underscoring both its theoretical suitability and current research momentum toward evaluating BRT for obstetric risk groups[11].

There is a pressing need to assess the impact of the Benson Relaxation Technique (BRT) on maternal anxiety among women with high-risk pregnancies at a tertiary care hospital in Lahore, Pakistan. This need arises from (1) the high prevalence and significance of antenatal anxiety in these women; (2) the connection between anxiety and obstetric complications; (3) the positive effects of relaxation methods on anxiety; and (4) the practical benefits of BRT as a brief, low-cost, and culturally adaptable intervention.

METHODS

This quasi-experimental pre- and post-test study was conducted to evaluate the effectiveness of Benson's Relaxation Technique (BRT) in reducing anxiety among women with high-risk pregnancies admitted to the Obstetrics and Gynecology Department of Services Hospital, Lahore, in collaboration with the Department of Nursing and Behavioral Sciences, University of Health Sciences, Lahore during April 2024 to December 2024. A total of 40 women diagnosed with high-risk pregnancies were selected through a probability-based simple random sampling technique. The sample size was determined to achieve a 90% statistical power and a 5% level of significance based on previously published data.

Women aged between 18 and 35 years, able to communicate in Urdu, and willing to participate were included, while those with psychiatric illnesses, on anxiolytic medications, or unable to complete the intervention were excluded. The study adhered to the ethical principles outlined in the Declaration of Helsinki. The intervention involved administering Benson's Relaxation Technique (BRT), developed by Herbert Benson in 1970, which aims to reduce sympathetic nervous system activity and induce relaxation. Sessions were conducted individually in a calm, quiet environment under the investigator's supervision. Each session lasted for 15 to 20 minutes and was performed once daily for three consecutive days. Participants were instructed to sit or lie comfortably, close their eyes, relax all muscles, and breathe slowly while repeating a calming word, such as "peace" or "relax," on exhalation, and to ignore distracting thoughts.

Data were collected before and after the intervention using standardized, validated tools, including the Hamilton Anxiety Rating Scale (HAM-A) and the Perceived Stress Scale (PSS), both translated into Urdu and pilot-tested for cultural suitability. The HAM-A scale comprises 14 items assessing psychological and physical symptoms of anxiety, while the PSS consists of 10 items measuring perceived stress levels. Baseline demographic information, including age, education, parity, and socioeconomic status, was also recorded.

Data analysis was performed using SPSS version 25. Descriptive statistics, including mean, standard deviation, frequency, and percentage, were used for the demographic variables. The Shapiro–Wilk test was used to assess data normality; as anxiety and stress scores were non-normally distributed, the Wilcoxon signed-rank test was used to compare pre- and post-intervention scores. A p-value of less than 0.05 was considered statistically significant. The study was completed over nine months, including participant recruitment, intervention delivery, and data analysis, ensuring methodological rigor and reliability.

RESULTS

A total of 40 women with high-risk pregnancies participated in this study. The mean age was 26.62 ± 3.94 years (range 18–34 years). All participants were married (100%). Most belonged to the middle socioeconomic class (75%), and 30% had completed matriculation as their highest level of education. The majority were multigravida, with varied parity and number of children. Demographic characteristics are summarized in Table 1.

The Hamilton Anxiety Scale (HAM-A) was used to evaluate anxiety levels before and after Benson's Relaxation Technique (BRT). The mean pre-intervention HAM-A score was 23.05 ± 10.17, and the

mean post-intervention score was 8.02 ± 4.36, indicating a highly significant reduction (p < 0.001, Wilcoxon signed-rank test). The distribution of anxiety severity before and after intervention is shown in Table 2. A significant improvement in anxiety levels was observed after intervention (p < 0.001).

Table No. 1. Demographic Characteristics of Participants (n = 40)

Variable	Category	Frequency (n)	%age
Age (years)	Mean ± SD (Range)	26.62 ± 3.94 (18–34)	—
Marital Status	Married	40	100
	Unmarried	0	0
Number of Pregnancies Conceived	1	11	27.5
	2	9	22.5
	3	10	25
	4	8	20
	5	2	5
Number of Living Children	None	3	7.5
	1	12	30
	2	12	30
	3	9	22.5
	4	3	7.5
	5	1	2.5
Socioeconomic Class	Lower	4	10
	Middle	30	75
	Upper	6	15
Educational Status	Uneducated	5	12.5
	Middle	6	15
	Matric	12	30
	Intermediate	8	20
	Graduate	7	17.5
	Master's	2	5

Table No. 2: Severity of Anxiety Before and After Intervention (n = 40)

Anxiety Level	Before Intervention n (%)	After Intervention n (%)
No Anxiety	3 (7.5)	21 (52.5)
Mild Anxiety	7 (17.5)	16 (40.0)
Moderate Anxiety	12 (30.0)	3 (7.5)
Severe Anxiety	18 (45.0)	0 (0.0)
Total	**40 (100)**	**40 (100)**

A statistically significant reduction in mean HAM-A scores was observed following BRT (p < 0.001). (Table 3).

The mean PSS score declined from 20.88 ± 3.79 before intervention to 13.87 ± 8.89 after intervention (p < 0.001), demonstrating a significant decrease in stress levels (Table 4).

Table No. 3: Descriptive Statistics for Hamilton Anxiety Scale (HAM-A) Scores (n = 40)

Parameter	Before Intervention	After Intervention
Mean ± SD	23.05 ± 10.17	8.02 ± 4.36
Median (IQR)	22.50 (16.75)	7 (7)
Minimum – Maximum	3 – 43	2 – 18
p-value (Shapiro–Wilk)	0.736	0.018
p-value (Wilcoxon signed-rank test)	—	< 0.001

Table No. 4: Descriptive Statistics for Perceived Stress Scale (n = 40)

Parameter	Before Intervention	After Intervention
Mean ± SD	20.88 ± 3.79	13.87 ± 8.89
Median (IQR)	22 (3)	12 (12.75)
Minimum – Maximum	8 – 26	0 – 35
p-value (Shapiro–Wilk)	< 0.001	0.028
p-value (Wilcoxon signed-rank test)	—	< 0.001

Each of the 14 HAM-A items demonstrated considerable improvement following BRT. Before intervention, high proportions of women reported moderate to very severe symptoms such as tension, fear, insomnia, muscular discomfort, and cardiovascular complaints. After BRT, most participants shifted to the "not present" or "mild" categories across all items, indicating global anxiety relief. Details are provided in Table 6. Marked reductions were noted across all symptom domains following BRT (p < 0.001).

Table No. 5: Item-wise Analysis of Hamilton Anxiety Scale Components Before and After Intervention (n = 40)

HAM-A Item	Category	Before n (%)	After n (%)
1. Anxiety (Anguish/ Resentful)	Not Present	12 (30.0)	28 (70.0)
	Mild	11 (27.5)	12 (30.0)
	Moderate – Very Severe	17 (42.5)	0 (0.0)
2. Tension (Restlessness, Stress)	Not Present	7 (17.5)	18 (45.0)
	Mild	7 (17.5)	22 (55.0)
	Moderate – Very Severe	26 (65.0)	0 (0.0)
3. Fear (Phobia/Worry)	Not Present	8 (20.0)	22 (55.0)
	Mild	6 (15.0)	15 (37.5)
	Moderate – Very Severe	26 (65.0)	3 (7.5)

4. Insomnia (Fatigue/Nightmares)	Not Present	5 (12.5)	15 (37.5)
	Mild	7 (17.5)	19 (47.5)
	Moderate – Very Severe	28 (70.0)	6 (15.0)
5. Intellectual Symptoms (Poor Concentration/Memory)	Not Present	11 (27.5)	24 (60.0)
	Mild	7 (17.5)	13 (32.5)
	Moderate – Very Severe	22 (55.0)	3 (7.5)
6. Depressed Mood	Not Present	5 (12.5)	17 (42.5)
	Mild	10 (25.0)	19 (47.5)
	Moderate – Very Severe	25 (62.5)	4 (10.0)
7. Muscular Symptoms (Aches/Stiffness)	Not Present	3 (7.5)	19 (47.5)
	Mild	9 (22.5)	17 (42.5)
	Moderate – Very Severe	28 (70.0)	4 (10.0)
8. Sensory Symptoms (Hot/Cold Flushes, Weakness)	Not Present	11 (27.5)	22 (55.0)
	Mild	10 (25.0)	16 (40.0)
	Moderate – Very Severe	19 (47.5)	2 (5.0)
9. Cardiovascular Symptoms (Palpitations/Chest Pain)	Not Present	14 (35.0)	26 (65.0)
	Mild	6 (15.0)	12 (30.0)
	Moderate – Very Severe	20 (50.0)	2 (5.0)
10. Respiratory Symptoms (Dyspnea/Chest Tightness)	Not Present	10 (25.0)	29 (72.5)
	Mild	11 (27.5)	9 (22.5)
	Moderate – Very Severe	19 (47.5)	2 (5.0)
11. Gastrointestinal Symptoms (Nausea/Abdominal Pain)	Not Present	12 (30.0)	27 (67.5)
	Mild	7 (17.5)	10 (25.0)
	Moderate – Very Severe	21 (52.5)	3 (7.5)
12. Genitourinary Symptoms (Frequency/Impotence)	Not Present	15 (37.5)	19 (47.5)
	Mild	7 (17.5)	14 (35.0)
	Moderate – Very Severe	18 (45.0)	7 (17.5)
13. Autonomic Symptoms (Sweating/Dry Mouth)	Not Present	—	18 (45.0)
	Mild	—	19 (47.5)
	Moderate – Very Severe	—	3 (7.5)
14. Behavior at Interview (Restlessness/Fidgeting)	Not Present	17 (42.5)	26 (65.0)
	Mild	5 (12.5)	10 (25.0)
	Moderate – Very Severe	18 (45.0)	4 (10.0)

DISCUSSION

The findings from this study provide compelling evidence of the effectiveness of the Benson Relaxation Technique (BRT) in reducing anxiety and stress among women experiencing high-risk pregnancies. A total of 40 participants exhibited significant reductions in anxiety as measured by the Hamilton Anxiety Scale (HAM-A) and perceived stress levels measured by the Perceived Stress Scale (PSS). The mean pre-intervention HAM-A score of 23.05 ± 10.17 decreased to 8.02 ± 4.36 post-intervention, reflecting a highly significant reduction ($p < 0.001$). This noteworthy finding aligns with the existing literature, which suggests that relaxation techniques, including BRT, can reduce maternal anxiety and improve overall wellbeing during pregnancy[12].

As supported by Zenouzi et al[13], relaxation techniques, particularly BRT, have shown efficacy in alleviating stress and anxiety in pregnant women. Participants reported reduced maternal stress and improved mental health. This aligns with our observation that BRT not only alleviates anxiety but also modifies behavioral patterns associated with anxiety symptoms, such as tension and insomnia, as evidenced by the substantial shift towards lower anxiety severity levels post-intervention.

In Table 2, the distribution of anxiety severity reveals a striking change: the percentage of participants with no anxiety increased from 7.5% to 52.5%. In comparison, severe anxiety cases dropped from 45% to 0% following the BRT intervention. This improvement underscores the potential of BRT as an effective non-pharmacological intervention during high-risk pregnancies, consistent with findings by Elgwad et al. [14], who identified significant reductions in stress and anxiety through the application of similar relaxation therapies in their patient populations.

The results on perceived stress, shown in Table 4, also echo findings from previous studies, such as those by Abera et al. 15, who reported that structured relaxation approaches significantly reduced perceived stress among pregnant women. Our study reported a significant reduction in mean PSS score from 20.88 ± 3.79 to 13.87 ± 8.89 ($p < 0.001$). Each symptom showed significant declines post-intervention, aligning with findings from Hasanzadeh et al., who reported parallel improvements in physical health and emotional wellbeing following relaxation interventions in obstetric populations.[16]

Moreover, the demographic characteristics of our sample suggest greater exposure to the uncertainties associated with high-risk pregnancies, making participants particularly vulnerable to anxiety [17]. Reflecting on Abera et al.'s findings, which document significantly higher stress levels in pregnant versus non-pregnant cohorts, our results serve to illuminate the particular susceptibility of this population to mental health issues, accentuating the importance of targeted interventions like BRT.[15]

Overall, the present findings corroborate existing literature advocating for the inclusion of relaxation techniques in prenatal care protocols.

CONCLUSION

This study concludes that Benson's Relaxation Technique (BRT) is a practical, low-cost, non-pharmacological method for reducing anxiety in women with high-risk pregnancies. Incorporating BRT into prenatal care can enhance maternal mental wellbeing and potentially improve pregnancy outcomes. Further

large-scale studies are recommended to confirm these results and establish standardized intervention protocols.

Author's Contribution:

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