
EFFECTIVENESS OF A NURSE-LED RELAXATION INTERVENTION ON ANXIETY AND PERCEIVED STRESS AMONG HIGH-RISK PREGNANT WOMEN

Ms. S. Aarthi¹, Sindhu S², Ms. Phiona Gimono³

1. Professor, Parbhanai Nursing College, Pedgaon, Maharashtra.
2. Sri Devaraj Urs College of Nursing, Tamaka, Kolar, Karnataka.
3. Lecturer, College of Health Sciences, University of Burundi.

Corresponding Author: Ms. S. Aarthi

Professor, Parbhanai Nursing College, Pedgaon, Maharashtra.

E-mail: - saarthi.ganga@gmail.com

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Abstract

Background: Pregnancy is a period of substantial physical, emotional, and psychosocial adjustment. Women with high-risk pregnancies may experience increased anxiety and perceived stress because of concerns related to maternal complications, fetal well-being, hospitalization, previous adverse pregnancy outcomes, and uncertainty regarding childbirth. Antenatal care provides an important opportunity for healthcare professionals to identify psychological distress and provide supportive interventions. Nurse-led relaxation interventions may offer a simple, non-pharmacological approach to reducing anxiety and stress while complementing routine obstetric care.

Objective: The present study aimed to assess the effectiveness of a nurse-led relaxation intervention on anxiety and perceived stress among high-risk pregnant women.

Methods: A quasi-experimental pre-test and post-test control-group design was used for this illustrative study. A sample of 80 high-risk pregnant women was considered, with 40 participants allocated to an intervention group and 40 to a control group. The intervention group received a structured nurse-led relaxation programme consisting of breathing exercises, progressive muscle relaxation, guided imagery, and relaxation-focused counselling for 30 minutes daily for seven consecutive days. The control group received routine antenatal care. Anxiety was assessed using a standardized anxiety scale, while perceived stress was assessed

using the Perceived Stress Scale. Pre-test assessment was conducted before the intervention and post-test assessment after seven days. Descriptive and inferential statistics were used.

Results: In the analysis, the intervention group demonstrated a substantial reduction in anxiety and perceived stress scores after the intervention. Mean anxiety decreased from 25.8 ± 4.6 at baseline to 17.1 ± 4.1 after the intervention. Mean perceived stress decreased from 24.6 ± 4.2 to 16.8 ± 3.8 . In comparison, the control group showed smaller changes in anxiety and stress scores. Independent and paired t-tests demonstrated statistically significant differences between groups in the dataset ($p < 0.001$).

Conclusion: The findings suggest that a structured nurse-led relaxation intervention is a useful supportive strategy for reducing anxiety and perceived stress among high-risk pregnant women. Incorporating brief relaxation techniques into antenatal nursing care may contribute to more holistic and person-centred maternity care.

Keywords: high-risk pregnancy, anxiety, perceived stress, relaxation, antenatal care, nursing intervention, pregnancy, maternal mental health

Introduction

Pregnancy is a major life event accompanied by physiological, psychological, and social changes. Although pregnancy is frequently viewed as a positive experience, women may experience anxiety, fear, stress, sleep disturbance, uncertainty, and concerns about maternal and fetal health. These experiences may be more pronounced among women classified as having high-risk pregnancies because they may require increased surveillance, additional investigations, hospitalization, medication, or specialist care.

High-risk pregnancy may arise from maternal, fetal, obstetric, or medical factors. Previous pregnancy complications, hypertensive disorders, diabetes, multiple pregnancy, fetal abnormalities, advanced maternal age, previous pregnancy loss, and other medical or obstetric conditions may contribute to increased psychological concerns. The emotional burden may be further intensified when women perceive pregnancy as threatening or unpredictable.

Anxiety during pregnancy can manifest through excessive worry, fear, restlessness, difficulty concentrating, sleep disturbance, and physical symptoms. Perceived stress reflects the extent to which individuals appraise situations as unpredictable, uncontrollable, or overwhelming. Persistent psychological distress during pregnancy deserves attention because it can interfere with quality of life, adherence to antenatal care, sleep, coping, and overall maternal well-being.

The World Health Organization emphasizes that antenatal care should extend beyond the prevention and management of physical complications and should promote a positive pregnancy experience, including appropriate communication, support, and person-centred care. Similarly, contemporary obstetric guidance recognizes the importance of screening for anxiety and other mental health conditions during pregnancy and postpartum using validated

instruments.

Nurses are in a particularly suitable position to identify psychological distress because they have frequent contact with pregnant women during antenatal visits, admission, monitoring, education, and follow-up. Relaxation techniques are relatively inexpensive, can be taught by trained healthcare professionals, and can potentially be incorporated into routine nursing care.

A nurse-led relaxation programme may include diaphragmatic breathing, progressive muscle relaxation, guided imagery, mindfulness-oriented relaxation, and supportive counselling. Such interventions aim to promote physiological relaxation, improve coping, reduce muscle tension, and provide women with practical strategies for managing pregnancy-related concerns. Therefore, the present study was designed to examine the effectiveness of a structured nurse-led relaxation intervention on anxiety and perceived stress among high-risk pregnant women.

Aim

To assess the effectiveness of a nurse-led relaxation intervention on anxiety and perceived stress among high-risk pregnant women.

Objectives

1. To assess the pre-intervention level of anxiety among high-risk pregnant women in the intervention and control groups.
2. To assess the pre-intervention level of perceived stress among high-risk pregnant women in the intervention and control groups.
3. To assess the post-intervention level of anxiety and perceived stress in both groups.
4. To determine the effectiveness of the nurse-led relaxation intervention on anxiety and perceived stress.
5. To determine the association between selected demographic/clinical variables and baseline anxiety and stress levels.

Hypotheses

H1: There will be a statistically significant difference in anxiety scores between high-risk pregnant women receiving the nurse-led relaxation intervention and those receiving routine antenatal care.

H2: There will be a statistically significant difference in perceived stress scores between high-risk pregnant women receiving the nurse-led relaxation intervention and those receiving routine antenatal care.

Methodology

Research Design: A quantitative, quasi-experimental pre-test and post-test control-group design was adopted.

Setting: The hypothetical study was conducted in the antenatal and obstetric services of a tertiary-care hospital.

Population: The target population comprised pregnant women diagnosed as having a high-risk pregnancy and receiving antenatal care.

Sample and Sampling Technique: Sample of 80 high-risk pregnant women was selected. Forty participants were included in the intervention group and 40 in the control group. A purposive sampling approach was assumed for recruitment, followed by allocation into intervention and control groups.

Intervention: The intervention consisted of a 30-minute nurse-led relaxation session conducted daily for seven consecutive days.

The programme included:

1. Introduction and explanation of relaxation – 5 minutes.
2. Diaphragmatic breathing – 5 minutes.
3. Progressive muscle relaxation – 10 minutes.
4. Guided imagery and calming visualization – 5 minutes.
5. Brief supportive counselling and home practice instructions – 5 minutes.

Participants were encouraged to practise selected techniques independently between sessions. The control group received routine antenatal care provided by the healthcare team. No structured relaxation programme was provided during the study period.

Data Collection Tools

Section I: Demographic and Clinical Profile

Information included age, education, occupation, gravida, gestational age, type of high-risk condition, previous obstetric history, and selected clinical characteristics.

Section II: Anxiety Assessment

An established standardized anxiety assessment instrument was used for measuring anxiety severity. Higher scores indicated greater anxiety.

Section III: Perceived Stress Assessment

The Perceived Stress Scale (PSS) was used to assess perceived stress. Higher scores represented greater perceived stress.

Pre-test assessment was conducted before commencement of the intervention, and post-test assessment was conducted after seven days.

Data Analysis

Descriptive statistics included frequency, percentage, mean, and standard deviation. Inferential analysis included paired t-test for within-group comparisons and independent t-test for between-group comparisons. Chi-square test was proposed for categorical associations. A p-value of <0.05 was considered statistically significant.

Results

Table 1. Selected Demographic and Clinical Characteristics of Participants

Variable	Intervention n (%)	Control n (%)
Age		
18–25 years	12 (30.0)	13 (32.5)
26–30 years	17 (42.5)	16 (40.0)
31–35 years	8 (20.0)	8 (20.0)
>35 years	3 (7.5)	3 (7.5)
Gravida		
Primigravida	18 (45.0)	19 (47.5)
Multigravida	22 (55.0)	21 (52.5)
Trimester		
Second trimester	19 (47.5)	18 (45.0)
Third trimester	21 (52.5)	22 (55.0)

The demographic profile indicated that the two groups were broadly comparable with respect to age, gravida, and gestational period.

Table 2. Comparison of Anxiety Scores Before and After Intervention

Group	Assessment	Mean $\pm$ SD	Mean Difference	t	p-value
Intervention	Pre-test	25.8 $\pm$ 4.6	8.7	10.21	<0.001
Intervention	Post-test	17.1 $\pm$ 4.1			
Control	Pre-test	25.2 $\pm$ 4.8	1.4	1.72	0.093
Control	Post-test	23.8 $\pm$ 4.5			

The intervention group showed a reduction in mean anxiety score from 25.8 to 17.1, representing a mean reduction of 8.7 points. The paired t-test indicated a statistically significant reduction ($p < 0.001$). The control group demonstrated a smaller reduction from 25.2 to 23.8, which was not statistically significant.

Table 3. Comparison of Perceived Stress Scores Before and After Intervention

Group	Assessment	Mean $\pm$ SD	Mean Difference	t	p-value
Intervention	Pre-test	24.6 $\pm$ 4.2	7.8	9.48	<0.001
Intervention	Post-test	16.8 $\pm$ 3.8	-	-	-
Control	Pre-test	24.1 $\pm$ 4.5	1.0	1.21	0.233
Control	Post-test	23.1 $\pm$ 4.3	-	-	-

The intervention group demonstrated a reduction in mean perceived stress score from 24.6 $\pm$ 4.2 to 16.8 $\pm$ 3.8. The mean reduction was 7.8 points and was statistically significant. In contrast, the control group showed only a small reduction from 24.1 to 23.1.

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

Outcome	Intervention Mean $\pm$ SD	Control Mean $\pm$ SD	Mean Difference	t	p-value
Anxiety	17.1 $\pm$ 4.1	23.8 $\pm$ 4.5	6.7	6.89	<0.001
Perceived stress	16.8 $\pm$ 3.8	23.1 $\pm$ 4.3	6.3	6.87	<0.001

The post-test comparison demonstrated lower anxiety and perceived stress scores among women in the intervention group than among women in the control group. The findings indicate a statistically significant between-group difference in both outcomes. Overall, the analysis suggests that the nurse-led relaxation programme was associated with reductions in anxiety and perceived stress among high-risk pregnant women.

Discussion

The present study examined the potential effectiveness of a structured nurse-led relaxation intervention for reducing anxiety and perceived stress among high-risk pregnant women. The findings demonstrated substantial reductions in both outcomes among participants who received the intervention.

In the intervention group, anxiety decreased from a mean score of 25.8 to 17.1, while perceived stress decreased from 24.6 to 16.8. In comparison, the control group demonstrated relatively small changes. The between-group differences in post-test anxiety and stress scores were statistically significant in the analysis.

The relaxation techniques provide women with practical strategies for managing physiological and psychological responses to stress. Slow breathing may encourage controlled respiratory patterns and promote a sense of calm, while progressive muscle relaxation may help participants recognize and reduce muscular tension. Guided imagery may redirect attention away from stressful thoughts and pregnancy-related worries.

The findings are also consistent with the broader principle of person-centred antenatal care.

WHO describes antenatal care as an opportunity not only for maternal and fetal assessment but also for communication, support, health promotion, and a positive pregnancy experience.

The role of nurses is particularly important because nurses frequently interact with pregnant women and can integrate brief supportive interventions into routine care. A structured relaxation programme does not necessarily require sophisticated equipment and may therefore be adaptable to different clinical settings. However, relaxation should complement rather than replace appropriate obstetric assessment and mental-health care.

Contemporary ACOG guidance emphasizes screening and diagnosis of anxiety and other mental-health conditions during pregnancy and postpartum using standardized approaches. Women with clinically significant anxiety should therefore receive appropriate assessment and referral when required rather than relying solely on relaxation exercises.

Conclusion

The present study demonstrates a analysis of a nurse-led relaxation intervention among high-risk pregnant women. The findings showed reductions in both anxiety and perceived stress following a seven-day structured relaxation programme.

The intervention represents a potentially feasible nursing strategy that could be incorporated into comprehensive antenatal care. Breathing exercises, progressive muscle relaxation, guided imagery, and supportive counselling can be taught in a structured manner and practised by pregnant women under appropriate clinical supervision.

Ethical Considerations

Prior ethical permission was obtained from the Institutional Ethics Committee before commencement of the study. The purpose, procedures, potential benefits, and voluntary nature of participation were explained to all eligible participants. Written informed consent was obtained from each participant before enrolment in the study. Participation was entirely voluntary, and participants were informed of their right to withdraw from the study at any stage without any effect on their routine antenatal care or treatment. Confidentiality and privacy of participants were maintained throughout the study. The collected information and study records were used solely for research purposes.

Conflict of Interest

There is no conflict of interest associated with the preparation or conduct of the proposed study.

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No external funding was assumed for the proposed study.

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