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# A quasi experimental study to evaluate the effectiveness of progressive muscle relaxation technique on stress among staff nurses working in selected hospitals, Kolkata

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**Abstract**
The current study aimed to assess the impact of the progressive muscle relaxation technique on stress levels among hospital staff nurses in Kolkata. This study used a quasi-experimental design, which involves no actual randomization or control groups. The primary research was conducted at the Jagannath Gupta Institute of Nursing Sciences in Kolkata. Twenty nurses from the designated hospital's nursing staff who met the inclusion criteria were randomly selected. The NIOSH (National Institute for Occupational Safety and Health) Modified Generic Job Stress Scale and a demographic questionnaire were used for the preliminary screening. The following day, PMRT was given. The same instruments were used to conduct a post-test 30 days after the initial assessment. Descriptional and inferential statistics were used to examine the data. The efficiency of PMRT was determined using the paired and unpaired t-test, and the correlation between pre-test score and certain demographic factors was determined using the Fisher's exact test. The post-test stress scores of the two groups were compared, with the experimental group showing a mean score of 51.70 (SD = 4.95), and the control group showing a mean score of 79.90 (SD = 10.86). Using a t-test, we find that an unpaired t-value of t = 7.4747 is statistically significant at the $p<0.05$ level. After staff nurses received the progressive muscle relaxation approach to stress, their post-test stress scores were much lower.

**Keywords:** effectiveness, progressive muscle relaxation technique, staff nurses

## Introduction

Anxiety affects everyone at some point. In everyday life, this happens. Work that is well-designed, organized, and managed is beneficial to us, but stress in the workplace can result when these factors are neglected. Stress at work occurs when an individual feels overwhelmed by the expectations placed on their shoulders. It is well-established that stress, including work-related stress, can play a substantial role in the onset of various health problems and is also strongly correlated with elevated rates of absenteeism, employee turnover, and problems like increased error rates. New studies reveal that stress in the workplace is pervasive and does not discriminate based on occupation. This calls for a strategy that takes the entire population into account.

## Background of the Study

Occupational stress is a common problem in the healthcare industry. Often, this is the case because healthcare staff are expected to do more with less, either in terms of time, expertise, or social support. Extreme emotional distress, burnout, and even physical sickness can result from this. The final result could be that healthcare providers are unable to meet patients' needs. Medical professionals that experience stress or burnout often end up taking time off work, if not completely switching careers, adding further expense to the healthcare system.

Stress affects nearly 70% of Americans in some way, both physically and mentally, per the APA's Stress in America research, but just 37% feel they are doing a good job of managing their stress.

It's no secret that being a nurse is a highly demanding profession. Everyday challenges and stresses are something that nurses have to deal with from the time they begin their studies all the way through retirement. Stress and burnout are experienced by 10% to 70% of nurses. The patients and situations they see, the pressure to get things done quickly, disagreements with superiors or coworkers, and a general sense of helplessness on the job are all potential sources of stress. Fatigue, tiredness, and disengagement from their profession can result from stress, which might threaten patient safety. So, both the nurse's and the patients' health depends on how well she can deal with stress.

As a two-step technique, progressive muscle relaxation involves methodically tensing and relaxing various muscle groups. When done on a regular basis, it helps one become acutely aware of the sensations of tension and total relaxation in various places of the body. If you keep this in mind, you may be better prepared to deal with the onset of stress-related muscle tightness.

Paolla Gabrielle Nascimento Novais, Karla de Melo Batista, et.al, (2016) [7], Brazil: conducted an evaluative study to check how MS patients' stress levels change after receiving progressive muscle relaxation as a nursing intervention. Studies of neurological disorders in a university hospital's outpatient clinic. For this study, 40 outpatients were selected for observation (20 in a control group and 20 in an experimental group). A method known as Progressive Muscle Relaxation was adopted. We used interviews to obtain data for the control variables, which were then analyzed using the Perceived Stress Scale. Over the course of eight weeks, there were five meetings. All participants in the trial were instructed to practice progressive muscle relaxation techniques every day. Their stress levels were re-assessed eight weeks after beginning the program. Results from the Perceived Stress Scale for the experimental group decreased significantly ($p <0.001$) after the implementation of the relaxation techniques, as demonstrated by the t test.

According to the results, nurses can help their patients with multiple sclerosis feel less stressed by giving them progressive muscle relaxation exercises.

**Problem Statement**

"A quasi experimental study to evaluate the effectiveness of progressive muscle relaxation technique on stress among staff nurses working in selected hospitals, Kolkata."

**Objectives of the Study**

1. To assess the pretest level of stress among staff nurses before demonstrating progressive muscle relaxation technique in experimental group and control group.
2. To assess the post test level of stress among staff nurses in experimental and control group.
3. To evaluate the effectiveness of progressive muscle relaxation technique among staff nurses in experimental group.
4. To find out the association between the pre test level of stress among staff nurses with their selected demographic variables in experimental group.
5. To find out the association between the level of stress among staff nurses with their selected demographic variables in control group.

**Assumptions**

The study assumes that,

- Stress may affect staff nurses.
- Progressive muscle relaxation is cheap, non-pharmacological, and safe.

**Hypothesis**

All hypotheses will be tested at 0.05 level of significance.

H1 - There will be a significant difference between the pre test and post test level of stress among staff nurses in experimental group.

H2 - There will be a significant difference between the post test level of stress among staff nurses between experimental and control group.

H3 - There will be a significant association between the pre test level of stress with their selected demographic variables among staff nurses in experimental group.

H4 - There will be a significant association between the pre test level of stress with their selected demographic variables among staff nurses in control group.

**Delimitations**

- Staff nurses in a subset of Kolkata's hospitals will be the only participants in this study.
- The study is delimited to 20 Samples only.

**Review of Literature**

The literature review is an essential part of every research project. The term "literature review" is used to describe a thorough and methodical analysis of all available sources that are relevant to a certain study. Finding relevant information, evaluating it critically, and then reporting on your findings is what this entails. Review of literature refers to a critical examination of all relevant published and unpublished academic writings, as well as any relevant audiovisual or personal communications. The following sections serve as the framework for the analysis.

**Section 1 – Literature related to stress among staff nurses**

Tadesse Dagget, Ashagre Molla, *et al*, (2014), conducted a study to determine the prevalence and causes of stress among nurses working in public hospitals in the Jimma Zone of South-Western Ethiopia in 2014. Between March 10 and April 10, 2014, nurses working in public hospitals in the Jimma Zone were surveyed as part of a cross-sectional study utilizing a standardized, self-administered questionnaire. The mean stress score from this study was 58.46 out of 12.62, and it was directly related to work. With a mean score of 62.94 percent, coping with death and dying was the most stressful aspect of the job, followed by ambiguity about patient care (57.72 percent) and busyness (57.62 percent). Workplace sexual harassment caused 46.19 percent of the stress. According to the results, workplace stress levels differ depending on the type of organization. A high level of job satisfaction and mutual understanding between nurses and doctors were found to be protective factors against stress among health care workers in a clinic for people with long-term illnesses.

**Section 2 – Literature related to progressive muscle relaxation technique**

Ali Akbari, Farshid Shamsaei, *et al*, (2022) [8], conducted a study to look at how MS patients feel about themselves after practising progressive muscle relaxation. The 100 MS patients who participated in this clinical research were split evenly between two groups: the experimental (n = 50) and the control (n = 50). Before the intervention, there was no statistically significant difference in mean self-esteem scores between the control group (26.02) and the experimental group (26.40 ±6.06; P = 0.247). At first glance, there doesn't seem to be much of a difference between the control group's self-esteem (27.16 ±7.45) and the intervention group's (29.06/6.61) (P = 0.083). A statistically significant difference (P = 0.012) was found between the control group's self-esteem (26.96 ±8.33) and the experimental group's self-esteem (29.98 ±7.02) 4 weeks following the intervention. Before treatment, there was a statistically significant difference between the control group's self-efficacy score (41.62 ±4.46 on average) and the experimental group's score (39.32, or 4.31 on average) (P = 0.010). There was a significant difference between the control group's self-efficacy mean score (38.04 ±5.46) and the experimental group's self-efficacy mean score (46.40 ± 5.04) immediately after the intervention (P< 0.001), and again 4 weeks later. The research team came to the conclusion that progressive muscle relaxation can be used as an additional therapy to help MS patients feel better about themselves and more confident in their abilities. This is because progressive muscle relaxation has a positive effect on these things, it is easy to do, and it has a low risk profile.

**Section 3 - Literature related to progressive muscle relaxation technique on stress reduction**

Bala Murali SUNDRAM, Maznah DAHLUI *et al*, (2016) [9], Malaysia: conducted a quasi-experimental trial study to analyze the effects of PMR on stress, anxiety, and depression among male automotive assembly-line workers as part of a workplace health promotion program. Two manufacturing facilities were selected, one to receive PMR treatment and the other to receive pamphlets. An intention-to-treat analysis was carried out as a means of gauging the

efficacy of the relaxation therapy. In order to quantify levels of stress, depression, and anxiety, the DASS-21 questionnaire was used. Measures of stress, depression, and anxiety were examined using Chi-square, Independent Sample t Test, and Repeated-measures Analysis of Variance for statistical significance. We find that comparing the PMR and Pamphlet groups, we find that the PMR group experienced a much larger positive intervention effect on stress (effect size = 0.6 versus 0.2). Stress levels showed a statistically significant ($p<0.001$) group by time interaction impact. At baseline, both groups had quite low rates of depression and anxiety, and these rates have remained relatively stable. The reduced levels of stress revealed the therapeutic potential of PMR for use in the workplace. More study is needed in this area in order to fully understand the positive implications of coping methods in the workplace.

**Research Methodology**

The research strategy and design employed in this study constitute its methodology. According to the study's statement and goals, the design explains the population, how they were sampled, how the data was collected, how the tools were tested for validity and reliability, and how the results were analyzed. Here, a quantitative method was used to measure how well the Progressive Muscle Relaxation technique worked. This study used a "pre-test, post-test control group design," which is a type of quasi-experimental, non-randomized control group. The term "independent variable" is used here to describe the progressive muscle relaxation technique. The stress levels of the nursing staff are the dependent variable in this study. An individual's age, sex, level of education, marital status, number of children, monthly income, commute time, number of years in the workforce, and years of experience were all taken into account. The Jagannath Gupta Institute of Medical Sciences & Hospital in Kolkata served as the site for this study's investigation. The people in this study were registered nurses who worked at a single hospital in Kolkata. Registered nurses from the Jagannath Gupta Institute of Medical Sciences & Hospital in Kolkata took part in this study. Twenty samples were used in this investigation. There will be a group of 10 samples that serve as a control and a group of 10 samples that serve as an experiment. A method called "purposive sampling" was used to pick 20 registered nurses from the staff at random for this study.

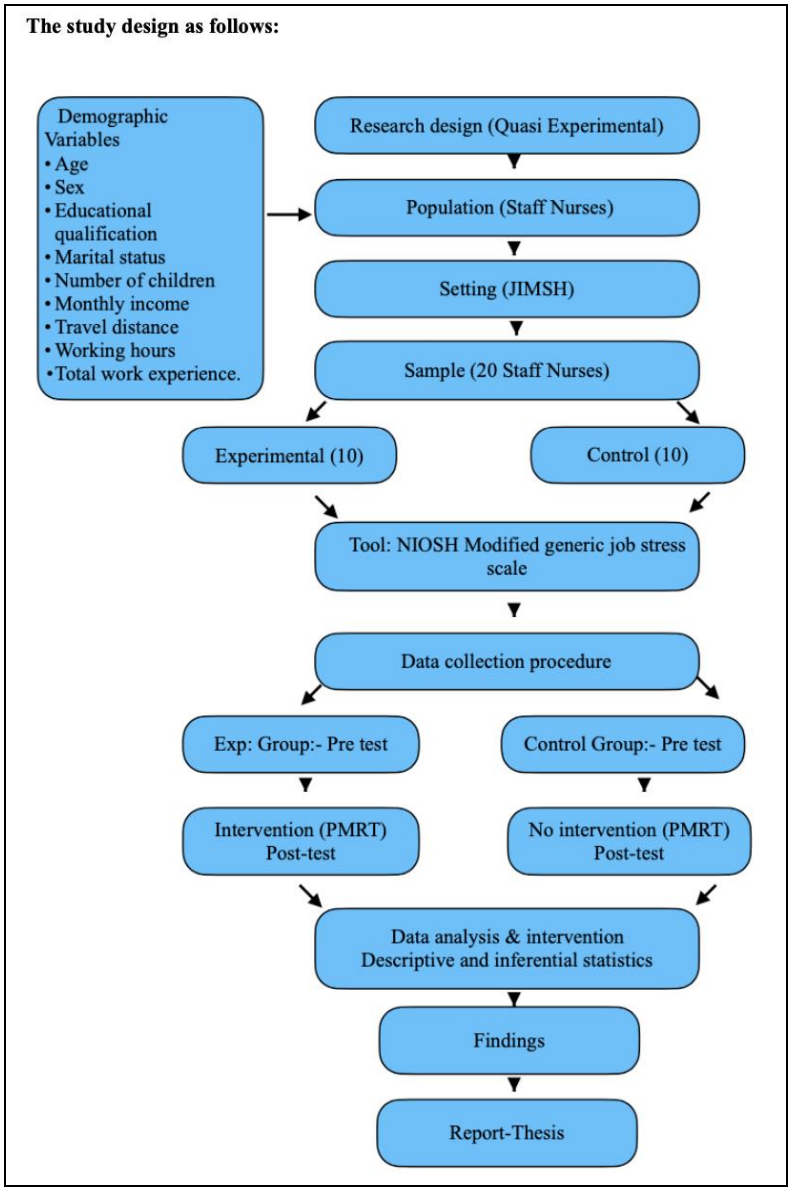


**Fig 1:** Schematic representation of the research design

**Description of the tool**

The researcher, with the help of subject-matter specialists, created the device. It has two parts: a demographic variable questionnaire and the NIOSH (National Institute for Occupational Safety and Health) Modified Generic Job Stress Scale.

**Scoring Procdure And Score Interpretation**

There were a total of 30 questionnaires. After converting to a percentage, the final score fell into the following brackets:

**Table 1**

| Level of Stress | Score |
|---|---|
| Severe | 91-120 |
| Moderate | 61-90 |
| Mild | 30-60 |

**Analysis and Interpretation of Data**

Organizing and synthesizing data in order to answer research questions and test hypotheses is the most crucial part of the research process, which is why analysis and interpretation are so critical. Data presentation, coding, categorization, and final editing all fall under this stage. In order to better comprehend the information, it has been simplified. Since study data does not provide answers to research questions or test hypotheses, the goal of analysis is to characterize the data in intelligible terms. Methodical application of statistical and logical methods for data description, summarization, and comparison.

**Compilation of Resultants**

The organization process entails collecting all of the data in a unified location so that analysis may begin. The data was divided into four categories and displayed accordingly.

**Section A:** Description of demographic variables of the staff nurses in experimental and control group.

**Section B:** Assessment of pretest and posttest level of stress among staff nurses in experimental and control group.

**Section C:** Effectiveness of progressive muscle relaxation technique on the level of stress among staff nurses in experimental and control group.

**Section D:** Association of posttest level of stress among staff nurses with their selected demographic variables in the experimental group and control group.

**Section A: Description of demographic variables of the staff nurses in experimental and control group.**

**Table 2:** Frequency and percentage distribution of demographic variables of staff nurses in experimental group and control group.

n=20(10+10)

| Sl. No | VARIABLES | Experimental group | | Control group | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| 1 | Age in years | | | | |
| | a) 21 - 30 | 09 | 90 | 10 | 100 |
| | b) 31 - 40 | 00 | 00 | 00 | 00 |
| | c) 41 -50 | 01 | 10 | 00 | 00 |
| | d) 51and above | 00 | 00 | 00 | 00 |
| 2 | Gender | | | | |
| | a) Male | 06 | 60 | 06 | 60 |
| | b) Female | 04 | 40 | 04 | 40 |
| | c) Other | 00 | 00 | 00 | 00 |
| 3 | Educational Qualification | | | | |
| | a) GNM | 07 | 70 | 07 | 70 |
| | b) BSc Nursing | 02 | 20 | 02 | 20 |
| | c) Post certificate BSc(N) | 01 | 10 | 01 | 10 |
| | d) MSc Nursing | 00 | 00 | 00 | 00 |
| 4 | Marital status | | | | |
| | a) Married | 03 | 30 | 01 | 10 |
| | b) Unmarried | 07 | 70 | 09 | 90 |
| | c) Widow | 00 | 00 | 00 | 00 |
| | d) Divorced/Seperated | 00 | 00 | 00 | 00 |
| 5 | Number of children | | | | |
| | a) No child | 09 | 90 | 10 | 100 |
| | b) One child | 00 | 00 | 00 | 00 |
| | c) Two children | 01 | 10 | 00 | 00 |
| | d) > two children | 00 | 00 | 00 | 00 |
| 6 | Monthly income | | | | |
| | a) Below 5000 | 00 | 00 | 00 | 00 |
| | b) 5001-10000 | 01 | 10 | 01 | 10 |
| | c) 10001-15000 | 02 | 20 | 06 | 60 |
| | d) 15001-above | 07 | 70 | 03 | 30 |
| 7 | Traveling time | | | | |
| | a) 10-15min | 07 | 70 | 08 | 80 |
| | b) 15-30min | 01 | 10 | 01 | 10 |
| | c) 30min-1hour | 00 | 00 | 00 | 00 |
| | d) More than 1 hour | 02 | 20 | 01 | 10 |
| 8 | Working hours | | | | |
| | a) 8 hours | 07 | 70 | 09 | 90 |
| | b) 10 hours | 01 | 10 | 00 | 00 |
| | c) >10 hours | 02 | 20 | 01 | 10 |
| 9 | Years of experience | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | a) Less than 1 year | 03 | 30 | 05 | 50 |
| | b) 1-3 years | 02 | 20 | 02 | 20 |
| | c) 3-5 years | 01 | 10 | 01 | 10 |
| | d) > 5 years | 04 | 40 | 02 | 20 |

Table 1 shows that out of the 10 people in the experimental group, 6 were men and 9 were between the ages of 21 and 30. 71% were GNMs, 71% had no children, and 90% were not married. The majority (70%) of the respondents reported a monthly income of Rs. 1501 or more. Seventy-one percent spent between ten and fifteen minutes on their commute, seventy-one percent put in a full day's worth of work, and forty-four percent had more than five years of experience. Compared to the test subjects, all 10 people in the control group were between the ages of 21 and 30, 6 of them (60%) were male, 7 of them (70%) were GNMs, 9 of them (90%) were single, and 10 (100%) did not have children. Six out of ten (60%) people had a monthly income of Rs. Eighty percent commuted for no more than fifteen minutes, ninety percent worked eight hours, and fifty-five percent had experience levels below one.

**Section B: Assessment of pretest and posttest level of stress among staff nurses in experimental and control group.**

**Table 3:** Frequency and percentage distribution of pretest of stress among Staff nurses in the experimental group.

n=10

| Level of Stress | Score | No: | % |
|---|---|---|---|
| Severe | 91-120 | 2 | 20 |
| Moderate | 61-90 | 8 | 80 |
| Mild | 30-60 | 0 | 0 |

The table shows the percentage breakdown of staff nurses in the experimental group based on their stress levels before the pretest.
From the results of the pre-test, we know that 80% of the experimental group had mild to moderate stress, while 20% had moderate to severe stress.

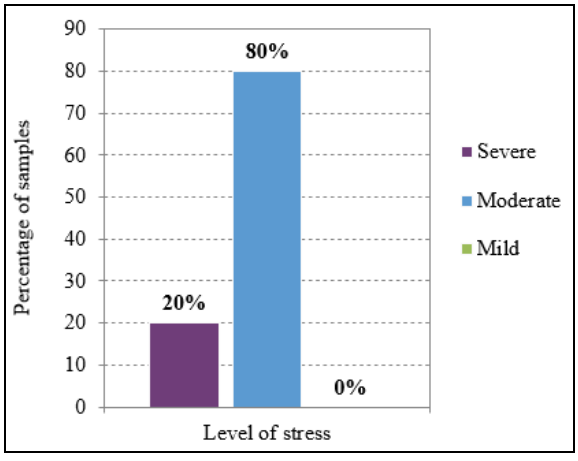


**Fig 2:** Percentage distribution of pretest level of stress among among Staff nurses in the experimental group.

**Table 4:** Frequency and percentage distribution of post-test of stress among Staff nurses in the experimental group.

n=10

| Level of Stress | Score | No: | % |
|---|---|---|---|
| Severe | 91-120 | 0 | 0 |
| Moderate | 61-90 | 1 | 10 |
| Mild | 30-60 | 9 | 90 |

The table shows the percentage breakdown of post-test stress among the experimental group's registered nurses.
Based on the results of the post-test given to the experimental group, we can see that the vast majority (nine out of ten) only had mild stress, while one person (10%) had moderate stress.

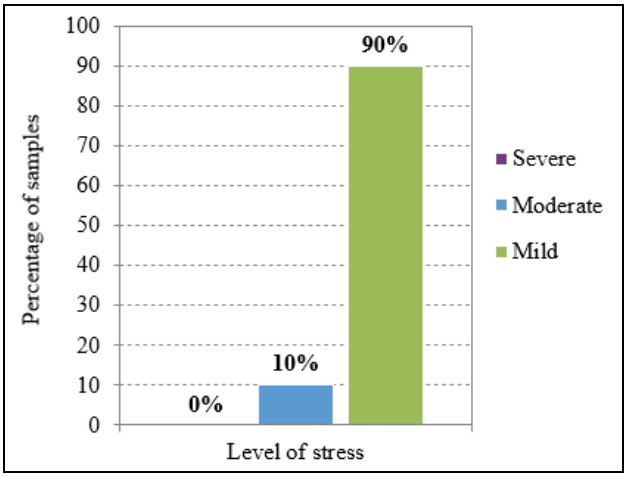


**Fig 3:** Percentage distribution of post-test level of stress among among Staff nurses in the experimental group.

**Table 5:** Frequency and percentage distribution of pretest of stress among Staff nurses in the control group. n=10

| Level of Stress | Score | No: | % |
|---|---|---|---|
| Severe | 91-120 | 3 | 30 |
| Moderate | 61-90 | 7 | 70 |
| Mild | 30-60 | 0 | 0 |

The table shows the percentage distribution of staff nurses' stress levels before the exam.
A total of seven (70%) of the control group showed moderate stress levels, while three (30%) showed severe stress levels in the pre-test period.

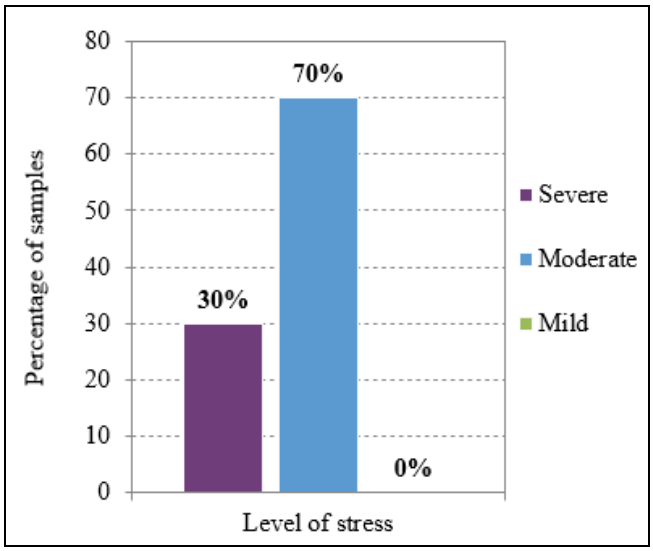


**Fig 4:** Percentage distribution of pretest level of stress among among Staff nurses in the control group.

**Table 6:** Frequency and percentage distribution of post-test of stress among Staff nurses in the control group. n=10

| Level of Stress | Score | No: | % |
|---|---|---|---|
| Severe | 91-120 | 3 | 30 |
| Moderate | 61-90 | 7 | 70 |
| Mild | 30-60 | 0 | 0 |

The table shows the percentage breakdown of control group nurses' post-test stress levels.
On the post-test, seven people (70%) in the control group scored moderately stressed, while three people (30%) scored severely stressed.

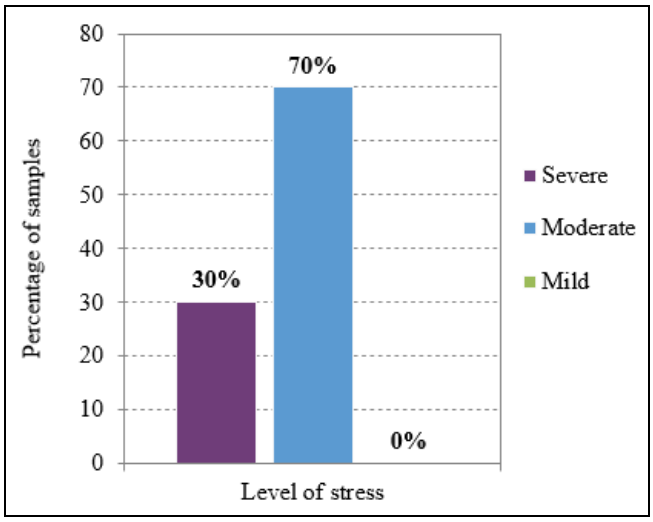


**Fig 4:** Percentage distribution of post-test level of stress among among Staff nurses in the control group.

**Section C: Effectiveness of progressive muscle relaxation technique on the level of stress among staff nurses in experimental and control group.**

**Table 7:** Comparison of pre and post test level of stress among staff nurses in experimental group. n=10

| Stress | Mean | SD | Paired "t" value |
|---|---|---|---|
| Pre-test | 71.50 | 12.28 | t=4.2476 |
| Post-test | 51.70 | 4.95 | |

't' table value = 2.262 at p < 0.05, df=9

The table shows the comparison of pre and post test level of stress in experimental group.
The pretest mean value of stress was 71.50 with S.D 12.28 and the post test mean value of stress was 51.70 with S.D 4.95.
The calculated paired "t" value of t=4.2476 was found to be statistically significant at p<0.05 level.
This clearly indicates that progressive muscle relaxation technique on stress was effective in reducing the stress level of staff nurses.

**Table 8:** Comparison of pre and post test level of stress among staff nurses in control group. n=10

| STRESS | Mean | SD | Paired "t" value |
|---|---|---|---|
| Pre-test | 79.90 | 9.71 | t=0.0000 |
| Post-test | 79.90 | 10.86 | |

't' table value = 2.262 at p > 0.05, df=9

The table shows the comparison of pre and post test level of stress in control group.
The pretest mean value of stress was 79.90 with S.D 9.71 and the post test mean value of stress was 79.90 with S.D 10.86.
The calculated paired "t" value of t=0.0000 was not found to be statistically significant at p<0.05 level.
This clearly shows that there was no significant difference between the pretest and post test stress score among staff nurses in control group.

**Table 9:** Comparison of post-test stress score among staff nurses in between experimental and control group. n=20 (10+10)

| POST-TEST | Mean | SD | unpaired "t" value |
|---|---|---|---|
| EXPERIMENTAL | 51.70 | 4.95 | t=7.4747 |
| CONTROL | 79.90 | 10.86 | |

't' table value = 2.101 at p < 0.05, df=18

Table shows the comparison of post test stress score between the experimental and control group.
When comparing the post test stress score between the experimental and control group, the post test mean score in the experimental group was 51.70 with S.D 4.95 and the post test mean score in the control group was 79.90 with S.D 10.86.
The calculated unpaired "t" value of t=7.4747 was found to be statistically significant at p<0.05 level.
This demonstrates that the post-test stress score of the experimental group's staff nurses decreased significantly after incremental muscle relaxation. So, after the test, the staff nurses in the experimental group had less stress than those in the control group who didn't use the progressive muscle relaxation method.

**Section D: Association of pretest level of stress among staff nurses with their selected demographic variables in the experimental group and control group.**
The significance of the correlation between the pre-test stress score and the specified demographic variables was examined using Fisher's exact test. In the experimental group, there was no statistically significant link between stress levels at the start of the study and any of the specified demographic factors. The same was true for the control group.

**Major Findings & Discussion**
Based on the plan for analyzing the collected data, it has been put together and put into the following categories.
Part I: Description of demographic variables of the staff nurses in experimental and control group.
Part II: Assessment of pretest and posttest level of stress among staff nurses in experimental and control group.
Part III: Effectiveness of progressive muscle relaxation technique on the level of stress among staff nurses in experimental and control group.
Part IV: Hypotheses testing

**Part I: Description of demographic variables of the staff nurses in experimental and control group.**
The percentage distribution of subjects shows that in the experimental group, the majority of 09 (90%) were in the age group of 21–30 years, 06(60%) were male, 07(70%) were GNM, 07(70%) were unmarried, 09(90%) did not have children, 07(70%) had a monthly income of Rs.15001 and above, 07(70%) travelling time was 10–15 min, 07(70%) worked 8 hours, and 04(40%) had >5 years of experience.

Whereas in the control group, a majority of 10(100%) were in the age group of 21–30 years, 06(60%) were male, 07(70%) were GNM, 09(90%) were unmarried, 10(100%) did not have children, 06(60%) had a monthly income of Rs. 10001–15000, 08(80%) travelling time was 10-15 min, 09(90%) worked 8 hours, and 05(50%) had 1 year of experience.

**Part II: Assessment of pretest and posttest level of stress among staff nurses in experimental and control group.**

When compared to the pretest level of stress in the experimental group, the majority of 09 (90%) had mild level of stress, 1 (10) had moderate level of stress, and none of the respondents had a severe level of stress. That is, the majority of 08 (80%) had moderate level of stress, 02 (20%) had severe level of stress, and none of the respondents possessed a mild level of stress.

In the control group, seven people (70%) were found to have a moderate amount of stress before and after the test; three people (30%) were found to have a severe amount of stress; and no one had a mild amount of stress.

**Part III: Effectiveness of progressive muscle relaxation technique on the level of stress among staff nurses in experimental and control group.**

The comparison of the pre and post test levels of stress in the experimental group shows that the pretest mean value of stress was 71.50 with S.D 12.28 and the post test mean value of stress was 51.70 with S.D 4.95. The calculated paired "t" value of t = 4.2776 was found to be statistically significant at the $p<0.05$ level. This clearly indicates that the progressive muscle relaxation technique on stress was effective in reducing the stress level of staff nurses.

The comparison of the pre and post test levels of stress in the control group shows that the pretest mean value of stress was 79.90 with S.D 9.71 and the post test mean value of stress was 79.90 with S.D 10.86. The calculated paired "t" value of t = 0.0000 was not found to be statistically significant at the $p<0.05$ level. This clearly shows that there was no significant difference between the pretest and post-test stress scores among staff nurses in the control group.

When comparing the post-test stress score between the experimental and control groups, the post-test mean score in the experimental group was 51.70 with an S.D of 4.95 and the post-test mean score in the control group was 79.90 with an S.D of 10.86. The calculated unpaired "t" value of t = 7.4747 was found to be statistically significant at the $p<0.05$ level. The post-test stress score of staff nurses in the experimental group decreased significantly after receiving the progressive muscle relaxation treatment for stress. So, the progressive muscle relaxation technique helped the nurses in the experimental group feel less stressed after the test than the nurses in the control group.

**Part IV: Hypothesis Testing**

**a. Testing $H_1$**

A paired 't' test assessed the hypothesis. To assess staff nurse stress, the "t" value was calculated and compared to the table value. The pretest stress mean was 71.50 with a S.D of 12.28, and the post-test mean was 51.70 with a 4.95. At 0.05, the estimated "t" value of 4.2476 exceeded the table value of 2.262. Thus, the null hypothesis was rejected and the research hypothesis was supported, proving that staff nurses' stress levels decreased intentionally. Thus, the research hypothesis was accepted and the progressive muscle relaxation approach to stress reduced staff nurse tension. From what we've seen so far, the progressive muscle relaxation technique helps staff nurses feel less stressed at work.

**b. Testing $H_2$**

Using an unpaired t test, the hypothesis was examined. To compare staff nurse stress levels, the "t" value was determined. The results showed that the experimental group's post test mean score was 51.70 with a S.D of 4.95 while the control group's was 79.90 with 10.86. At the 0.05 level of significance, 7.4747 was larger than 2.101. Thus, the null hypothesis was rejected and the study hypothesis was confirmed, confirming that the experimental group's staff nurses' stress levels decreased. Thus, the gradual muscle relaxation approach reduced staff nurses' stress levels. Based on the information above, the experimental group's post-test stress level dropped more with the progressive muscle relaxation method than with the control group's method.

**c. Testing $H_3$**

A Fisher's exact test was performed to examine the correlation between pre-test anxiety and the specified demographic factors in the experimental group. Researchers found no correlation between pre-test stress and age, gender, education, marital status, number of children, monthly income, commute time, number of years in the workforce, or total years in the workforce.

**d. Testing $H_4$**

The correlation between pre-test stress and the specified demographic characteristics among the control group was examined using Fisher's exact test. Researchers found no correlation between pre-test stress and age, gender, education, marital status, number of children, monthly income, commute time, number of years in the workforce, or total years in the workforce.

**Conclusion**

The study sought to assess and reduce staff nurses' stress. to reduce staff nurse stress. PMRT reduced staff nurse stress. The investigation yielded these conclusions: The pretest stress levels of the experimental group were moderate (88%), severe (20%), and mild (0%). In the control group, 7 (70%) experienced moderate stress, 3 (30%) had severe stress, and none had mild stress before and post-test. The experimental group had a post-test stress score of 51.70 with a S.D of 4.95, while the control group had 79.90 with 10.86. The unpaired "t" value of 7.4747 was statistically significant at p 0.05. The post-test stress score of staff nurses in the experimental group decreased significantly after receiving the progressive muscle relaxation treatment for stress. Thus, the progressive muscle relaxation technique reduced post-test tension in staff nurses in the experimental group more than in the control group. So, staff nurses have moderate to high stress, which can be lessened by slowly relaxing their muscles.

**Nursing effects**

- Professional nursing involves compassion, care, and strong ethical principles; self-and other-development;

accountability and responsibility for insightful practice; and teamwork and flexibility.
- Nursing requires stress management. Nurses and patients might be harmed by stress and mental illness. Psychological stress increases medical errors and staff turnover.
- The study has implications for nursing practice, education, administration, and research.

**Limitations**

The current study included the following flaws:
- The study's limited sample size and reliance on a subjective sampling method reduce its applicability to the population at large.
- The stress level was not followed up on in any way.
- Due to a lack of time, it was not possible to test the Progressive Muscle Relaxation Technique in the real world in a thorough way.

**Recommendation**

On the basis of the results of this study, suggestions for future investigation are provided.
- The impact of gradual muscle relaxation on nurse burnout can be studied in a controlled experimental setting.
- A similar study with a bigger sample size may allow for more robust generalizations and conclusions to be drawn.
- Alternative methods of stress reduction can also be studied, including the use of music therapy, yoga, meditation, and laughter therapy.
- Any other challenging demographic can benefit from a study like this.
- The stress levels of nurses working in both public and commercial hospitals could be compared and the results compared to those who did not practice progressive muscle relaxation.

**References**

1. HSENI. Controlling risk together. What is work-related stress?. Available from: URL. https://www.hseni.gov.uk/what-work-related-stress.
2. The American Institute of Stress. If Life Were Easy They Would Have Asked For Volunteers. 30:03:22. Available from: URL. https://www.stress.org/if-life-were-easy-they-would-have-asked-for-volunteers#. Centers for Disease Control and Prevention. Stress at work. Available from: https://www.cdc.gov/niosh/docs/99-101/default.html.
3. Ruotsalainen JH, Verbeek JH, Mariné A, Serra C. Preventing occupational stress in healthcare workers. Cochrane Database of Systematic Reviews, 2015, 4. Art. No.: CD002892. DOI: 10.1002/14651858.CD002892.pub5.
4. Mental Health America. Stress: Coping With Everyday Problems. Available from: https://mhanational.org/stress-coping-everyday-problems.
5. Registered Nursing. Org. How to Manage Your Stress as a Nurse. Available from:https://www.registerednursing.org/articles/how-manage-stress-nurse.
6. Help guide, Your trusted nonprofit guide to mental health & wellness. Relaxation Techniques for Stress Relief. Available from: https://www.helpguide.org/articles/stress/relaxation-techniques-for-stress-relief.htm.
7. Novais PG, Batista Kde M, *et al*. The effects of progressive muscular relaxation as a nursing procedure used for those who suffer from stress due to multiple sclerosis. Rev Lat Am Enfermagem,2016:24:e2789. doi: 10.1590/1518-8345.1257.2789. PMID: 27598379; PMCID: PMC5016008.
8. Akbari A, Shamsaei F, *et al*. Effect of progressive muscle relaxation technique on self-esteem and self-efficacy in multiple sclerosis patients: A clinical trial study. J Educ Health Promot,2022:11:8. doi: 10.4103/jehp.jehp_272_21. PMID: 35281409; PMCID: PMC8893100.
9. Sundram BM, Dahlui M, *et al*. Effectiveness of progressive muscle relaxation therapy as a worksite health promotion program in the automobile assembly line. Ind Health,2016:54(3):204-14. doi: 10.2486/indhealth.2014-0091. Epub 2015 Dec 26. PMID: 26726829; PMCID: PMC4939865.