



# Effectiveness of progressive muscle relaxation on level of perceived quality of sleep and self-efficacy among nursing students studying in colleges of selected areas.

<sup>1</sup>Ms. Sumi Nair, <sup>2</sup>Mr. Vishal Naikare

<sup>1</sup>Nurse Educator, <sup>2</sup>HOD (Mental Health Nursing)

<sup>1</sup>Bharati Hospital Pune, India,

<sup>2</sup>Sinhgd College of Nursing Pune, India

**Abstract:** There are various methods to control or reduce stress. Stress management practices include yoga, relaxation, and progressive muscle relaxation, breathing exercises, meditation and mental imagery. Relaxation techniques is more effective or help full to cope with everyday stress and with stress related to various health problems. OBJECTIVES To assess pre-existing level of perceived quality of sleep among nursing students studying in colleges of selected areas. To assess pre-existing level of self-efficacy among nursing students studying in colleges of selected areas.<sup>1</sup> To find out effectiveness of progressive muscle relaxation on level of perceived quality of sleep among nursing students studying in colleges of selected areas. To find out effectiveness of progressive muscle relaxation on level of self- efficacy among nursing students studying in colleges of selected areas. To find out association between the study findings with selected demographic variables. A quantitative approach was used for this study. The study is carried out in selected areas. The research design is quasi experimental is Probability Cluster sampling technique was used. The 60 college going nursing students was taken from nursing colleges in selected areas. In the assessment of Effectiveness of progressive Muscle Relaxation on 60 samples divided in two group that is 30 experimental group and 30 control group. Evaluation of level of perceived sleep quality and self-efficacy was done before and after the intervention among experimental groups and control group. The level of sleep quality and self-efficacy among college going nursing was improved in experimental group, (P-Value < 0.05).

## Introduction

Progressive muscle relaxation (PMR) is a deep relaxation technique that has been effectively used to control stress and anxiety, relieve insomnia, and reduce symptoms of certain types of chronic pain. Progressive muscle relaxation is based upon the simple practice of tensing, or tightening, one muscle group at a time followed by a relaxation phase with release of the tension. The technique of progressive muscle relaxation was described by Edmund Jacobson in the 1930s and is based upon his premise that mental calmness is a natural result of physical relaxation. Progressive muscle relaxation can be learned by nearly anyone and requires only 10 minutes to 20 minutes per day to practice.<sup>2</sup> Progressive muscle relaxation can be used as a natural muscle relaxant and is especially helpful since its effective in achieving the relaxation response, a deep conscious state of calming the mind. Progressive muscle relaxation is a systematic technique for managing stress and achieving a deep state of relaxation.<sup>3</sup>

Sleep significantly impacts brain function. First, a healthy amount of sleep is vital for “brain plasticity,” or the brain’s ability to adapt to input. If we sleep too little, we become unable to process what we’ve learned during the day and we have more trouble remembering it in the future. Researchers also believe that sleep may promote the removal of waste products from brain cells something that seems to occur less efficiently when the brain is awake. Sleep is vital to the rest of the body too. When people don’t get enough sleep, their health risks rise. Symptoms of depression, seizures, high blood pressure and migraines worsen. Immunity is compromised, increasing the likelihood of illness and infection. Sleep also plays a role in metabolism: Even one night of missed sleep can create a pre-diabetic state in an otherwise healthy person. There are many important connections between

health and sleep. Your brain will cycle repeatedly through two different types of sleep: REM (rapid-eye movement) sleep and non-REM sleep. The first part of the cycle is non-REM sleep, which is composed of four stages. The first stage comes between being awake and falling asleep. The second is light sleep, when heart rate and breathing regulate and body temperature drops. The third and fourth stages are deep sleep. Though REM sleep was previously believed to be the most important sleep phase for learning and memory, newer data suggests that non- REM sleep is more important for these tasks, as well as being the more restful and restorative phase of sleep.

wakefulness after sleep onset and reduced sleep quality. These associations also existed after controlling for general cognitive arousal, depression and anxiety. Students who suffered from nightmares often reported more insomnia symptoms and lower self-

efficacy. One-quarter of all university students are evening Chrono-types. Evening-ness is often associated with a poor sleep quality, lower self-control, more procrastination, more stress sensitivity and lower sleep efficiency. All in all, various sleep-related parameters and disorders affect university students' life.<sup>4</sup>

Getting a good night's sleep is incredibly important for your health. In fact, it's just as important as eating a balanced, nutritious diet and exercising. Though sleep needs vary from person to person, most adults require between 7 and 9 hours of sleep per night. Yet, up to 35% of adults in the United States don't get enough sleep. Sleep deprivation can put your health and safety at risk, which is why it's essential that you prioritize and protect your sleep on a daily basis.<sup>5</sup>

## OBJECTIVES

To assess the effectiveness of progressive muscle relaxation on level of perceived quality of sleep and self-efficacy among nursing students studying in colleges of selected areas. To assess pre-existing level of perceived quality of sleep among nursing students studying in colleges of selected areas. To assess pre-existing level of self-efficacy among nursing students studying in colleges of selected areas. To find out effectiveness of progressive muscle relaxation on level of perceived quality of sleep among nursing students studying in colleges of selected areas. To find out effectiveness of progressive muscle relaxation on level of self-efficacy among nursing students studying in colleges of selected areas. To find out association between the study findings with selected demographic variables.

## OPERATIONAL DEFINITIONS

### Effectiveness

In this study the effectiveness refers to (progressive muscle relaxation) which is capable of producing a desired result or a desired output among nursing students' Dependent variables- Level of perceived quality of sleep among nursing students and Level of self-efficacy among nursing students.

### Perceived

In this study perceived refers to being aware or notice something which is real that is a particular way of the sleep quality among nursing students

### Level of Sleep Quality

In this study level of sleep quality refers to know the amount of sleep-in hours and quality refers in terms how good or bad (poor) quality of sleep is present among nursing students.

### Progressive muscle relaxation

In this study progressive muscle relaxation refers to applying all those methods or techniques of relaxing and tensing of various muscle groups which will help to increase the level of sleep quality and self-efficacy among nursing students.

### Self-Efficacy

In this study self-efficacy refers to know the ability to perform or succeed particular task among college students.

### Student

In these study students refers who learns and study in college or university level.

### College

In this study college refers to where students who come in college study purpose and to perform various organizational duties sharing with different ideas and decisions.

## RESEARCH METHODOLOGY

### RESEARCH DESIGN

The design widely used in educational research.<sup>6</sup>

Group	Pre-test	Intervention	Post-test
Experimental group	0 <sub>1</sub>		0 <sub>2</sub>
Control group	0 <sub>1</sub>	x	0 <sub>2</sub>

Key-

0<sub>1</sub>: Pre-test

X: Intervention- with progressive muscle relaxation

0<sub>2</sub>: Post-test

### SETTING OF THE STUDY

Setting refers to the areas where the study is conducted.<sup>6</sup> The study is conducted in nursing colleges. The rationales of selection of this setting is adequate samples, cooperation feasibility of conducting the study and students studying colleges might have poor sleep quality and low self-efficacy due to various stressors.

### Population

In this study population is the college going students in between the age 19-22 years.

### Target Population

The target population for the present study was includes population from selected area of city.

### Sample

In this study sample is the college going nursing students between the age group from 19-22 years.

### Sampling technique

The samples were selected by probability cluster sampling technique. The samples that fulfil the inclusion criteria were admitted in study.

### Sample size

Sample size for the study consists of 60 (30 experimental and 30 control group)

### ANALYSIS AND INTERPRETATION OF DATA

The collected data was tabulated in master sheet and analyzed by using descriptive and inferential statistics as per the objectives of the study.

Section

I: Description of Socio demographic data of students Section

II: Effectiveness of Progressive muscle relaxation Section

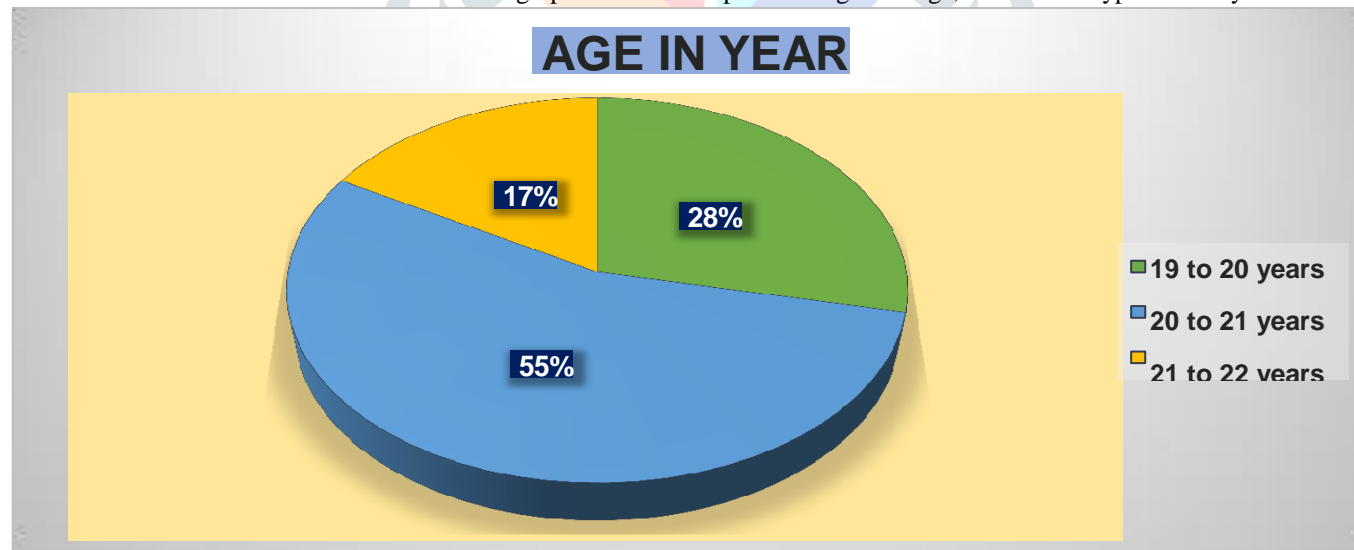
III: Hypotheses testing

#### Section– I: Description of Sociodemographic data(n=60)

Table No: I

SN	Variable	Frequency	%
<b>1</b>	<b>Age</b>		
a	19 to 20 years	17	28
b	20 to 21 years	33	55
c	21 to 22 years	10	17
<b>2</b>	<b>Gender</b>		
a	Male	33	55
b	Female	27	45
c	Prefer not to specify	00	00
<b>3</b>	<b>Type of Family</b>		
a	Joint	10	17
b	Nuclear	26	43
c	Extended	17	28
d	Single parent	7	12

The above-mentioned table deals with the demographic data of sample with regard to age, Gender and type of family



#### PIE DIAGRAM SHOWING PERCENTAGE WISE DISTRIBUTION ACCORDING TO THE AGE OF THE RESPONDENTS

Percentage wise distribution of respondents according to their Age depicts that highest percentage (55%) of respondents were in the age group of 20 to 21years and 28% of the respondents were in the age group of 19-20 years. It can be interpreted that most of the respondents were in the age group of 20 to 21 years.

#### percentage wise distribution according to the Age of the respondents

Percentage wise distribution of respondents according to their Age depicts that highest percentage (55%) of respondents were in the age group of 20 to 21years and 28% of the respondents were in the age group of 19-20 years. It can be interpreted that most of the respondents were in the age group of 20 to 21 years.

#### Bar diagram showing percentage wise distribution according to the Type of Family of the respondents

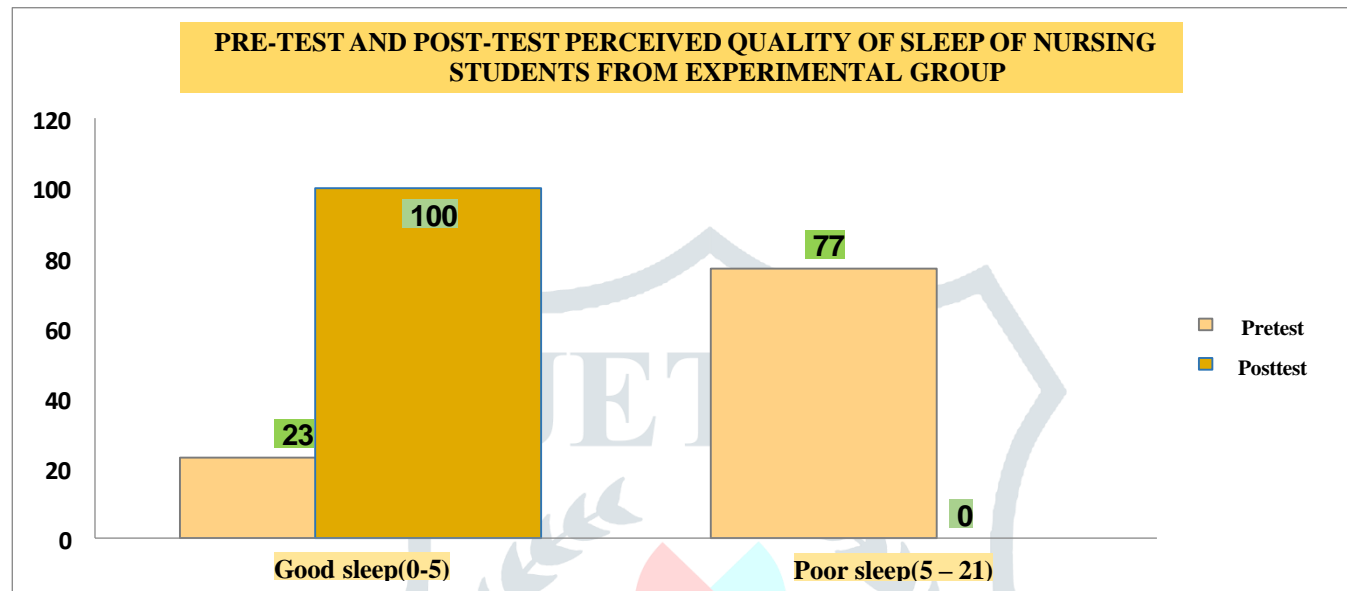
Percentage wise distribution of respondents according to their Type of Family depicts that highest percentage (43%) of respondents were from nuclear family, (28%) of respondents were from Extended family and (17%) of respondents were from Joint family& only (10%) respondents were from single parent. It can be interpreted that most of the respondents were from nuclear family and extended family.

## Section II

**Effectiveness of progressive muscle relaxation on perceived quality of sleep from Experimental and control group (n=60)**

Frequency and percentage wise distribution of pre-test and post-test perceived quality of sleep of nursing students from Experimental group. (n=30)

SN	Score	Pre-test		Post test	
		Freq	%	Freq	%
1	Good sleep quality (0-5)	7	23	30	100
2	Poor sleep quality (5-21)	23	77	0	00



**Bar diagram showing percentage wise distribution of pre-test and post-test perceived quality of sleep of nursing students from Experimental group**

Percentage wise distribution of pre-test and post-test perceived quality of sleep of nursing students from Experimental group depicts that highest percentage in pre-test (07), (23%) of them had poor sleep and in post-test all (100%) of the respondents had good sleep. Hence it can be interpreted that progressive muscle relaxation was effective in improving the quality of sleep in Experimental group.

**Frequency and percentage wise distribution of pre-test and post-test sleep quality scores among college students Control group. (n=30)**

SN	Score	Pre-test		Post test	
		Freq	%	Freq	%
1	Good sleep quality (0-5)	0	00	0	00
2	Poor sleep quality (5-21)	30	100	30	100

**percentage wise distribution of pre-test and post-test perceived quality of sleep of nursing students from control group**

Percentage wise distribution of pre-test and post-test perceived quality of sleep of nursing students from control group depicts that highest percentage in pre-test (30), (100%) of them had poor sleep and in post-test all (100%) of the respondents had poor sleep.

**Paired „t“ value of pre and post-test perceived quality of sleep score of nursing students from Experimental group. (n=30)**

SN	Group	Mean	SD	„t“ value	P Value	Level of significance
1	Pre-test	14.86	1.61	31.117	0.0001	Significant
2	Post-test	4.06	0.9			

table value = 2.045 at  $p \leq 0.05$

t value was calculated to analyze the difference in pre-test and post-test perceived quality of sleep score of nursing students.

Highly significant difference was found between pre and post-test perceived quality of sleep score of nursing students from Experimental group

( $t = 31.117$ ). Hence the stated null hypothesis is rejected as it is interpreted that there was significant difference between pre-test and post-test perceived quality of sleep score.

**Paired „t“ value of pre and post-test perceived quality of sleep score of nursing students from control group.**

SN	Group	Mean	SD	„t“ value	P Value	Level of significance
1	Pre-test	14.7	2.21	3.019	0.001	Significant
2	Post-test	16.6	2.12			

table value = 2.045 at  $p = \leq 0.05$

**t value** was calculated to analyze the difference in pre-test and post-test perceived quality of sleep score of nursing students from control group. Significant difference was found between pre and post-test perceived quality of sleep score of nursing students score from control group

( $t = 3.019$ ). Hence the stated null hypothesis is rejected as it is interpreted that there was significant difference between pre-test and post-test score.

**Unpaired „t“ value of post-test perceived quality score of nursing students from Experimental group and Control group.**

SN	Group	Mean	SD	„t“ value	P Value	Level of significance
1	Control Group	16.66	2.123	29.705	0.0001	Significant
2	Experimental group	4.06	0.94			

table value = 2.000 at  $p = \leq 0.05$

**t value** was calculated to analyze the difference in post-test stress score of elderlies regarding progressive muscle relaxation from experimental and control group. Highly significant difference was found between perceived quality score of nursing students from Experimental group and Control group. ( **$t = 29.705$** ).

Hence the stated null hypothesis is rejected as it is interpreted that there was significant difference between post-test perceived quality score of nursing students from Experimental group and Control group.

**Section III****Effectiveness of progressive muscle relaxation on self-efficacy scores of nursing students from Experimental and control group (n=60)**

Frequency and percentage wise distribution of pre-test and post-test self- efficacy score of nursing students from Experimental group. (n=30)

SN	Score	Pre-test		Post test	
		Freq	%	Freq	%
1	Normal self-efficacy (25-40)	0	00	30	100
2	Low self-efficacy (Below 25)	30	100	00	00

**percentage wise distribution of pre-test and post-test self-efficacy scores of nursing students from Experimental group**

Percentage wise distribution of pre-test and post-test self-efficacy scores of nursing students from Experimental group depicts that highest percentage in pre-test (100%) of them had low self-efficacy score and in post-test all (100%) of the respondents had normal self-efficacy score.

**Frequency and percentage wise distribution of pre-test and post-test self- efficacy score of nursing students from Control group. (n=30)**

SN	Score	Pre-test		Post test	
		Freq	%	Freq	%
1	Normal self-efficacy (25-40)	11	36	20	67
2	Low self-efficacy (Below 25)	19	64	10	33

**percentage wise distribution of pre-test and post-test self-efficacy scores of nursing students from control group**

Percentage wise distribution of pre-test and post-test self-efficacy scores of nursing students from control group depicts that highest percentage in pre-test (64%) of them had low self-efficacy score and in post-test (67%) of the respondents had normal self-efficacy score.

**To find association between pre-test level of perceived quality of sleep with demographic variables i.e., age, gender and type of family**

Contingency table to find out the association between level of perceived quality of sleep score and age

SN	Age	Poor sleep		Good sleep		Total	2 $\gamma$
		O	E	O	E		
1	19 to 20 years	14	15.02	03	1.98	17	0.8294
2	20 to 21 years	30	29.15	03	3.85	33	



3	21 to 22 years	09	8.83	01	1.17	10
Total		53		07		60

Table value of  $\chi^2 = 5.991$  at  $p < .05$

The above table reveals that the calculated chi-square value (0.8294) is less than the table value. It can be interpreted that there is no significant association between age and sleep score

**Contingency table to find out the association between perceived quality of sleep score and Gender**

SN	Gender	Poor sleep		Good sleep		Total	$\chi^2$
		O	E	O	E		
1	Male	28	29.15	5	3.85	33	0.8642
2	Female	25	23.85	2	3.15	27	
Total		53		07		60	

Table value of  $\chi^2 = 3.841$  at  $p < .05$

The above table reveals that the calculated chi-square value (0.8642) is less than the table value. It can be interpreted that there is no significant association between Gender and sleep score.

**Contingency table to find out the association between perceived quality of sleep score and Type of family**

SN	Type of family	Poor sleep		Good sleep		Total	$\chi^2$
		O	E	O	E		
1	Joint	06	9	04	1	10	6.0016
2	Nuclear	25	23.40	01	2.60	26	
3	Extended	16	15.30	01	1.70	17	
4	Single parent	6	6.30	01	0.70	7	
Total		53		07		60	

Table value of  $\chi^2 = 7.815$  at  $p < .05$

The above table reveals that the calculated chi-square value (**6.0016**) is less than the table value. It can be interpreted that there is no significant association between type of family and sleep score.

**To find association between pre-test level of self-efficacy score with demographic variables i.e., age, gender and type of family**

Contingency table to find out the association between self-efficacy score and age

SN	Age	Low self-efficacy		Normal self- efficacy		Total	$\chi^2$
		O	E	O	E		
1	19 to 20 years	15	13.88	02	3.12	17	0.6911
2	20 to 21 years	26	26.95	07	6.05	33	
3	21 to 22 years	08	8.17	02	1.83	10	
Total		49		11		60	

Table value of  $\chi^2 = 5.991$  at  $p < .05$

The above table reveals that the calculated chi-square value (0.6911) is less than the table value. It can be interpreted that there is no significant association between age and self-efficacy score

**Contingency table to find out the association between self-efficacy and Gender**

SN	Gender	Low self-efficacy		Normal self- efficacy		Total	$\chi^2$
		O	E	O	E		
1	Male	26	26.95	7	6.05	33	0.4059
2	Female	23	22.05	4	4.95	27	
Total		49		11		60	

Table value of  $\chi^2 = 3.841$  at  $p < .05$

The above table reveals that the calculated chi-square value (0.4059) is less than the table value. It can be interpreted that there is no significant association between gender and self-efficacy score.

**Contingency table to find out the association between self-efficacy score and Type of family**

SN	Type of family	Low self-efficacy		Normal self- efficacy		Total	2 $\chi^2$
		O	E	O	E		
1	Joint	7	8.17	03	1.83	10	3.4848
2	Nuclear	20	21.23	06	4.77	26	
3	Extended	16	13.88	01	3.12	17	
4	Single parent	06	5.72	01	1.28	07	
Total		49		11		60	

Table value of  $\chi^2 = 7.815$

The above table reveals that the calculated chi-square value (**3.4848**) is less than the table value. It can be interpreted that there is no significant association between type of family and self-efficacy score.

## CONCLUSION

In the assessment of Effectiveness of progressive Muscle Relaxation on 60 samples divided in two group that is 30 experimental group and 30 control group. Evaluation of level of perceived sleep quality and self-efficacy was done before and after the intervention among experimental groups and control group. The level of sleep quality and self-efficacy among college going nursing was improved in experimental group, (P-Value < 0.05)

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