

## Effect of Progressive Muscles Relaxation on Sleep Quality among Residential School Females Appearing Board Exams

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### ABSTRACT

Adolescents is the time of biological and psychological changes especially in females, which impact on sleep cycle and internal clock of body. Due to screen time, exam stress and anxiety results in irregular sleep patterns, sleep disorder, sleep deprivation. Sleep quality refers to the satisfaction and how well a person sleep without disturbances and awakenings. Sleep quality can be good or poor, it depends on the sleep pattern and cycle. There are some factors like sleep latency, sleep duration, sleep efficiency and sleep frequency measure sleep quality. If talking about residential school females, they faces issues like time management, discrimination, physical pain, menstruation cramps, mood swings, anger, frustration and emotional disturbances which leads to sleep disturbances and unable to focus on exam. The main aim of the study is to understand the effect of progressive muscles relaxation on sleep quality of residential school females appearing for board exam. 30 participants with poor sleep quality were randomly selected for progressive muscles relaxation intervention. The result shows significant positive effect of progressive muscles relaxation on sleep.

**Keywords:** *Progressive muscles relaxation, Sleep Quality, Female Adolescents*

**S**leep is a natural process and repeated state of mind and body which is not a consciousness but rest period. While sleep body functions, slow down and some body activities like muscle action decrease. Sleep is necessary for physical and mental health. Sleep keep mind and body relax which helps to feel freshness and energized to work again next day.

Sleep quality refers to the satisfaction a person feels in the morning. How well a person sleep without disturbances and awakenings. Sleep quality can be good or poor, it depends on the sleep pattern and cycle. There are some factors like sleep latency, sleep duration, sleep efficiency and sleep frequency measure sleep quality. Good sleep quality helps an individual to handle everyday problems with courage and positivity. On the other hand poor sleep quality increases frustration, aggression and mood disturbance, next day. Healthy sleep is equals to healthy mind and body.

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School going adolescents are facing many unique issues in life and handling the situations in innovative and creative ways also. Sometimes overthinking, exam stress, anxiety leads to sleep disturbance and distractions. Some factors like psychological, physical, social and biological play important role in sleep quality.

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**Residential school** refers to schools where children live in school hostel during their schooling rather than going home from school. The residential schools provide all the arrangements of accommodation and food. The schedule of daily activities are fixed including school classes, games, attendance, self-study, eating breaks and other activities under the supervision. They have separate hostels and activities for girls and boys.

Female students always have different problems from male students. If talking about residential school females, they faces issues like time management, discrimination, physical pain, menstruation cramps, mood swings, anger, frustration and emotional disturbances which leads to sleep disturbances and unable to focus on exam.

Board exam stress is common in students but residential girls have pressure of managing personal life and career together. They have stress of good marks while behaving well in class, making distance from boys, stress of safety & privacy and maintaining social roles. The expectations of maintain rules & regulations are high from female students of residential school. The mentality and thinking and expectation towards females can leads to depression, aggression, eating disorder and sleep disorder.

**PMR** is a progressive muscle relaxation technique which helps to reduce stress and anxiety by focusing on breathing and muscle activities. PMR is a process of relaxing mind and body which helps to control stress, anxiety, mood swings and sleep disturbances. The techniques was developed by Edmund Jacobson, it involves tensing and relaxing muscles alternatively. It starts from hands and ends to toes, works on whole body muscles one by one while normal breathing.

Researches show therapeutic effects of progressive muscle relaxation on sleep pattern, headache, blood pressure and physical pain. PMR helps to increase sleep quality and reducing stress and freshening mood next day.

### **REVIEW OF LITERATURE**

Magdy et.al (2020) studied the compared the effect sleep restriction therapy and progressive muscles relaxation technique on sleep quality among older adults. The study was done on 50 older adults, aged 60 years or above including who can read and write, have no depression, have poor sleep quality and normal cognitive function. Study excluded to the people who have health problems. Four tools were used for the study, mini mental status examination, geriatric depression scale-short form, interview questionnaire of sleep quality for older adults and socio-demographic and health profile. The study was done in three phases. The result found statistically significant effect of sleep restriction therapy and progressive muscles relaxation technique on sleep quality. Sleep restriction therapy was more effective than progressive muscles relaxation technique for falling asleep duration.

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Afrin E. I. & Tany R. F. (2024) studied the effect of relaxation technique on stress management among teenagers and adults. Also focused on the relationship of stress with gender, age and financial condition. The study involved 30 participants 15 males and 15 female, where 15 were ages from 13 to 19 years teenagers and 15 were ages from 23 to 60 years adults. The study was time consuming, due to lack of interest, attention and irregularity finally 30 participated. The study focused on using relaxation technique to reduce stress and intervention was done for 28 days. The study used bangla vision life stress questionnaire, personal information questionnaire and some stress management tools. Throughout the study, relaxation therapy was used for 28 days. Questionnaire used three times, at the beginning, after 14 days and at the end. Result showed statistically significant effect of relaxation technique on stress management.

Kose N. & Ayan S. (2024) assessed the effect of PMR on stress, anxiety and depression in adolescents. A quasi experimental design was used in the study on 12<sup>th</sup> grade students of two different schools. Total 88 students participated in the study, where intervention was done on 31 participants and 47 participants were controlled group. Depression anxiety and stress scale was used to measure the variables. Progressive muscle relaxation technique used more than 8 weeks through online. The result was statistically significant and concluded that depression, anxiety and stress reduced with the help of progressive muscles relaxation technique among adolescents.

Elsaeed H. R. et.al (2020) investigated the impact of epilepsy based progressive muscle relaxation technique on children who have epileptic seizure rate, sleep quality and stress severity. For the duration of six months, 80 children with epilepsy between the ages from 6 to 18 years were involved in the study. Pre-test and post-test intervention was done on children in two groups where 40 for intervention group and 40 were control group. The study focused on the children who have epilepsy and receiving treatment for over the year without other chronic illness. Total 5 tools used in the study including interview questionnaire for pre-posttest, the global assessment of epilepsy severity scale, PMR technique, the perceived stress scale and the sleep quality scale. The study found the most common complaints after epileptic seizure were pain, tension and sleep difficulties. Result found changes in sleep quality after intervention while decreasing severity and frequency of epilepsy and stress in children.

Tsai M. L. & Wang C. J. et.al (2021) conducted a school based progressive muscle relaxation program for female adolescents. Quasi experimental design with a pre-test and post-test was used in study. The study included high school female students in Southern Taiwan who have 3 cm hair length and excluded who was taking medication and hair die for from 3 months and major life events within 6 months. The program was designed for 16 weeks to help stress related knowledge and practiced technique as per scheduled. Two 10 minutes session arranged during break time for 10 days before monthly exam and 30 days of practice it was for more than 12 weeks. Result concluded that significantly changes found in high cortisol concentration (HCC) while perceived stress level (PSS) scores were not significantly different. The technique can maintain stable state in female adolescents.

### ***Objectives***

The objectives of the research are as follows:

- To study the sleep quality of residential school females appearing for board exam.

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- To understand the effect of progressive muscles relaxation on sleep quality of residential school females appearing for board exam.

### *Hypothesis*

There is a significant effect of progressive muscles relaxation on sleep quality of residential school females appearing for board exam.

### *Test Description*

Sleep quality scale is a scale to measure sleep quality which direct correspondence to Chol Shin. Scale has 28 items which evaluates six domains of sleep quality including daytime symptoms, restoration after sleep, problems initiating and maintain sleep, difficulty waking and sleep satisfaction. Developers created the scale for evaluating sleep quality in varieties of individuals or patients and population. It is self-report paper pencil test and takes 5-10 min. administration.

The scoring includes four point Likert type scale indicating:  
0 - Rarely, 1 - Sometimes, 2 - Often, 3 - Almost always.

For example-

- Rarely- none or 1-3 times a month
- Sometimes- 1-2 times a week
- Often- 3-5 times a week
- Almost always- 6-7 times a week

Total score can range 0 to 84 in which higher score shows more sleep problems and poor sleep quality.

## **METHODOLOGY**

### *Design*

Pre Test	Intervention	Post Test
Sleep quality scale N=30	Progressive Muscles Relaxation	Sleep quality scale N=30

### *Locale*

All the participants were selected from three residential schools of Rajasthan.

### *Sample*

A sample size of 55 participants from three residential schools were selected. Out of them 30 have poor sleep quality were randomly selected for progressive muscles relaxation intervention. All the students were from board classes and English medium and age ranges from 18 to 20 years.

### *Method of Data Collection*

Data was collected by using the self-report test, sleep quality scale and manual of sleep quality scale was referred for scoring.

### *Intervention*

Progressive muscle relaxation technique was used to reduce the stress and poor sleep quality for the residential school females who are appearing in board exam. The technique helps to reduce stress and sleep disturbances by the relaxation. PMR focuses on body muscles

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tension then relaxation alternatively. The technique applies to the people having emotional and sleep disturbances and treat psychological physical problems also. The technique was conducted for a month in 3 groups 5 sessions per week 10 participants each group.

### *Statistical Techniques*

Statistical techniques such as mean, standard deviation (SD), t test and pre-test post-test design were used.

## **ANALYSIS, RESULT AND DISCUSSION**

*Table 1 Sleep quality scores of residential school females appearing board exams*

### *Descriptive Statistics*

	Sleep Quality Score (Before PMR)	Sleep Quality Score (After PMR)
Valid	30	30
Missing	0	0
Mean	55.733	33.967
Std. Error of Mean	1.859	1.454
Std. Deviation	10.181	7.963
Minimum	37.000	18.000
Maximum	77.000	48.000

Table 1 shows that mean score of sleep quality score before PMR was found higher ( $M = 55.73$   $SD = 10.18$ ) compared to the sleep quality score after PMR ( $M = 33.96$   $SD = 7.96$ ). It is indicating that there is significant difference in scores in pre testing and post testing. It shows the positive impact of progressive muscles relaxation on sleep quality.

*Table 2 Comparison between sleep quality scores before and after PMR*

### *One Sample T-Test*

	t	df	p
Sleep Quality Score (Before PMR)	29.984	29	< .001
Sleep Quality Score (After PMR)	23.363	29	< .001

T value of sleep quality score before PMR is 29.984 and after PMR is 23.363 with p value < .001 this means that the result is statistically significant. The result suggesting that PMR has significant effect on sleep quality.

The result suggests positive effect of progressive muscles relaxation on sleep quality. The present result study supported by Magdy et.al (2020), Kose N. & Ayan S. (2024) and Elsaeed H. R. et.al (2020).

## **CONCLUSION**

From the give table, result and interpretation it is concluded that there is a significant positive effect of progressive muscles relaxation on sleep quality of residential school students female. PMR is an effective relaxation technique for sleep disturbances. The hypothesis for present study “There is a significant effect of progressive muscles relaxation on sleep quality of residential school females appearing for board exam” is accepted.

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### **Conflict of Interest**

The authors declare no conflict of interest during the study.

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