

**EVALUATE THE EFFECTIVENESS OF JACOBSON'S
PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON
STRESS AMONG ELDERLY PEOPLE, INDIA**

Kanchi. Madhavi*

Matam Aruna Jyothi**

ABSTRACT

The elderly face stress from various situations, which are different from those that are faced by adults. They are at a stage in life where they may face extended and critical health problems. Jacobson's progressive muscle relaxation technique was identified as effective technique to reduce stress. A pre experimental study was conducted to evaluate the effectiveness of "Jacobson's progressive muscle relaxation technique" to reduce stress among elderly people. The samples above 60 years were selected by convenience sampling technique. The pre-test was done by using SheldonCohen 10 items perceived stress scale. Jacobson's progressive muscle relaxation technique was administered to reduce stress among elderly people. The post-test was conducted by using the same scale. The results showed that in pre-test 63.3% of elderly people had moderate stress, 31.7% mild stress and 5% had severe stress. In post-test 63.3% had mild stress, 31.7% had no stress and 5% had moderate stress. The analysis revealed that the mean value 21.9167 with SD 4.88266 of pre-test and the mean value 14.7667 with SD 4.38165 post-test projects 't' value of 29.381 was statistically significant ($p < 0.05$) (i.e., $p = 0.0001$). It indicates that the intervention was effective in reducing stress among elderly people.

Key words: Stress, Jacobson's Progressive Muscle Relaxation Technique, Elderly people.

* Lecturer, Department of psychology, College of social sciences and humanities, Adigrat University, Adigrat, Ethiopia.

** Lecturer, Viswabharathi College of Nursing, Gayathri Estates, Kurnool, Andhra Pradesh, India.

Introduction

“Give your stress wings and let it fly away”

(Terri Guillemets, 2010)

Health is fundamental human right and basic to all. Health is a resource for life, not the object of living; it is a positive concept emphasizing social and personal resources, as well as physical capacities. A number of studies showed that change in lifestyle, mental demand, temporal demand and frustration when faced with a given task that may be considered risk factor for stress. (5)

Aging is coming up as one of the biggest challenges all over the world. At any age stress may become part of life. Many older adults undergo painful life style changes including retirement, disease, caring for grand children or sick spouse, deterioration of physical abilities and chronic illness, loss of spouse, friends and at time even children. These stressful events may lead to depression or may worsen existing mental and physical illness. An ideal preventive health package should include various components such as knowledge and awareness about disease conditions and steps for their prevention and management, good nutrition, physical exercises and relaxation techniques. (9)

The healing strategies such as Jacobson’s progressive muscle relaxation technique, yoga, and other relaxation techniques may be helpful in improving their quality of life for reducing stress. (1)

Progressive muscle relaxation training is a learned response and it requires practice to achieve. This aims at reducing stress response and on regulating the action of hypothalamus to adjust the activity of sympathetic and parasympathetic nervous system and thereby to control the selected side effects. (7)

Progressive muscle relaxation is a systematic technique for managing stress and achieving a deep state of relaxation. It was developed by Dr. Edmund Jacobson in 1930s. It is an effective and widely used strategy for stress relief. It is a two-step process in which, systematically tense and relax different muscle groups in the body. With regular practice, progressive muscle relaxation gives complete relaxation in different parts of the body. This awareness helps to counteract the first signs of the muscular tension that accompanies stress. (16)

Significance of the study

We all need to face different kinds of stress in various stages of life. Chronic and excessive stressors are harmful and can cause physical or mental problems. The elderly tend to suffer from psychological stress, it was found in survey conducted in a middle class locality in New Delhi over 81% of the elderly confessed to having increasing stress and psychological problems in modern city. 77.6 % of them complained about mother in law or daughter in law conflicts. Therefore we should understand more about stress and appropriate coping strategies for our physical and mental wellbeing. (8)

The elderly face stress from various situations, which are different from those that are faced by adults. They are at a stage in life where they may face extended and critical health problems. They may lose a spouse and feel lonely. They may have retired and therefore be forced to make a change in their living conditions and financial management. Chronic and excessive stress is harmful and can cause physical or mental problems. Therefore we should understand more about stress and appropriate coping strategies for our physical and mental wellbeing. (15)

The relaxation technique according to the mind or body medical institute at Harvard university 60-90% of all medical office visits in the united states are for stress related disorders. The relaxation technique is a helpful tool for coping with stress and promoting long term health by slowing down the body and quieting the mind. More than 3,000 studies show the beneficial effects of relaxation technique on health and well-being. (Milton.S.Hershey, 2011)

The population of persons in the USA age 65 and over will increase from 26 million to 52 million between 1985 and 2020, and 85% of this age group has at least one chronic condition. The older population is growing faster than the total population in all regions of the world. (Paola Scommegna, 2012)

In India 2012, the growth rate of the older population (1.9 %) is significantly higher than that of the total population (1.2%). By 2025-2030, projections indicate that the older population (above 60 years) will be growing 3.5 times as rapidly as the total population (2.8 % compared to 0.8%). Even though the growth rate of the older age group is expected to decline to 1.6% in 2045-2050, it still will be more than 3 times the growth rate of the total population. In Andhra Pradesh according 2010-2011 census the elderly age group above 60 years were 1, 60,026. (Paola Scommegna, 2012)

An experimental study was conducted to assess the effectiveness of progressive muscle relaxation technique on level of stress among elderly stress patients in Mangalore, India. The results revealed that progressive muscle relaxation technique was reduced the level of stress among elderly patients. (10)

With the above facts and personal experience, we observed that many elderly people were suffering from stress. Due to stress they got physiological problems like insomnia, loss of appetite, palpitation, frequent urination, muscle pain, and emotional and psychological problems like anxiety, fear, frustration, depression, restlessness, poor concentration, forgetfulness. So we came to know that reducing stress is important in order to keep their emotional balance and happy throughout the day (3). Hence, we selected the Jacobson's progressive muscle relaxation technique to reduce stress among elderly people.

A descriptive study was conducted in china to explore the preferences of the elderly in adopting five stress-management methods and to identify the reasons for no adoption. A convenience sample of 212 community-dwelling elders age 60 or older was obtained from four multi service centers for the elderly in Hong Kong. The findings suggest that the elderly prefer to manage stress on their own rather than rely on social support from family, friends, and professionals. The notion of saving face in the Chinese culture and an inadequate supply of social support are possible explanations why the elderly do not like to seek help from others to reduce stress. This study offers a model for a stress-reduction program for community-dwelling elderly people in Hong Kong to enhance their ability to cope with stress.(6)

A study was conducted on the effectiveness of guided imagery with progressive muscle relaxation technique to reduce chronic pain and mobility difficulties of osteoarthritis in elderly. 28 elderly women with osteoarthritis were given treatment of listening twice a day 10 to 15 minute audio taped script was used to guide the women in guided imaginary with progressive muscle relaxation technique. The result showed that there was a self-management which was effective to reduce pain and mobility difficulties associated with osteoarthritis. (2)

Objectives of the study

1. To assess the pre-test level of stress among elderly people.
2. To demonstrate the Jacobson's progressive muscle relaxation technique among elderly people.
3. To evaluate the post-test level of stress among elderly people.

4. To compare the pre and post-test level of stress among elderly people.
5. To find the association between post-test level of stress among elderly people with demographic variables.

Research hypothesis

- **Rh:** there will be significant difference between pre-test and post-test level of stress among elderly people undergoing Jacobson's progressive muscle relaxation technique.

Methodology:

Research approach

The research approach adopted for the study was evaluative in nature. After considering and analyzing the research problem, i selected pre-experimental (one group pre-test and post-test design) research design.

Pre experimental research design (one group pre-test and post-test)

1. One group was selected
2. Pre-test was given to assess the level of stress among elderly people.
3. Demonstrated the Jacobson's progressive muscle relaxation technique among elderly people
4. Evaluated the post-test level of stress among elderly people.

Setting of the study

The study was conducted at Patrapalli and Dasarlapalli village in V.Kotamandal, Chittoor district, Andhra Pradesh, India. The overall population of the Patrapalli was 1727, and Dasarlapalli was 586. And the population of elderly people in both the villages was 97.

Population

Population consists of elderly people above 60 years with stress.

Sample and sampling technique

Sample was elderly people above 60 years with stress who met the inclusion criteria. Convenience sampling technique was adopted for this study. Based on the population Survey which was conducted in dasarlapalli and patrapalli villages, we decided that convenience sampling technique was suitable for this study.

Instrument and tools

Section A: demographic data

It consists of age, sex, education, occupation, marital status, income, type of family, religion.

Section B: SheldonCohen 10 items perceived stress scale

The standardized SheldonCohen 10 items perceived stress scale(PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. The pre-tested reliability of the scale was 0.85. In this scale 4 items are positively stated for those items reversing the score of the negative items. Those items are 4, 5, 7, and 8. The reliability of the scale was 0.72. Information collected by using interview technique. (4)

Scores level of stress

- 0-10 - no stress
- 11-20 - mild stress
- 21-30 - moderate stress
- 31-40 - severe stress

Data collection procedure

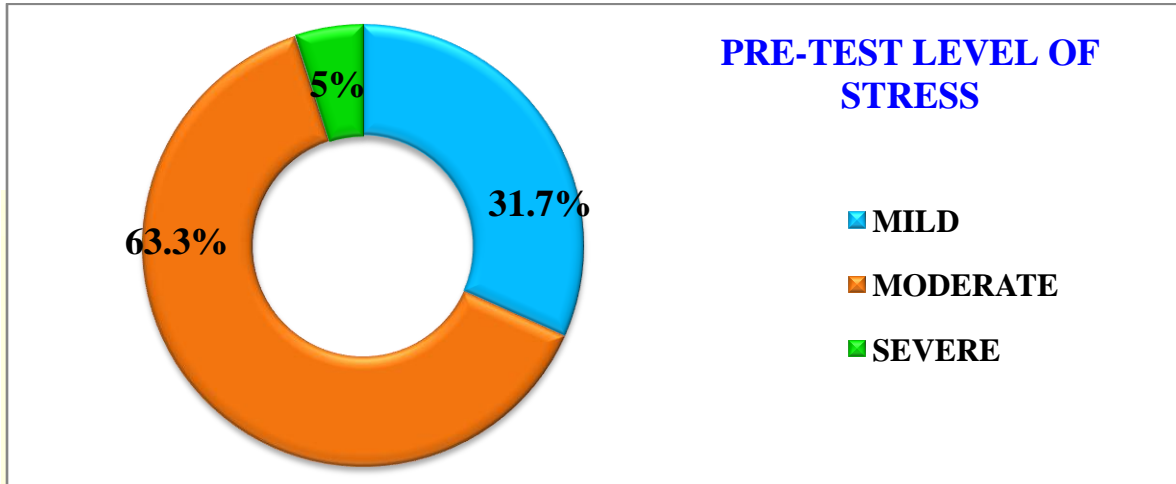
Pre-test was done by using SheldonCohen 10 items perceived stress scale to assess the level of stress among elderly people. The Jacobson's progressive muscle relaxation technique was demonstrated. It is a systematic technique for people managing stress and achieving a deep state of relaxation. The duration of the intervention was 20-30 minutes. This intervention was given individually to the elderly people in their homes. And the intervention was practiced by elderly people for the period of 7 days under supervision. Then the post-test was given to evaluate the stress among elderly people and it was assessed by using SheldonCohen 10 items perceived stress scale.

Statistical analysis: it was planned to analyze using descriptive and inferential statistics (13).

Descriptive statistics like percentage, mean, standard deviation, frequency distribution for assessing the stress levels of elderly in pre and post-test are used. *Inferential statistics* like t - test for the comparison of pre and post-test scores and chi-square test to analyze the association of demographic variables with the pre and post-test stress levels are used (11).

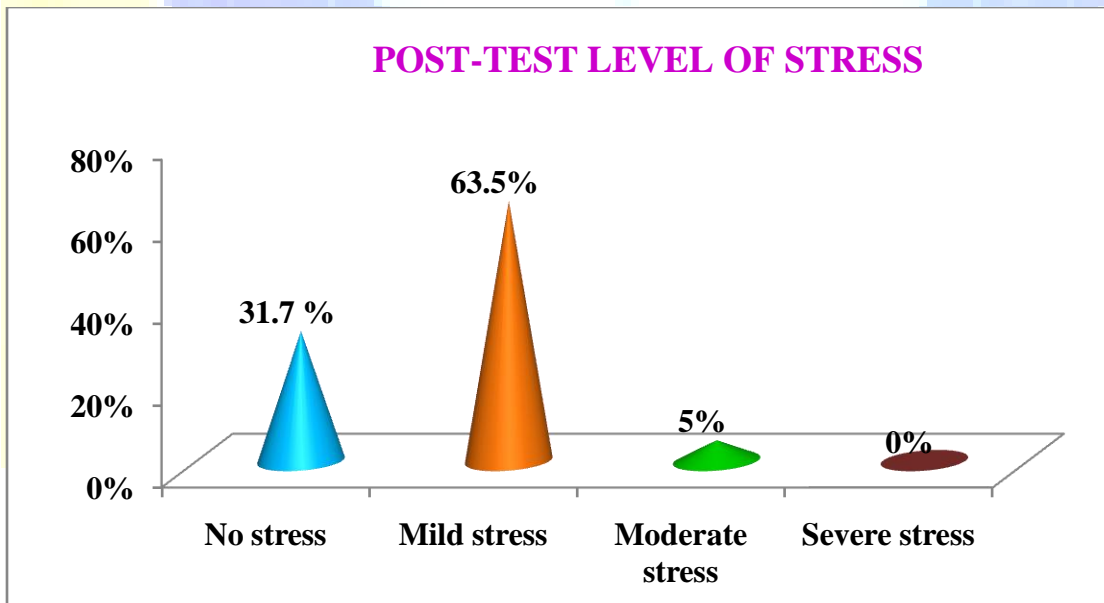
Results:

Figure 1: Frequency and percentage distribution of pre-test level of stress among elderly people



The analysis depicted that in the pre-test 38 (63.3%) elderly people were had moderate stress, 19 (31.7%) elderly people were had mild stress and 3 (5%) had severe stress.

Figure 2: Frequency and percentage distribution of post-test level of stress among elderly people



The analysis reveals that in the post-test 38 (63.3%) elderly people were had mild stress, 19 (31.7%) were had no stress and 3 (5.0%) were had moderate stress and none of them had severe stress.

Table 1: Comparison of pre and post-test level of stress among elderly people

	Mean	Standard deviation	T-value
Pre-test	21.9167	4.88266	29.381
Post-test	14.7667	4.38165	

Table 2: Association between post-test levels of stress with demographic variables

S.No	Variables	Chi square value	P-value	Level of significance
1.	Age	0.005	P<0.05	Significant
2.	Sex	0.424	P>0.05	Not significant
3.	Education	0.115	P>0.05	Not significant
4.	Occupation	0.001	P<0.05	Significant
5.	Marital status	0.872	P>0.05	Not significant
6.	Income	0.027	P>0.05	Not significant
7.	Type of family	0.300	P>0.05	Not significant
8.	Religion	0.390	P>0.05	Not significant

Discussion:

The first objective was to assess the pre-test level of stress among elderly people: analysis of the pre-test frequency and percentage of stress among elderly. In the pre-test 38 (63.3%) elderly people were had moderate stress, 19 (31.7%) elderly people were had mild stress and 3 (5%) had severe stress. The second objective was to evaluate the post-test level of stress among elderly people: analysis of post-test level of stress among elderly people revealed that 38 (63.3%) elderly people were had mild stress, 19 (31.7%) were had no stress and 3 (5.0%) were had moderate stress and none of them had severe stress. The third objective was to compare the pre and post-test level of stress among elderly people: the pre and post-test level of stress among elderly people reveals that the mean value 21.9167 with standard deviation 4.88266 of pre-test and the mean value of 14.7667 with standard deviation of 4.38165. Post-test projects 't' value of 29.381 is statistically significant at p=0.001 level. The fourth objective was to find the association between post-test level of stress with their selected demographic variables: the analysis reveals

that there is significant association of post-test level of stress with the age and education is significant at the level of $p=0.05$ and 0.03 level of significant.

Hence the corresponding research hypothesis RH: there is a significant difference between pre and post-test level of stress among elderly people undergoing Jacobson's progressive muscle relaxation technique was accepted.

The above findings are supported by the following studies;

Saiedpahlavanzadeh, (2010), conducted a pre experimental study to assess the effectiveness of progressive muscle relaxation technique on stress among elderly. 70 elderly patients were selected by purposive sampling technique. The data gathered were analyzed in terms of descriptive and inferential statistics. The paired 't' test were used to find out the effectiveness of progressive muscle relaxation technique. Comparison of stress level among elderly patients between pre and post-test showed significant difference at 0.01 levels. The study concluded that progressive muscle relaxation technique was effective in lowering the stress level of elderly patients. (14)

Mohsen yazdani et al., (2010), conducted a quasi-experimental study to determine the effect of progressive muscle relaxation technique to reduce stress among 68 elderly in Isfahan university of medical sciences. The results of the study indicated that there was no significant difference before the intervention. After the intervention, the mean score stress in the intervention group was 8.93 (6.01) and in the control group was 13.17 (7.20), the mean score of stress showed a significant difference between the two groups ($p = 0.011$). The result showed that there was significant association of stress with the demographic variables and progressive muscle relaxation technique was effective in reducing stress among elderly. (12)

Thomas G.A, (2006), conducted a quasi-experimental study to determine the effectiveness of progressive muscle relaxation technique on anxiety among 40 elderly people. The results showed that mean level of anxiety during pre-test was 89.82 and during post-test, it was reduced to 69.55. The study concluded that there was an effectiveness found after progressive muscle relaxation technique. (17)

JACOBSON'S PROGRESSIVE MUSCLE RELAXATION TECHNIQUE (Edmund Jacobson.MD, 1930).

Progressive muscle relaxation is a systematic technique for managing stress and achieving a deep state of relaxation. It was developed by Dr. Edmund Jacobson in the 1930s. He discovered that a

muscle could be relaxed by first tensing it for a few seconds and then releasing it. Tensing and releasing various muscle groups throughout the body produces a state of relaxation. Progressive muscle relaxation procedure muscles using a **two-step process**.(Edmund Jacobson.MD, 1930).

(1) You intentionally tighten and apply tension to various muscle groups throughout the entire body - one at a time.

(2) You release and let go of the tension and focus on how the muscles relax and feel as tension flows away.

Basic Guidelines for PMR: (Edmund Jacobson.MD, 1930).

- Allow 20-30 min, a day (2 X daily is ideal - Time will shorten with practice)
- Find a quiet location with no distractions
- Wear loose clothing and remove shoes
- Do not Practice on heavy stomach.
- Assume a comfortable position either sitting in a chair or lying down
- Close your eyes and assume a passive, unrushed attitude
- Tense and relax each muscle group once - focus on both sensations
- Use the same time intervals for all muscle groups
- Allow all the other muscles in your body to remain relaxed

The Progressive Muscle Relaxation Technique:

STEP 1: TENSION – Inhale and purposely tense up or tighten hard the selected muscle group (not so hard that you strain). Hold the muscle tension for 5-10 seconds.

STEP 2: RELAX - Exhale while quickly but gently letting go, releasing tension. Take pleasure in the sensation of tension draining out of your body. Be still 15-20 seconds before moving on to the next muscle group. Compare relaxation vs. contraction.

Throughout the exercise, maintain awareness on how your muscles feel during both contracting and relaxing. When your attention wanders, bring it back to the particular muscle group you are working on.

Tensing the Various Muscle Groups:

- **Chest:** Breath in, hold your breath and tighten your chest muscles.
- **Hands & Forearms:** Clench your hand and make a tight fist.
- **Elbow:** Bend the elbow and tense up the biceps muscles.

- **Straighten the arm and press the both thighs from your wrist and feel the tension in triceps muscle.**
- **Forehead:** Wrinkle forehead by raising eyebrows and tense up forehead muscles.
- **Eyes:** Tense up muscles around the eyes by closing eyes tightly.
- **Jaw:** Tense the jaw muscles by biting the teeth together.
- **Tongue:** Press the tongue hard and flat against the roof of the mouth with lips closed. Curl up the tongue and press it to the roof of mouth with lips closed.
- **Lips:** Purse lips tightly together.
- **Head:** Push the head back as far as it will go, and push your hand against the head as much as you can and tense the related muscle group.
- **Chin:** press the chin down on to the chest as much as possible.
- **Shoulders** - Shrug both your shoulders trying to touch them to your ears.
- **Abdomen** - Hold your stomach muscles in tight.
- **Heels:** Press the heel to the floor by keeping the legs straight.
- **Legs:** Lift the legs from the floor and bend the feet forward. Lift the legs from the floor like earlier and bend only with toes forward.

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