



## A STUDY TO FIND OUT IMMEDIATE EFFECT OF JACOBSON'S PROGRESSIVE RELAXATION OF FACIAL MUSCLE IN MIGRAINE"- AN EXPERIMENTAL STUDY

### Physiotherapy

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### ABSTRACT

**Context:** Migraine is neurological condition. In which muscle tone of face is increase. Jacobson's Progressive Muscle Relaxation helps to release facial muscles.

**Aim:** To find out immediate effect of Jacobson's Progressive Relaxation of Facial Muscle in Migraine participants.

**Settings and Design:** The interventional study was carried out in Migraine participants in Abu Road.

**Method and Material:** 20 subjects were included on the basis of inclusion and exclusion criteria. All subjects receive Jacobson's Progressive Relaxation of Facial Muscle.

**Statistical analysis:** Data was analysed by using SPSS Version 20. Wilcoxon signed – rank test was used for the pre -treatment and post – treatment comparison within a group.

**Results:** Statistically is significant ( $p < 0.05$ ) the result showed high significant difference between the pre- treatment and post – treatment within the group.

**Conclusion:** The Jacobson's Progressive Relaxation of Facial Muscles, there is greater decrease of the pain intensity for Migraine participants.

### KEYWORDS

Migraine, Jacobson's Progressive Relaxation Technique, Migraine Screen Questionnaire (MS-Q), Visual Analogue Scale (VAS).

### INTRODUCTION

Migraine is a common incapacitate disorder of brain related to headache which is a symptom of numerous health condition. Although the sources of migraine are not yet known, it is thought that pain generally emerges as a result of chemical activation of sensory nerves which supply intracranial blood vessel and meninges.<sup>1</sup> Patient's may experience symptoms before one or two days of a migraine attack, suitable changes may be observed that warns about the migraine including: Constipation, change in mood, from depression to euphoria, neck stiffness, food carvings, increase in urination and thirst, Frequent yawning is also observed.<sup>1</sup> Causes of migraine are not yet understood hence genetics and environmental factors appear to play a chief role in cause of migraine.<sup>1</sup>

Migraine is mainly caused by changes to brain stem which causes a pain. Migraine also occurs because of interaction between brainstem and trigeminal nerve as a major pathway for pain. Serotonin level usually decreases during attack of migraine.<sup>1</sup> This decrease in serotonin level may cause trigeminal nerves to release some substances called as neuropeptides, which travels towards outer covering of brain called as meninges. This travelling of neuropeptides towards the meninges results in producing a migraine pain.<sup>1</sup> Diagnosis for migraine is established by obtaining a through history from the patient. MRI, CT SCAN and SPINAL TAP are performed for diagnosis of Migraine.<sup>1</sup>

Pain is the most frequent symptom which leads a patient to seek medical help. Pain is defined by each one of us according to our personal experiences and involves a variety of feelings. Pain can be measured for severity on a Visual Analogue Scale (VAS).<sup>2</sup> Visual or linear analogue scale: attempt to represent measurement quantities in terms of straight line placed horizontally or vertically on paper. Scale will also use descriptors or numeric intervals between the end point to assist the individual in grading responses commonly a visual analogue line of 10 cm(100 mm) is used. The patient is asked to bisect the line at the point representing self-reported position on the scale.<sup>3</sup>

### JACOBSON'S PROGRESSIVE RELAXATION

This technique could reduce pain, relaxation must be attempted in order to reduce pain or pain perception, reduce tension, create a pleasant affective condition, reduce anticipating anxiety, reduce anxiety as a response to stress, increase parasympathetic activities, increase knowledge concerning muscle tension and autonomous stimuli, improve concentration, increase the feeling of control. Jacobson's Progressive muscle relaxation (JPMR) is one the

systematic techniques that could be utilized to obtain a deep state of relaxation among the relaxation methods, Jacobson's progressive muscle relaxation technique, is the easiest one to be learnt and administered. This intervention is inexpensive, available, self-induced by the patient and free from side effects.<sup>2</sup> As early as 1930, Dr. Edmund Jacobson had developed the PMRT. Jacobson's technique is found to be effective in the treatment of pain.<sup>2</sup> Relaxation can help to relieve the symptoms. You will probably feel more able to deal with it once you have released the tension in your body and cleared your thoughts.<sup>4</sup> Jacobson's progressive relaxation technique involves contracting and relaxing the muscles to make you feel calmer. Don't worry if you find it difficult to relax at first. It is a skill that needs to be learned and it will come with practice.<sup>4</sup> In 2005, a new instrument developed by a group of experts, based on the International Headache Society (IHS) criteria, and fulfilling the principles of medicine based on evidence, was validated. This is a self-administered questionnaire that may be used both, in clinical practice and research projects. MS-Q is rapidly executed by patients, and contributes to easily identify symptoms suspicious of migraine for a later medical confirmation of the diagnosis. This renders MS-Q a new instrument able to optimize the management of migraine patient with an important saving of time.<sup>5</sup>

**INTRUCTIONS:** The questions below refer to the headache or migraine episodes without headache that you may have experienced in your lifetime. Answer each question as indicated. If you are not sure how to answer a given question, please answer what you believe is most correct.<sup>5</sup>

1. Do you have frequent or intense headaches?  
0.No. 1 Yes
2. Do your headache usually last more than 4 hours?  
0.No. 1 Yes
3. Do you usually suffer from nausea when you have a headache?  
0.No. 1 Yes
4. Does light or noise bother you when you have a headache?  
0.No. 1 Yes
5. Does headache limit any of your physical or intellectual activities?  
0.No. 1 Yes

### MIGRAINE SCREEN-QUESTIONNAIRE (MS-Q)

Patient's fulfilling inclusion and exclusion criteria completed the self-administered questionnaire MS-Q for the screening of migraine. This questionnaire consists. On 5 questions related to frequency and characteristics of headache, as well as to the presence or absence of migraine related symptoms. A score of 0 was obtained for each

negative answer (no), and of 1 for each positive answer (yes). A cutting point indicating suspicion of migraine was established at  $\geq 4$  points, while an  $< 4$  score indicated no suspicion of migraine.<sup>5</sup>

**NEED OF THE STUDY**

There are several function therapies available to deal with it like medication (Triptans, Ergotamines, Opioids), acupuncture, transcranial magnetic stimulation, external trigeminal nerve stimulation, botox were used to treat condition of migraine but lacks strong evidence for being a best treatment for migraine. Commonly use treatment for migraine is Dihydroergotamine (DHE-45), Meperidine, Metaclopramide, Atenolol; Fluoxetine etc... These drugs produce side effects such as drowsy, low blood pressure, blurred vision, insomnia, nausea, vomiting, weight gain, sleepiness, heart problems, stomach ulcers, stroke, and kidney damage.

- Also there is a dearth in literature on effectiveness of Jacobson's technique on migraine. It has been found that Jacobson's progressive muscle relaxation technique is helpful in pain relief in migraine condition. Relaxation helps to control tension by relaxing body reduction in skeletal muscle tone.
- There is no effective Physiotherapy intervention to treat the symptoms of Migraine & therefore there is need to study effectiveness of Jacobson's technique on Migraine participants.

Therefore this study will add to the growing of knowledge that if this technique is effective or not.

**AIM OF THE STUDY**

A study to find out immediate effect of Jacobson's progressive relaxation of facial muscle in migraine.

**OBJECTIVES OF THE STUDY**

- To estimate level of pain before the Jacobson's relaxation technique for facial muscle in migraine.
- To estimate level of pain after the Jacobson's relaxation technique for facial muscle in migraine.
- To compare pre and post value of pain in migraine patient.

**HYPOTHESIS**

- **Null Hypothesis:**  
There is no significant effect of immediate improvement of pain in subjects suffering from migraine after application of Jacobson's technique.
- **Experimental Hypothesis:**  
There is significant effect of immediate decrease of pain in subjects suffering from migraine after application of Jacobson's technique.

**MATERIAL AND METHODOLOGY**

**STUDY SETTING:** Shree U.S.B College of Physiotherapy, Abu-Road.

**STUDY DESIGN:** An Interventional study.

**METHOD OF COLLECTION OF DATA:**

- **SOURCE OF DATA-**Migraine patients in around Abu-Road, Rajasthan
- **SAMPLE SIZE** - 20 subjects taken for study
- **STUDY POPULATION** – Female & Male
- **SAMPLING TECHNIQUE** - Convenient sampling

**MATERIALS TO BE USED:**

- Pen & Paper
- Data collection sheet
- Consent form
- Pillow
- Couch
- Stop watch
- Stool

**Inclusion Criteria**

- Age group 18-35 years.
- Absence of chronic somatic or psychiatric disease ( other than migraine)
- Migraine patients duration of disease atleast 1 year
- Subjects able to follow commands
- MS-Q score is  $\geq 4$

**Exclusion Criteria**

- Female & Male diagnosed with psychiatric problems other than migraine.

- Pregnancy
- Bell's palsy
- Cervical spine abnormality
- Thoracic outlet syndrome

**MEASUREMENT PROCEDURE**

- The study was ethically approved by Shri USB college of Physiotherapy.
- The participants have been selected on the basis of inclusion and exclusion criteria.
- Before starting the study consent was taken from the participants
- Before starting the session VAS was recorded for measure of pre interventional pain intensity.
- Total 20 participants were taken for the study purpose.

**General Instruction** (Before and During Muscle Relaxation Exercise):  
The instructions were kept simple and were easily understood by participants for Jacobson's Progressive Muscle Relaxation technique and gives them a clear picture of how to co-operate during the exercise regimen.

- To lie on plinth as comfortable as possible. Keep your body loose ...light...and free.
- Be calm and comfortable.
- Keep your eye closed.
- Avoid stray thoughts.
- Avoid extra movements of the body.<sup>6</sup>

**Introduction for procedure:**

- Wrinkle your forehead, Try to make your eyebrows touch your hairline which produce tension.
- Close your eyes and screw the muscle around the eyes.
- Tense the jaw by biting the teeth together, fill the tension in the jaw muscle.
- Press the tongue hard and flat against the roof of mouth with lips closed notice tension in throat.<sup>6</sup>
- All above activities are held for 5 secs.<sup>6</sup>
- Relaxation time is 10 secs in between the activities.<sup>6</sup>

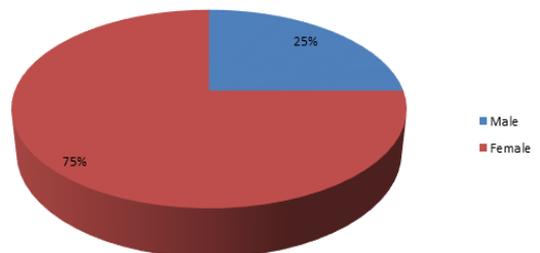
**Repetition:-** Whole procedure were repeat for 6 times (six sets)<sup>7</sup>

- After applying this Jacobson's relaxation technique VAS score was again recorded and compare between pre and post VAS score is done.

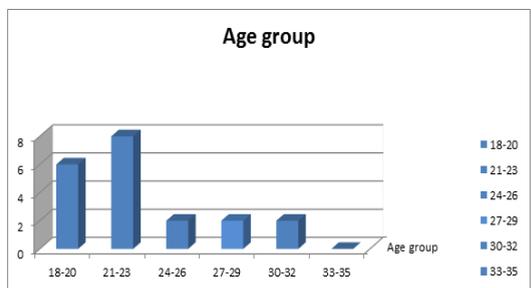
**RESULTS**

All statistical analysis was done by SPSS statistics version 20.0 for windows software.

**Gender Distribution**



**Graph 1: Gender Distribution**



**Graph 2 : Bar chart showing age distribution of the migraine subjects.**

**Wilcoxon sign rank test** was used for pre-treatment and post-treatment comparison for Jacobson's Progressive Muscle Relaxation.

**Table 5.4: Intragroup comparison of pre & post treatment of in JPRFM**

	Mean		SD		Z	P
	Pre	Post	Pre	Post		
JPRFM	7.70	1.75	1.03	0.85	-3.976	0.000

#### INTERPRETATION:

The above Table 5.4 shows the result of **Wilcoxon sign rank test** which shows there was significant difference between the pre and post JPRFM ( $p < 0.05$ ).

#### DISCUSSION

The intent of study was to find out the immediate effects of Jacobson's Progressive Relaxation of Facial Muscle in Migraine patients.

In present study, when the values of pre - treatment and post - treatment Jacobson's Progressive Relaxation of Facial Muscles were analysed, it was statistically proven that there is significant improvement in Jacobson's Progressive Relaxation in Migraine.

Thus, the result of the present study rejects the null hypothesis and support the experimental hypothesis i.e. there is significant difference between the immediate effects of Jacobson's Progressive Relaxation of Facial Muscles in Migraine.

Migraine is a common incapacitate disorder of brain related to headache which is a symptom of numerous health condition. Although the sources of migraine are not yet known, it is thought that pain generally emerges as a result of chemical activation of sensory nerves which supply intracranial blood vessel and meninges. By performing Jacobson's Progressive Relaxation of Facial Muscle it was found that after the technique there was marked decrease in the pain which stated significant outcome.

Even the significant results were found after the Jacobson's Progressive Relaxation of Facial Muscle when measured statistically and greater difference between pre and post value of pain.

We observed in this study that Jacobson's Progressive Muscle Relaxation have persistent effect also on next day after intervention.

**D'SOUZA JOSMITHA MARIA et al, (2015)** conducted a study to find out Academic stress reduction by Jacobson's progressive muscle relaxation: A quasi experimental study and concluded that conclusion As the present study findings have revealed that Jacobson's progressive muscle relaxation has reduced the academic stress, it could be made use by all the school authorities, nursing and medical personnel to help the students to deal with their stress. Hence the teachers must have adequate knowledge about the various relaxation techniques and their benefits, and in turn must take care of the psychological aspects of their students in order to improve the quality of life and also their academic performance.

**FEBU ELIZABETH JOY et al, (2014)** conducted a study to find out Effectiveness of Jacobson's progressive muscle relaxation technique on social anxiety among high school adolescents in a selected school of udupi district, Karnataka. and concluded that conclusion Social anxiety is common among adolescents and many modifiable factors related to parents and teachers are associated with it. Appropriate interventions in an early time may help them to reduce it

During the study it was found that there was marked decrease in pain intensity on other day.

This study was done to find out immediate of Jacobson's Progressive Relaxation of Facial Muscle in Migraine patients as there are few literatures which do the same and present study show that there is significant decrease of pain in participants.

#### LIMITATIONS

- Long term follow up was not taken.
- Result could not be generalized to all age groups because study age group was between 18-35 years.

#### FURTHER RECOMMENDATIONS

- Treatment can be given for longer duration with follow up.
- Further studies can be done with larger sample size.
- This study can be done by taking different outcome measures.
- Further studies can be done with other psychological groups.

#### CONCLUSION

The Jacobson's Progressive Relaxation of Facial Muscles, there is significant decrease of the pain intensity for Migraine participants.

Hence, it can be concluded that the values of pre-treatment and post-treatment Jacobson's Progressive Relaxation of Facial Muscles has majorly decrease in pain intensity for Migraine participants.

#### CLINICAL IMPLICATION

Results suggest that the Jacobson's Progressive Relaxation of Facial Muscle is proved to be more effective for pain relief in Migraine participants. So, Jacobson's Progressive Relaxation of Facial Muscle can be beneficial for participants. This technique is so easy that once you have mastered then you will be able to use it throughout your life without supervision.

**Conflicts of interest:** Null

**Source of fund:** No fund was needed

**Ethical Clearance:** From Shri U.S.B College of Physiotherapy.

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