

ORIGINAL ARTICLE

Effectiveness of Cervical Mobilization Versus Relaxation on Pain and Disability In Patients With Migraine: A Comparative Study

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ABSTRACT

Migraine is a chronic disease affecting over a billion people worldwide, affecting primary and secondary types. It can be confused with tension headaches, which can be treated with active relaxation training, deep breathing, and autogenic procedures, incorporating cued, release-only, and differential relaxation skills. A 4-week interventional study involving 30 participants, divided into two groups, examined migraine symptoms using pre-treatment questionnaires. Group A received cervical mobilization, while Group B received relaxation techniques including Jacobson's and active training. NCSS 2024 Version was used to find paired t-test showed significant improvement in migraine-type headaches in Group B at 4 weeks, while less improvement was observed in Group A

Conclusions: The study concluded that the Effectiveness of Relaxation Techniques is more than compared to Cervical Mobilization on migraine-type Headaches.

Keywords: MIDAS, pre-treatment questionnaire, Jacobson's relaxation, posterior-anterior glide

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INTRODUCTION

An ongoing, lifelong headache caused by a neurological disorder called migraine is the second most common cause of years of impairment globally. Worldwide, this illness affects about a billion people. Its extensive frequency and accompanying impairment have several negative consequences. Many behavioral, ecological, and genetic factors can cause migraines.[1] Migraine is a debilitating chronic disease with episodic attacks, Tension-type headaches (TTH) and migraines are the most prevalent primary headache types.[2] This condition affects more than a billion people globally. Its widespread prevalence and concomitant impairment have several adverse effects. Numerous behavioral, ecological, and genetic factors bring on migraines. There are various types of migraines, of which migraine without aura is the most common. [3] The Migraine Disability Assessment (MIDAS) questionnaire is a brief, self-administered questionnaire designed to quantify headache-related disability over 3 months. The MIDAS score has been shown to have moderately high test-retest reliability in headache sufferers and is correlated with clinical judgment regarding the need for medical care. [4] The MIDAS questionnaire was developed to assess migraine-related disability over a 3-month recall period. It contains five questions regarding the number of days of missed work/school, reduced productivity at work/school, missed household work, reduced productivity in household work, and missed family and/or social activities. The total score is composed of the sum of the five items [5] HURT questionnaire will be used to define and explain treatment goals, it describes its purpose and its development and summarizes the studies undertaking its psychometric evaluation and assessment for clinical utility The 8-item self-administered questionnaire, addressed headache frequency, disability, medication use, and effect, patient's perceptions of headache "control" and their understanding of their diagnoses. The psychometric evaluation revealed a two-factor model (headache frequency, disability, and medication use; and medication efficacy and

headache control), with scale properties apparently stable across disorders and correlating well and in the expected directions with external validators [6]

NEED OF STUDY

Physiotherapy can benefit certain types of headaches, especially those associated with musculoskeletal issues and also those occurring due to neurogenic factors. This study identifies effective interventions like cervical mobilization and relaxation in physiotherapy and enhancing patient care, this research will help techniques like relaxation or cervical mobilization help alleviate tension, reduce headache frequency, and improve therapeutic approaches and preventive strategies, ultimately improving the quality of life for individuals suffering from migraine.

AIM AND OBJECTIVES

To compare the effectiveness of Cervical Mobilization and Relaxation alone on pain and disability in people suffering from Migraine, reduce headache frequency, and improve therapeutic approaches and preventive strategies.

Objectives

- To find the effectiveness of cervical mobilization on migraine headache
- To find the effectiveness of relaxation techniques on migraine headache
- To find symptom relief with minimal adverse effects with relaxation or cervical mobilization among people suffering from migraine

HYPOTHESES

Null Hypothesis [H0]

- [H01]-There is no significant effect of cervical mobilization in patients suffering from migraine headaches.
- [H02]-Relaxation techniques have no significant effect on patients suffering from migraine headaches.
- [H03]-There is no significant difference between cervical mobilization and relaxation techniques in patients suffering from migraine-type headaches

Experimental Hypothesis [H1]

- [H11]-Cervical mobilization significantly affects patients suffering from migraine headaches.
- [H12]-Relaxation technique significantly affects patients suffering from migraine headaches.
- [H13]-There is a significant difference between cervical mobilization and relaxation techniques in patients suffering from migraine-type headaches.

MATERIAL AND METHODS

Type of Research - Interventional study

Study Design - Comparative Study

Sample Design - Convenient Method

Study Population - Participants with Migraine

Sample Size - 30 participants [Group A - 15 participants, Group B - 15 participants]

Study Setting - Ref General Medicine Ward of Nootan General Hospital, OPD Nootan College of Physiotherapy, Visnagar- 384315, Gujarat.

Study Duration - 6 months

Treatment Duration - 4 weeks

Sampling Criteria:-

Inclusion Criteria

- Participants age group 18 to 40-year
- Participants who have been diagnosed with migraine.
- Participants have pain over one side of the head, throbbing pain, and other migraine symptoms.
- Participants who are willing to participate.
- Both male and female.
- Who has been suffering from migraine for less than 2 years
- Pre-treatment migraine headache questionnaire

Exclusion Criteria

- Participants with other types of headaches including tension-type, cluster, and cervicogenic pain or neuropathic headache.
- Patients having a temporary headache.
- Patients underwent any head and cervical surgery.

- Patients who have found a tumor in MRI which is causing migraine.

Materials Required

- Pre-Treatment Questionnaire
- Migraine Assessment Test -MIDAS
- Headache under-response to treatment HURT Questionnaire
- Pen
- Record book
- Laptop
- Chair
- Plinth

Outcome Measures

- Pre-Treatment Migraine Headache Questionnaire
- MIDAS-Migraine Disability Assessment
- HURT Questionnaire

Sampling Procedure

The participants with migraine-type headaches who have been diagnosed by physicians from their locality or Nootan General Hospital were selected according to the inclusion criteria. After their consent, they were divided into two groups. group A in which participants were provided cervical mobilization and group B were provided with relaxation techniques. The groups were allotted using a convenient method.

Data Collection Procedure

- The study will involve 30 migraine sufferers, with participants divided into two groups: control group A and control group B.
- Physical characteristics will be recorded using a pre-treatment questionnaire. A HURT questionnaire will be provided for ongoing treatment.
- MIDAS questions will be used to assess the severity of the headache over the last three months.
- The research will be approved by the ethics committee of Nootan College of Physiotherapy.

Treatment Protocol

Procedure: -

- In Group A - Cervical mobilization will be performed from C2 TO C7 posterior-anterior (PA) mobilization, firstly we will pull and clear the Cervical paraspinal musculature and place the thumb on the C2 facet and press downward for Grade 1 mobilization, [10]
- In Group B - Participants will learn applied relaxation techniques like Jacobson's PMRT, autogenic relaxation, and deep breathing. They lie down in a supine position, keeping their body loose and comfortable. Jacobson's PMRT involves holding muscles tightly for 5 seconds, while autogenic relaxation involves complete relaxation for 10 seconds. Participants observe changes in tightness and soothing sensations.

Duration: -

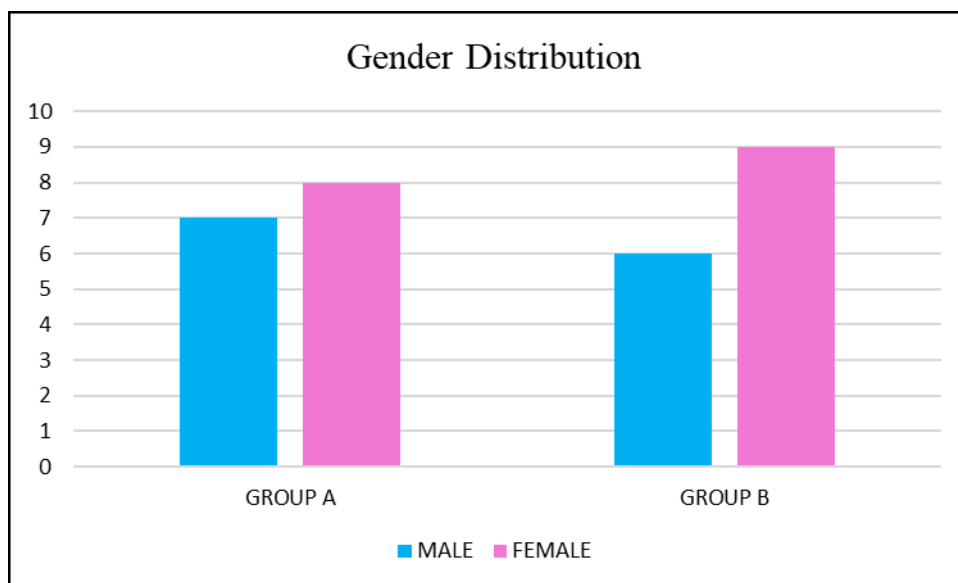
- **Treatment Duration:** - 4 weeks, 3 sessions/ week
- **Cervical Mobilization:** -
 - a) 3 to 5 Grade 1 Mobilization for 30 sec to 1 min each
- **Relaxation Technique:** -
 - b) Jacobson's Muscle Relaxation with 5 sec tensing time and 10 sec relaxation time after exercise 2 min relax time.
 - c) Autogenic Techniques with every standard exercise of 1 min
 - d) Deep Breathing for 5 min

RESULT

This study included 30 participants. For statistical analysis, NCSS 2024 software for Windows was used and the level of significance was kept to be 0.05.

Table 1. of Gender Distribution in the subjects in Group A and Group B

Group	Female		Male	
	Frequency	Percentage	Frequency	Percentage
Group A	8	0.08%	7	0.07%
Group B	9	0.13%	6	0.02%

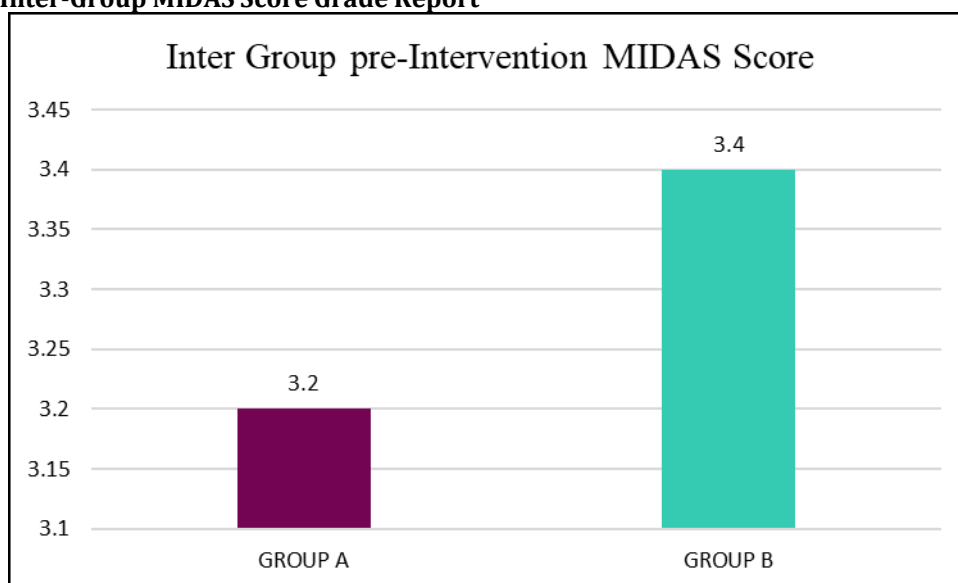


Graph .1. Gender Distribution of Subjects in Group A and Group B

Table2: Inter-Group Two-Sample Comparison Report of Groups A and B with MIDAS Score Grade.

N=15	Times	Mean	SD	Mean diff	SD diff	z-value	p-value
Group A	pre	3.2	0.4140393	-0.2666667	0.5936168	1.6330	0.00110
Group B	pre	3.466667	0.5163978				

Graph of Inter-Group MIDAS Score Grade Report



Graph .2. Inter-Group MIDAS Score

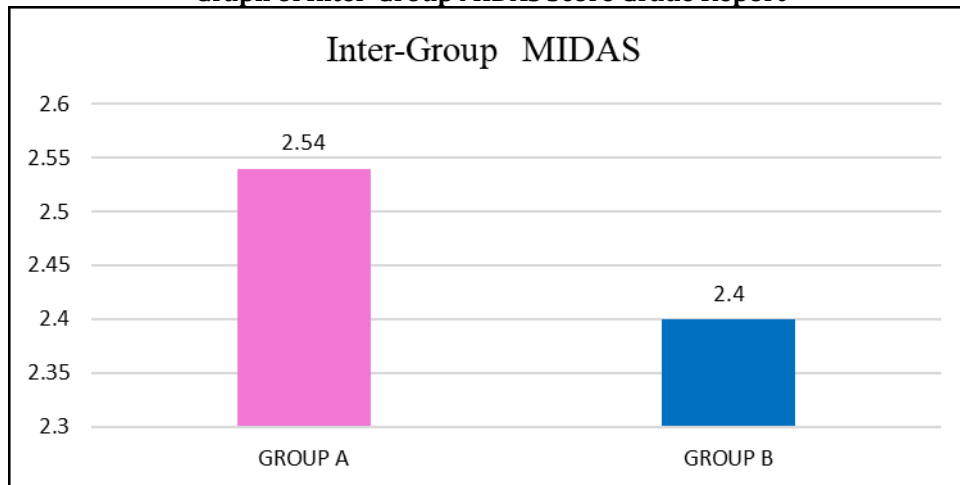
The Table 2. and Graph.2. show the inter-group comparison of a score of MIDAS before four weeks of treatment. A significant difference was observed $<p=0.00110$ in MIDAS Score Grade found in Groups A and B after 4 weeks.

Table 3. Inter Group MIDAS score of Pre-intervention

N=15	Times	Mean	SD	Mean diff	SD diff	z-value	p-value
Group A	post	2.54	0.5163978	0.14	0.6399405	0.8165	0.00277
Group B	post	2.4	0.5070925				

Inter-Group Two-Sample Comparison Report of Group A and B with MIDAS Score Grade

Graph of Inter-Group MIDAS Score Grade Report



Graph .3. Of Inter-Group MIDAS Score

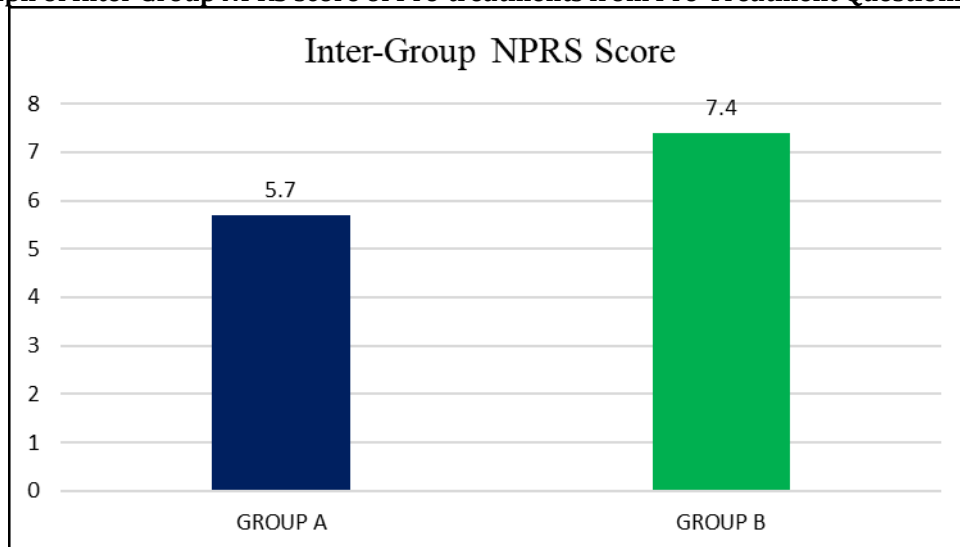
The Table.3. and Graph.3. show the inter-group comparison of a score of MIDAS after four weeks of treatment. A significant difference was observed $p=0.00072$ in MIDAS Score Grade found in Groups A and B after 4 weeks. In Group B there was significant improvement after the treatment

Table of Inter Group NPRS score of Pre-intervention from Pre-Treatment Questionnaire

Table .4. Inter-Group NPRS Score

N=30	Times	Mean	SD	Mean diff	SD diff	z-value	p-value
Group A	pre	5.7	1.175139	-1.74	1.533747	3.1355	0.00172
Group B	pre	7.4	1.298351				

Graph of Inter Group NPRS score of Pre-treatments from Pre-Treatment Questionnaire



Graph .4. Inter-Group NPRS Score

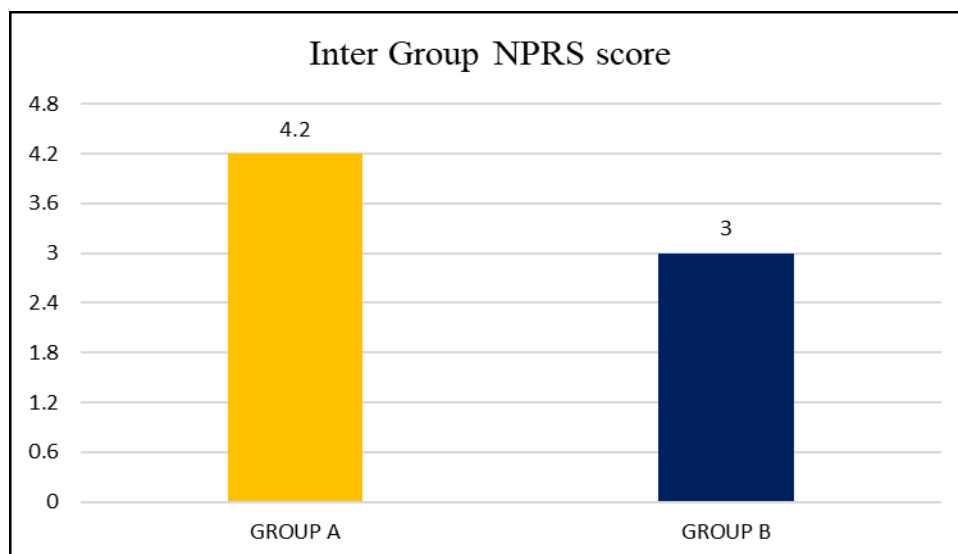
Table 4 and Graph.4. The inter-group comparison of a score of NPRS before four weeks of treatment. A significant difference was observed $p= 00172$ in NPRS Score Grade found in Groups A and B after 4 weeks.

Table of Inter Group NPRS score of Post-Intervention from Pre-Treatment Questionnaire

N=30	Times	Mean	SD	Mean diff	SD diff	z-value	p-value
Group A	post	4.2	0.941124	1.2	1.207122	2.8037	0.00505
Group B	post	3	1.195229				

Table 5. of Intergroup NPRS Score

Graph of Inter Group NPRS score of Pre-treatments from Pre-Treatment Questionnaire



Graph.5. Inter-Group NPRS Score

The Table.5. and Graph.5. show the inter-group comparison of a score of NPRS after four weeks of treatment. A significant difference was observed $p < 0.05$ in NPRS Score Grade found in Groups A and B after 4 weeks.

DISCUSSION

The study aims to evaluate the effectiveness of cervical mobilization versus Relaxation on Pain and disability in patients with migraine, 30 subjects were selected as per the inclusion criteria and allotted to two groups after which they were assessed using a Pre-Treatment Questionnaire in which the demographic data, migraine assessment, and pain intensity with other migraine effect of treatment. MIDAS which is Migraine disability assessment was used before treatment and after the intervention period was completed to determine the migraine disability in three months, in which there was a less significant difference in Group A compared to the significant difference Group B. Clinical guidelines reported that manipulation, mobilization, and exercise were all effective for the management of patients with CH; however, the guidance made no suggestions regarding the superiority of either technique. Spinal manipulation/ mobilization is effective in adults for acute, subacute, and chronic back pain; migraine and cervicogenic headache; cervicogenic dizziness; mobilization is effective for acute/ subacute neck pain.[9] Migraine in which pain has a throbbing, pulsating quality, particularly in associated with intense pain. Its pulsatile character strongly reinforces the common presumption that it coincides with the prevailing scientific view of migraine pain. However recent data challenge this perspective, with implications for our understanding of throbbing pain not only for migraine but also for the pathophysiology of throbbing pain in other conditions as well.[10]

CONCLUSION

The study concluded that the effectiveness of Relaxation Techniques are more Effective than compared to Cervical Mobilization on migraine-type Headaches

- Small sample size
- The study duration for the intervention

Future recommendations of the study

- To carry out a study on a larger sample size
- The study can be done with long-term follow-up after teaching relaxation techniques

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