Faculty of Medicine

University of Dhaka

“COMPARISON BETWEEN EFFECTIVENESS Of MECHANICAL TRACTION AND CONVENTIONAL PHYSIOTHERAPY IN THE TREATMENT OF PATIENTS WITH CHRONIC NECK PAIN”.

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Bachelor of Science in Physiotherapy (B.Sc. PT)

Registration no: 7461, Roll no: 1254

Session: 2016-2017.

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We the member of the research project defense committee

For

Swapon Chandra Saha

Unanimously approved the research project

"COMPARISON BETWEEN EFFECTIVENESS Of MECHANICAL TRACTION AND CONVENTIONAL PHYSIOTHERAPY IN THE TREATMENT OF PATIENTS WITH CHRONIC NECK PAIN".

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This study with the title **- "Comparison between effectiveness of mechanical traction and conventional physiotherapy in the treatment of patients with chronic neck pain".** by Swapon Chandra Saha, Department of physiotherapy, Saic College of Medical Science and Technology (SCMST), was done in my close supervision and direct guidance. I have gone through the papers. This is up to my full satisfaction.

Supervisor

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Saic College of Medical Science and Technology

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We, the under signed certify that we have carefully read and recommended to the Saic College of Medical Science and Technology, Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled **"Comparison between effectiveness of mechanical traction and conventional physiotherapy in the treatment of patient with chronic neck pain"** submitted by Swapon Chandra Saha, for the partial fulfillment of the requirements for the BSc in Physiotherapy. This study was carried out under the guidance of the following board of examiners at University of Dhaka during the academic session 2016-2017.

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DECLARATION

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also decline that for any publication, presentation or dissemination of information of the study. I would found to take written consent of my supervisor.

Signature: ……. **Date: ……..…….**

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Acknowledgement

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Abbreviations

ADL	:	Activities of Daily Living.
BMI	:	Body Mass Index.
MS	:	Musculoskeletal.
NPRS	:	Numeric Pain Rating Scale.
ROM	:	Range of Motion.
SPSS	:	Statically Package for Social Science.
SD	:	Standard Deviation.
SCMST	:	Saic College of Medical Science and Technology
WHO	:	World Health Organization

Abstract

Purpose: The purpose of the study was to Comparison between effectiveness of mechanical traction and conventional physiotherapy in the treatment of patients with chronic neck pain.

Objective: To compare the effectiveness between mechanical traction and conventional physiotherapy in the treatment of chronic neck pain, to select patients with chronic neck pain from different physiotherapy center as study participants, to compare the outcome of neck pain due to intervention of two groups by using VAS scale.

Methodology: Thirty patients with chronic neck pain were randomly select from selected hospital for trail of my study. 15 patients select for mechanical traction along with conventional physiotherapy and other 15 patient select for only conventional physiotherapy. VAS scale was used to measure the pain and Oxford muscle grade was used to measure the muscle power. Independent t test was used for pain measurement and paired t test was used to compare the result in muscle power and ROM.

Results: By using independent t test and paired sample t test on the data the result were found to be both groups significantly improved of mechanical traction and conventional physiotherapy.

Conclusion: This experimental study indicates that the pain intensity, muscle power and range of motion was significant changes in both experimental and control groups.

Key words: Mechanical traction, Chronic neck pain, Physiotherapy.

List of the tables

CHAPTER-1 INTRODUCTION

1.1 Background

Neck pain is a frequently reported complaint of the musculoskeletal system which can be disabling and costly to society. The natural history of neck pain is unclear. Twenty-six to 71% of the adult population can recall experiencing an episode of neck pain or stiffness in their lifetime (Gross A.,2008).

Prevalence of neck pain is higher in females than in males with rates as high as 77.8%. Neck pain has a large impact on health care expenditure, attributed to visits to health care providers, sick leave, disability and the related loss of productivity. Mechanical traction for the cervical spine involves a pulling force applied to the neck via a mechanical system which can be applied intermittently or continuously (Goldsmith C. H.,2008).

It is often used as an adjunct therapy in outpatient rehabilitation. The physiological effects of mechanical traction for the cervical spine may include separation of vertebral bodies, movement of facet joints, expansion of intervertebral foramen and stretching of soft tissue (Graham N.,2008).

Cervical traction is administered by various techniques ranging from supine mechanical motorized cervical traction to seated cervical traction using an over-the-door pulley support with attached weights. Duration of cervical traction can range from a few minutes to 20 to 30 min, once or twice weekly to several times per day (Swezey et al.,1999).

Chronic neck pain is a common complaint from patients. While neck discomfort is a frequent clinical problem, there are few evidence-based research showing how effective therapies for the illness are. This disorder is primarily treated with clinical skill. Persistent neck pain can be avoided by modifying the workspace to include seats that promote healthy musculoskeletal activity (Borenstein, 2007).

Neck pain can be decreased by combining sleeping neck supports with active neck exercises. Clinical research results indicate that passive therapies, including acupuncture, massage, electrotherapy, and mechanical traction, are not very beneficial. NSAIDs, muscle relaxants, and pure analgesics are the mainstays of treatment (Borenstein D.G., 2007).

Nonspecific neck pain is defined as pain in the posterior neck between the superior nuchal line and the spinous process of the first thoracic vertebra. The annual prevalence of nonspecific neck pain ranges in industrialized countries from 27% to 48%. Although the duration and course of the pain may vary, most patients experience chronic or recurrent pain. Functional impairments develop in about 10% of patients and disabilities in 5%. The high cost of nonspecific neck pain for society makes optimal management a key priority. Medications, manual therapies, traction and exercise are the most widely used treatment modalities (Vincent K. et al.,2013).

Cervical traction is a commonly used method to treat patients with neck pain with or without radiation. In the UK and the USA, cervical traction is used by 41 and 77% of outpatient rehabilitation providers respectively. Despite this common use of cervical traction in the clinical setting, several systematic reviews have concluded that cervical traction has little or no value on the clinical outcomes of pain intensity and functional status. The reviews also suggest that traction does not appear to lead to quicker return to work among people with neck pain with or without radiation (Almutiri M.,2018).

A number of RCTs suggest that traction can be an effective intervention in the management of patients with neck pain. Fritz et al. found that mechanical traction in combination with extension exercises can result in significant improvement in disability and fear-avoidance beliefs after two weeks of treatment compared to extension exercises alone for patients with neck pain and nerve root compression symptoms (Alrwaily M., 2018).

Neck pain can originate from a number of different structures in the neck such as neural tissue, intervertebral joints, discs, bones, periosteum, muscles, and ligaments. Although history taking and diagnostic examination can suggest a potential origin of the pain,5most neck pain has no identifiable underlying pathology or a etiology, and often the treatments are planned according to the patient's symptoms. Neck pain is a common complaint within the general population, with over 34% of people experiencing neck pain at some time, 14% of whom report symptoms lasting more than 6 months. Neck problems, though less frequently reported than back com-plaints, still constitute a major health problem and are also costly in terms of treatment, individual suffering,

and time lost from work. There are many different physiotherapy techniques that can be provided for a patient with neck pain, one of which is cervical traction. Traction can be used in isolation, or can be combined with other treatments such as manual therapy, exercises, heat, electrotherapy and advice. Traction is the application of an axial distractive force and uses movement to treat benign painful abnormalities of movement. It can be used for the treatment of disc protrusion, degenerative disc disease and joint dysfunction (Peake N. & Harte A.,2013).

1.2 JUSTIFICATION

The aim of the study is to find out the Efficacy of mechanical traction among the patient with chronic neck pain. Most of the patient complain neck pain can originate from a number of different structures in the neck such as neural tissue, intervertebral joints, discs, bones, periosteum, muscles, and ligaments. So that, neck muscle are become week and imbalance. Muscle and intervertebral joint and disc week is one of the major and serious complications of chronic neck pain patients. In Bangladesh, there are many chronic neck pain patients, but maximum of chronic neck pain patients suffers more from muscle weakness and intervertebral joint and disc. Unfortunately, there have no specific treatment plan for chronic neck pain patients. Many expertise used several treatment plans such as, soft tissue release, electrotherapy, exercise, medication, mechanical traction, massage and acupuncture. For that maximum patient suffers long days. So, I need to find out the Efficacy of mechanical traction among the patient with chronic neck pain. That's why we should research more and more. In the field of research in physiotherapy it improves our knowledge.

The purpose of this study is to compare the effectiveness of mechanical traction with others conventional physiotherapy treatment. So, I need to find out the effectiveness of mechanical traction for those chronic neck pain patients. However, research helps to improve the knowledge of health professionals, as well as develops the profession. The result of the study may help to guide physiotherapists to give evidence-based treatment in chronic neck pain patients and beneficial in the field physiotherapy profession.

1.3 Research question

Is mechanical traction more effective than conventional physiotherapy in the treatment of chronic neck pain?

Hypothesis

Mechanical traction is more effective than conventional physiotherapy in the treatment of chronic neck pain.

1.4 Null hypothesis

Mechanical traction is not more effective than conventional physiotherapy in the treatment of chronic neck pain. ($H_o \neq H_a$)

H_o: $\mu_1 - \mu_2 = 0$ or $\mu_1 \geq \mu_2$

Where,

H_o= Null hypothesis

H_a= Alternative hypothesis

μ_1= Mean difference in initial assessment

μ_2= Mean difference in final assessment

1.5 Alternative hypothesis

Mechanical traction is more effective than conventional physiotherapy in the treatment of chronic neck pain. ($H_a > H_o$).

H_a: $\mu_1 - \mu_2 \neq o$, $\mu_1 - \mu_2$

1.6 Objectives of the study:

General objective:

To compare the effectiveness between mechanical traction and conventional physiotherapy in the treatment of chronic neck pain.

Specific objective:

1. To select patients with chronic neck pain from different physiotherapy center as study participants.

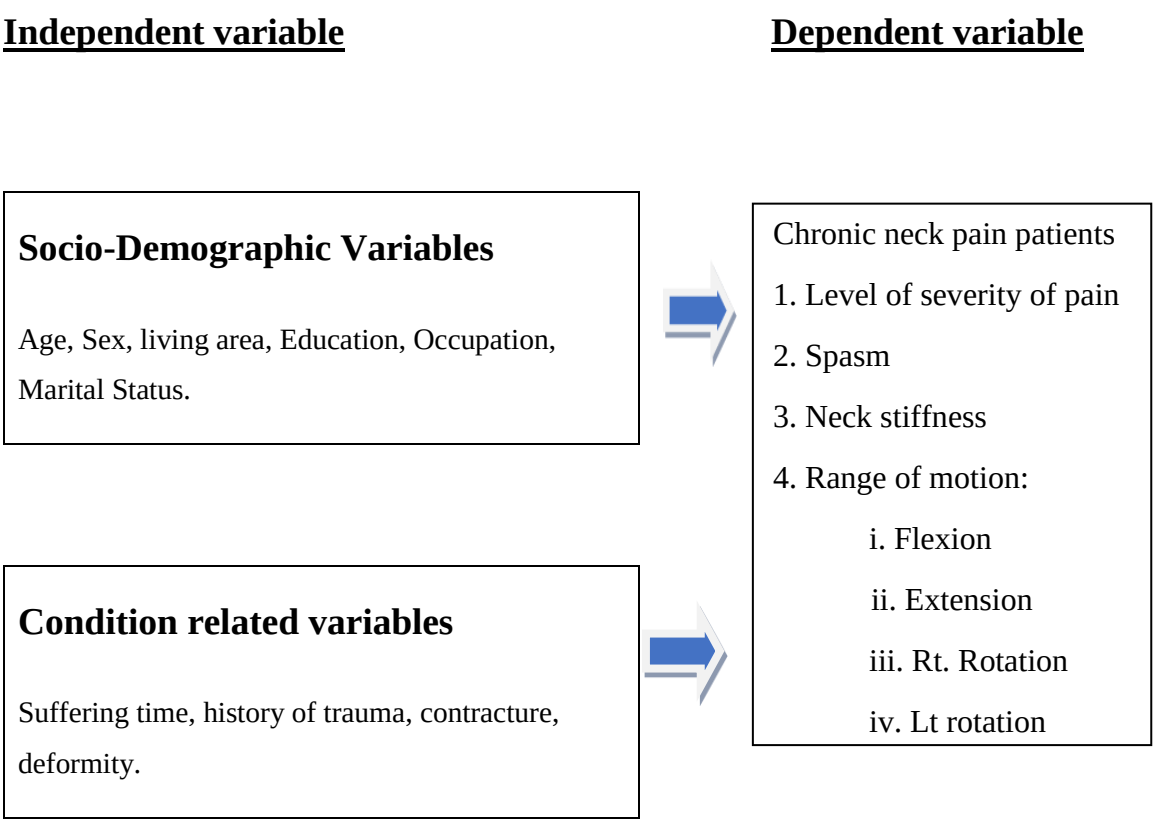
2. To allocate study participants into experimental and control group by randomization.

3. To evaluate experimental group by mechanical traction.

4. To explore control group by conventional physiotherapy.

5. To compare the outcome of neck pain due to intervention of two groups by using VAS scale.

1.7 Conceptual Framework:



1.8 Operational definition

Pain

Pain is an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.

Chronic neck pain

Pain is classified as chronic when it has a duration of 12 weeks or more. Chronic neck pain often presents as widespread hyperalgesia on palpation and in both passive and active movements in neck and shoulder area.

Contracture

A permanent tightening of the muscle, tendons, skin and nearby tissues that causes the joints to shorten and become very stiff. Contracture may be caused by injury, scarring, and nerve damage or by not using the muscle.

Deformity

Deformity is the abnormal part or shape of the body.

Mechanical traction

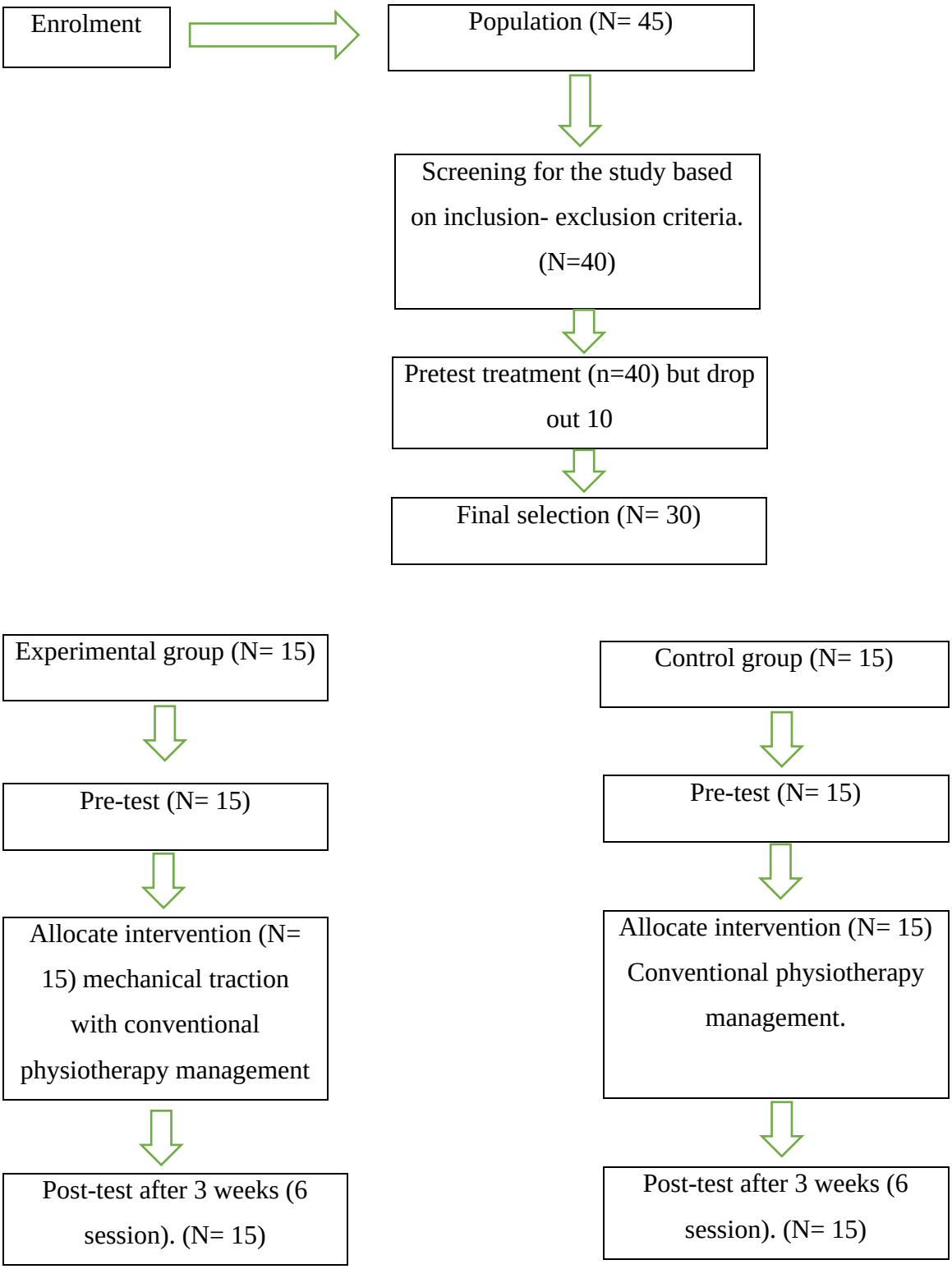
The specialized treatment technique of mechanical traction uses devices that work by stretching the spinal vertebrae and muscle.

Oxford muscle grade scale

It is a scale which is commonly used to manually assess muscle strength. According to the oxford scale, muscle strength is grade 0-5.

1.9 Flow chart

Flow chart of the phases of Randomized Controlled Trial



CHAPTER-II LITERATURE REVIEW

Neck pain and disability from cervical disorder is second to that of low back pain in musculoskeletal practice. Forty-eight patients who met the inclusion criteria were placed into experimental (n=24) and control (n=24) group randomly. Participants in both groups received massage, cryotherapy and active exercises. Cervical traction was administered to experimental group for 15 minutes, thrice per week for four weeks while the other group served as control. There was a significant improvement in the pretreatment and post treatment pain intensity ($t=10.75$, $p< 0.001$) and neck functional disability ($t=2.42$, $p=0.03$) of participants in experimental group. There was a significant difference ($t=-3.98$, $p=0.006$) in the post treatment pain intensity between the cervical traction and control group. It could be concluded that application of continuous cervical traction can significantly reduce pain intensity of patients with cervical radiculopathy (Ojoawo A. O., et al.,2013).

Results from earlier research on the effectiveness of traction therapy have been inconsistent. For the study, 42 patients with nonspecific neck discomfort lasting at least six weeks were chosen. Every patient was randomized to one of two groups: Group 1, which received only regular physical treatment (hot pack, ultrasound therapy, and exercise program), and Group 2, which also received traction therapy. After the therapy ended, the patients underwent another evaluation. The end of the therapies resulted in a significant improvement in pain intensity, scores on the NDI, and physical subscales of NHP for both groups ($p < 0.05$). In both groups, there was a significant correlation ($p<0.05$) between the NDI and VAS pain scores. There was no discernible relationship found between age and illness duration and clinical factors. In conclusion, persons with chronic neck discomfort did not show any particular benefit from traction over routine physiotherapeutic therapies. We recommend that physicians take this problem into account and concentrate on exercise treatment when treating patients with this ailment (Borman P., et al., 2008).

Neck pain is described as the pain perceived anywhere between superior nucal line & first thoracic vertebrae. About 60% of the subjects are likely to develop the chronic nature of neck pain if it's not managed promptly. This study is randomized clinical trial in which 38 patients with the non-specific neck pain aged between 35 to 55 years were

selected using a non-probability sampling technique from Hope Rehabilitation Centre Lahore. Selected subjects were randomly allocated into two treatment groups with 19 subjects in Cervical Mobilization (Group A) and 19 in Cervical Traction (Group B) using a lottery method. Short wave diathermy& isometric neck exercises were given as standard treatment for both groups. Pretreatment values for pain and disability were recorded on VAS and NDI. Each patient received two treatment sessions per week with maximum six treatment sessions over the period of three weeks. Post treatment values for possible improvement in pain and disability measured on VAS and NDI respectively were recorded at the end of 3 week. It was revealed that there was significant difference in VAS and NDI score (p value < 0.05) between the baseline readings and final value at the end of Week 3(after 06 treatment sessions) across both treatment groups. Cervical mobilization is more effective than cervical traction, both in terms of reducing pain and disability in subjects with non-specific neck pain (Ali H., et al.,2015).

Cervical radiculopathy is a common neuro musculoskeletal disorder causing pain and disability. Traction is part of the evidence based manual physical therapy management due to its mechanical nature, type of traction and parameters related to its applicability and are still to be explored more through research. Compared to the group of patients treated with manual traction (Pain mean pre-6.80, mean post 3.85, and disability mean pre-21.92, and post 12.19), the mechanical traction group of patients managed pain (mean pre-6.26, mean post 1.43), and disability (mean pre 24.43 and mean post 7.26) more successfully. In terms of statistics, the results of both mechanical and manual traction procedures in groups A and B for pain and disability are similarly significant (p-value 0.05). (Bukhari S.R. et. al.,2016).

Literature shows that Neck pain is a frequently reported complaint of the musculoskeletal system which can be disabling and costly to society. Mechanical traction is often used as an adjunct therapy in outpatient rehabilitation. The RCTs we selected examined adults with neck disorders who received mechanical traction alone or in combination with other treatments compared to a placebo or another treatment. Of the seven selected RCTs (total participants = 958), only one (N = 100) had a low risk of bias. It found no statistically significant difference (SMD -0.16: 95%CI: -0.59 to 0.27) between

continuous traction and placebo traction in reducing pain or improving function for chronic neck disorders with radicular symptoms. Our review found no evidence from RCTs with a low potential for bias that clearly supports or refutes the use of either continuous or intermittent traction for neck disorders. When compared to placebo traction, tablet or heat or other conservative treatments in patients with chronic neck disorders, the current literature does not support or refute the efficacy or effectiveness of continuous or intermittent traction for pain reduction, improved function or global perceived effect. To first assess the effectiveness of traction, then the effectiveness, for people with neck issues and radicular symptoms, large, well-conducted RCTs are required (Graham N.,2008).

Graham N. said that 10 selected trials, one study was of high quality. Our review revealed low-quality trials for mechanical neck disorders, showing evidence of benefit favoring intermittent traction for pain reduction. Continuous traction showed no significant difference for defined outcomes. Conclusion: Inconclusive evidence for continuous and intermittent traction exists due to trial methodological quality. Two clinical conclusions may be drawn, one favoring the use of intermittent traction and the other not supporting the use of continuous traction. Attention to research design flaws and description of traction characteristics is needed (Graham N.,2016).

Radiating neck pain is one of the major symptoms of cervical radiculopathy. Seventy-five participants with unilateral radiating neck pain were randomly allocated into three groups, 25 for cervical traction, 25 for transverse over pressure and 25 control group. All participants received massage, cryotherapy and active exercises three times in a week for six weeks. cervical traction was administered to cervical traction group, transverse over pressure to transverse over pressure group while the third group served as control. Pain intensity (PI) and neck functional disability (NFD) were assessed pretreatment, 3rd and 6th week of intervention. Result shows that a significant reduction in PI and NFD between pretreatment and 6th week in all the groups ($p<0.05<0.05$). The effect size of PI ($F=7.533$, $p<0.001$) and disability index ($F=37.888$, $p<0.001$) in cervical traction group were significantly lower than that of TOP group at 3rd week. PI of TOP was significantly ($p<0.05$) lower than that of cervical traction and Control groups at the 6th week (Ojoawo A.O. and Olabode A.D.,2018).

In this literature We searched the Medline, Physiotherapy Evidence Database (PEDro), Cochrane Central Register of Controlled Trials, and Cumulative Index to Nursing and Allied Health Literature electronic databases. Two reviewers independently selected randomized controlled trials that compared traction in addition to other treatments versus the effectiveness of other treatments alone for pain outcome. We calculated the mean differences and 95% confidence intervals. We used Cochrane's tool to assess risk of bias and the Grading of Recommendations Assessment, Development and Evaluation system to evaluate the quality of evidence and summarize the study conclusions. A total of seven studies (589 patients), one with low risk of bias, were evaluated. An overall estimate of treatment modalities showed low evidence that adding traction to other treatments is statistically significant (MD −5.93 [95% CI, −11.81 to −0.04] $P = 0.05$ and $I^2 = 57\%$) compared to other treatments alone. The subgroup analyses were still statistically significant only for mechanical and continuous modalities. Overall analysis showed that, compared to controls, reduction in pain intensity after traction therapy was achieved in patients with cervical radiculopathy (Colombo C. et. al.,2020).

Neck pain is a common and disabling problem with a high prevalence in general population. It causes a considerable burden on the health care system with a substantial expenditure. ICT is a common component of physical therapy for neck pain in the outpatient clinic. However, the evidence regarding the effectiveness of ICT for neck pain is insufficient. RCTs reporting the effects of ICT on neck pain, including those comparing the effects of ICT with those of a placebo treatment, were included. Two reviewers independently reviewed the studies, conducted a risk of bias assessment, and extracted data. The data were pooled in a meta-analysis by using a random-effects model. The results indicated that patients who received ICT for neck pain had significantly lower pain scores than those receiving placebos did immediately after treatment (standardized mean difference = −0.26, 95% confidence interval = −0.46 to −0.07). (yang et. al.,2017).

A total of 186 suitable patients were classified into a training data set. and a validation data set with time sequence. All patients were included to receive magnetic resonance imaging scan to calculate posterior cervical fat and muscle features, then undergoing unified cervical traction in an outpatient clinic. The least absolute shrinkage

and selection operator regression model was used to select potentially relevant features to predict effectiveness possibility of cervical traction. Through the LASSO regression model, we identified 4 predictors including sex, good exercise compliance, the ratio of the cross-sectional area (CSA) between fat and muscle on C5 level (C5 fat CSA/muscle CSA), the ratio of CSA between fat and centrum on C5 level (C5 fat CSA/centrum muscle CSA). The nomogram provided good calibration and discrimination in the training cohort, showing an area under the curve (AUC) of 0.704 (95% CI, 0.608–0.799) and good concordance between the predicted and actual probabilities with Spiegel halter's Z-test (P = 0.835). Discrimination of the model in the validation data set was acceptable, with AUC of 0.691 (95% CI, 0.564–0.817). Decision curve analysis revealed the nomogram to be clinically useful (yang G. et. al.,2020).

Cervical radiculopathy is a common diagnosis associated with neck pain that extends to the arm and is accompanied by signs of nerve root compression upon physical examination. Cervical radiculopathy is commonly called a "pinched nerve" because the nerve in the neck is compressed or irritated resulting in shoulder pain, muscle weakness, and arm to hand numbness. A literature search was conducted electronically, and the data were extracted from the available papers that evaluated IMT and its combination with other therapies. The risk of bias was assessed using the criteria recommended by the Cochrane Back review group. The quality of evidence was evaluated using the grading of recommendations, assessment, development, and evaluation method. Nine of the articles met the inclusion criteria and were included in the review. Results showed that four studies with very low level of evidence, four had a low level of evidence, and one had a moderate level of evidence. Seven studies were determined to have a high risk of bias while two had a low risk of bias. The literature with a moderate level of evidence and a low risk of bias indicated that inter mitten traction reduced the disability and pain scores, suggesting that the treatment has a positive effect on patients with Cervical radiculopathy. Very low, low, and moderate evidences indicated that inter mitten traction is effective in lowering disability and pain scores for patients with CR. Conclusions and future directions for research are discussed (Gregory G., & McKivigan J. M.,2018).

Literature shows that Fifteen patients (45.5 ± 13 years) completed a course of treatment using mechanical intermittent cervical traction. Eleven patients presented at baseline with radicular symptoms of 12 weeks duration or less, and 4 patients had long-standing radicular symptoms lasting more than 12 weeks. Outcome was measured using the Neck Disability Index (NDI) and the Numeric Pain Rating Scale (NPRS). Eight of the 15 cases (53%) in this series demonstrated complete pain resolution; these patients had symptom duration of 12 weeks and less. Seven of these 8 cases displayed a final NDI of 10% or less. Three out of 4 of the patients with symptom duration less than 12 weeks showed no reduction in pain or increased pain rating, with minimal change in perceived disability of 12% or less. In this case series, patients with radicular symptoms lasting for 12 weeks and less demonstrated a reduction in pain and perceived disability. The NDI, when used in conjunction with the NPRS, provides a more comprehensive assessment of the patient with cervical radiculopathy, thus allowing the clinician to make a better judgment about the clinical effects of cervical traction (Moeti P., Marchetti G.,2001).

Fifty patients between ages 41 to 60 years, who agreed to participate and meeting the criteria were involved in the study and divided in to two equal groups. One group received mechanical cervical traction and second group received manual therapy. Manual therapy included grade I, II mobilization and hold relax of neck extensors. The baseline treatment was shortwave diathermy for 15 mins and ultrasonic therapy for 7 mins. Treatment duration was a session of 30 minutes. Treatment frequency was 3 sessions in one week and total 12 sessions were given. The questionnaire was filled at the start of treatment and then after completion of treatment by using Numeric pain rating scale (NPRS) for pain intensity in terms of assessment and analysis. Independent sample t-test was applied. The results showed that p value for NPRS using mechanical traction was 0.027 which is less than level of significance 0.05. So, the findings of this study showed that mechanical traction is more effective than manual therapy for relieving radicular pain in cervical spondylosis at C5-C6. In patients with radicular pain in cervical spondylosis atC5-C6 mechanical traction has proven more effective than manual therapy (Qayyum S., et. al.,2017).

CHAPTER- III METHODOLOGY

3.1 Study design

This was a Randomized controlled trial (RCT). The design is best for the comparison of the effectiveness between the experimental and control group. Mechanical traction is applied to the experimental group and conventional physiotherapy applied to the control group. This study was a single blind technique where participants were not informed who were experimental group and control group.

3.2 Study area

The study participants were selected from different physiotherapy centers of Dhaka and Brahmanbaria district.

3.3 Study population and sample

Patients with chronic neck pain constituted the study population for the present study.

3.4 Study Period

1st April 2023 to 10 September 2023.

3.5 Sample size

Total study participants were 30. In experimental group the numbers of participants were 15 and in control group, it was also 15.

3.6 Inclusion and exclusion criteria

Inclusion criteria:

1. Age between 15 to 50 years.
2. Patients with chronic neck pain diagnosed by a doctor.
3. Both male and female patients.
4. Those who were willing to participate in the study.

Exclusion criteria:

1. Age less than 15 and more than 50.
2. Patient and care giver who are not voluntarily agreed to participate in the study.
3. Recent trauma like fracture in the upper limb.
4. Mental patients.

3.7 Method of data collection

Data were collected from the participants by face-to-face formal interview.

3.8 Instrument of data collection

A pre tested questionnaire was used to collection data from both groups. To asses the severity of neck pain, VAS scale was used for the present study.

3.9 Procedure of data collection

Data were collected from the participants by face-to-face formal interview.

3.10 Ethical consideration

The researcher had taken permission from the research supervisor, physiotherapy department, Saic College of Medical Science & Technology. All the participants and authority informed about the purpose of the study and verbal informed consent was obtained. All the interviews had been taken in a confidential to maximize the participants comfort and feelings of security.

3.11 Limitation of the study

The chief limitation of this study was insufficient time. As a student, this study conducted by my own fund/finance. So, there might have some limitation of financial aspect within this study. There was less time to carry out this study and thus calculated sample could not be taken for data collection. This study does not represent whole population of country. The present research was a part my academic study and I am not expert on statistical analysis, so there might have drawback in analysis of the data.

3.12 Data analysis

Data were analyzed by using SPSS version 20.00. To compute the descriptive statistics using pie chart, bar chart, linear line diagram and also percentage and parametric tests was conducted using t-test.

3.13 Result of the study:

The findings of the present of the study have been presented by frequency tables, charts, bur diagram and description.

CHAPTER-IV: RESULTS

Section 1: Sociodemographic characteristics:

Table no. 1: Frequency distribution of the participants by age.

Age	Experimental group		Control group	
	N	%	N	%
< 20	-	-	1	6.7
20-30	6	40.0	6	40.0
31-40	4	26.7	5	33.3
>40	5	33.3	3	20.0
Total	15	100	15	100
Mean ±SD	36 ± 9.71		35 ± 14.22	
Mean Different	1			

Experimental group Mean 36 years, SD= 9.71 and Control group Mean 35 years, SD= 14.22.

Regarding frequency distribution of the participants in experimental group it was found that 6 (40.0%) participants belong to the age group of 20-30 years. It also found that 5 (33.3%) participants were more than 40 years and 4 (26.7%) participants were age group 31-40 years.

In case of control group 6 (40.0%) participants belong to the age group of 20-30 years. It also found that 5 (33.3%) participants were in the age group 30-40 years, 3(20.0%) participants were more than 40 and 1(6.7%) participants were age less than 20 years. (Table no.1)

Table no.2: Frequency distribution of the participants by gender.

Gender	Experimental group		Control group	
	N	%	N	%
Male	12	80	9	60
Female	3	20	6	40
Total	15	100	15	100

Regarding frequency distribution of the participants in experimental group it was found that 12 (80%) participants were male and 3 (20%) participants were female. In case of control group 9 (60%) participants were male and 6 (40%) participants were female. (Table no. 2)

Table no.3: Frequency distribution of living area of the participants

Living area	Experimental group		Control group	
	N	%	N	%
Urban	-	-	1	6.7
Semi urban	9	60	13	86.6
Rural	6	40	1	6.7
Total	15	100	15	100

About frequency distribution of the participants in experimental group it was found that 9 (60%) participants live in semi urban and 3 (20%) participants live in rural. In case of control group 1 (6.7%) participants live in urban and 13 (86.6%) participants live in semi urban and 1 (6.7%) participant lives in rural area. (Table no. 3)

Table no.4: Frequency distribution of education level of the participants

Education level	Experimental group		Control group	
	N	%	N	%
Primary	1	6.7	2	13.3
JSC	-	-	1	6.7
SSC	3	20.0	1	6.7
HSC	-	-	4	26.7
Graduate	11	73.3	7	46.7
Total	15	100	15	100

About frequency distribution of the participants of educational status, in the experimental group primary 1 (6.7%), SSC 3 (20.0%3), graduate 11 (73.3%). In control group primary 2 (13.3%), JSC 1 (6.7%), SSC 1 (6.7%), HSC 4 (26.7%), graduate 7 (46.7%).

Table no.5: Frequency distribution of the participants by occupation.

Occupation	Experimental group		Control group	
	N	%	N	%
Teacher	1	6.7	1	6.7
Banker	1	6.7	-	-
Student	-	-	1	6.7
Housewife	2	13.3	2	13.3
Others	11	73.3	11	73.3
Total	15	100	15	100

About frequency distribution of the participants by occupation, the experimental group about teacher 1 (6.7%), banker 1 (6.7%), housewife 2 (13.3%), others 11 (73.3%). On the other hands control group about teacher 1 (6.7%), student 1 (6.7%), housewife 2 (13.3%), others 11 (73.3%). (Table no. 5)

Table no.6: Frequency distribution of the participants by marital status.

Marital status	Experimental group		Control group	
	N	%	N	%
Married	13	86.7	14	93.3
Unmarried	2	13.3	-	6.7
Total	15	100	15	100

Regarding frequency distribution of the participants by marital status in experimental group 13 (86.70%) participants were married and in control group 14 (93.30%) study subjects were married (Table no. 6)

Table no.7: Frequency distribution of the participants by family type

Family type	Experimental group		Control group	
	N	%	N	%
Nuclear	15	100	14	93.3
Extended	-	-	1	6.7
Total	15	100	15	100

Regarding frequency distribution of the participants by family type, in experimental group, 15 (100%) belong to nuclear family and in control group, it was 14 (93.3%) subjects come from nuclear family (Table no. 7).

Table no.8: Frequency distribution of participants by BMI

BMI	Experimental group		Control group	
	N	%	N	%
Underweight	2	13.3	-	-
Normal	8	53.3	10	66.7
Over weight	5	33.3	4	26.7
Obese	-	-	1	6.7
Mean±SD	23.04±2.89		23.85±2.51	
Total	15	100	15	100

About frequency distribution of the participants by BMI, in experimental group, 8 (53.3%) participants had normal BMI, 5 (33.3%) study subjects were overweight and SD 23.04± 2.89. In control group, 10 (66.7%) participants had normal, 4 (26.7%) study subjects were overweight and SD 23.85±2.51 (Table no. 8).

Section 2: Condition related information:

9. Long-time suffering from chronic neck pain

Long-time suffering from chronic neck pain	Experimental group		Control group	
	N	%	N	%
More than six months	13	86.67	7	46.67
Less than six months	2	13.33	8	53.33
Total	15	100	15	100

Regarding frequency distribution of the participants by long-time suffering from chronic neck pain in experimental group, more than six months 86.67% and less than six months 13.33%. In control group, more than six months 46.67% and less than six months 53.33% (Table no. 9).

10. History of trauma in neck

History of trauma in neck	Experimental group		Control group	
	N	%	N	%
Yes	-	-	-	-
No	15	100	15	100
Total	15	100	15	100

About frequency distribution of the participants by history of trauma in neck experimental group replied no 100%, control group replied no 100% (Table no. 10).

11. Contracture in the muscle

Contracture in the muscle	Experimental group		Control group	
	N	%	N	%
Yes	-	-	-	-
No	15	100	15	100
Total	15	100	15	100

Regarding frequency distribution of the participants by contracture in the muscle in experimental group, replied no 100%, in control group replied no 100% (Table no. 11).

12. Neck deformity

Any neck deformity	Experimental group		Control group	
	N	%	N	%
Yes	-	-	-	-
No	15	100	15	100
Total	15	100	15	100

About frequency distribution of the participants by any neck deformity in experimental group, replied no 100%, in control group also replied no 100% (Table no. 12).

13. Get any treatment for neck pain

Get any treatment for neck pain	Experimental group		Control group	
	N	%	N	%
Yes	-	-	-	-
No	15	100	15	100
Total	15	100	15	100

About frequency distribution of the participants by get any treatment for neck pain in experimental group, replied no 100%, in control group replied no 100% (Table no. 13).

14. Type of intervention have taken

Type of intervention	Experimental group		Control group	
	N	%	N	%
Medication	-	-	3	20
Physiotherapy	15	100	6	40
Both	-	-	6	40
Total	15	100	15	100

Regarding frequency distribution of the participants by type of intervention has taken in experimental group, replied physiotherapy 100%, in control group replied medication 20%, physiotherapy 40%, both 40% (Table no. 14).

Section 3: Treatment related information:

15. Before and after Pain intervention

Independent “t” test

Variable	Experimental group			Variable	Control group		
	pre	post	difference		pre	post	difference
E1	6	0	6	C1	3	0	3
E2	8	4	4	C2	2	2	0
E3	8	5	3	C3	3	3	0
E4	6	0	6	C4	2	2	0
E5	7	0	7	C5	3	2	1
E6	6	2	4	C6	3	2	1
E7	7	2	5	C7	2	2	0
E8	5	5	0	C8	3	2	1
E9	6	0	6	C9	2	0	2
E10	6	0	6	C10	3	2	1
E11	6	2	4	C11	2	2	0
E12	6	2	4	C12	2	0	2
E13	6	2	4	C13	2	2	0
E14	6	2	4	C14	3	2	1
E15	7	2	5	C15	3	2	1
Mean	6.40	1.87	4.53	Mean	2.53	1.67	0.86

Variable	Mean	"t" value	df	Significant p-value
Experimental group	4.53	10.42	14	.000
Control group	0.86	3.67	14	.003

In experimental group, pre test was done to collect data on pain by VAS scale. Intervention done was carried out by mechanical traction among the experiment group, effect of intervention was assessed by vas scale regarded as post test. "t" test was done to observe the effectiveness of mechanical traction.

Demonstrated the level of pretest and posttest pain score between Experimental and control group. Mean pretest pain score was 6.40 and posttest was 1.87 with a mean difference of 4.53 in the experimental group. In control group, the mean pretest pain score in the control group was 2.53 and posttest was 1.67 with a mean difference of 0.86. In this part, data analysis was done using independent t test. Where experimental group, t value 10.42 and p value was .000, in control t value was 3.67 and p value was 0.003 (Table no. 15).

16. Radiating pain

Radiating pain		Experimental group		Control group	
		N	%	N	%
Yes	pre	8	53.33	6	40
	post	2	13.33	4	26.67
No	pre	7	46.67	9	60
	post	13	86.67	11	73.33
Total	pre	15	100	15	100
	post	15	100	15	100

Regarding frequency distribution of the participants by radiating pain of the participants in, experimental group pre yes was 53.33%, post yes was 13.33% where no pre was 46.67%, post no was 86.67%. On the other hands control group pre yes was 40%, post yes was 26.67% where no pre was 60%, post no was 73.33% (Table no. 16).

17. Sensory deficit

Sensory deficit		Experimental group		Control group	
		N	%	N	%
Yes	pre	2	13.33	6	40
	post	-	-	4	26.67
No	pre	13	86.67	9	60
	post	15	100	11	73.33
Total	pre	15	100	15	100
	post	15	100	15	100

Regarding frequency distribution of the participants by sensory deficit of the participants in experimental group, pre yes was 13.33% where no pre was 86.67%, post no was 100%. On the other hands control group pre yes was 40%, post yes was 26.67% where no pre was 60%, post no was 73.33% (Table no. 17).

18. Condition of sensory deficit

Condition of sensory deficit		Experimental group		Control group	
		N	%	N	%
Normal	pre	13	86.67	6	40
	post	15	100	11	73.33
Impaired	pre	2	13.33	9	60
	post	-	-	4	26.67
Absent	pre	-	-	-	-
	post	-	-	-	-
Total	pre	15	100	15	100
	post	15	100	15	100

About frequency distribution of the participants by sensory deficit of the participants in experimental group, pre normal was 86.67% where normal post was 100%, impaired pre was 13.33%. On the other hands control group normal pre was 40%, normal post was 73.33% where impaired pre was 60%, impaired post was 26.67% (Table no. 18).

19. Muscle spasm

Muscle spasm		Experimental group		Control group	
		N	%	N	%
Yes	pre	5	33.3	3	20
	post	-	-	2	13.3
No	pre	10	66.7	12	80
	post	15	100	13	86.7
Total	pre	15	100	15	100
	post	15	100	15	100

About frequency distribution of the participants by muscle spasm of the participants in experimental group, pre yes was 33.3% where no pre was 66.7%, post no was 100%. On the other hands in control group, pre yes was 20%, post yes was 13.3% where no pre was 80%, post no was 86.7% (Table no. 19).

20. Muscle power of neck:

Paired Sample "t" test

Variable	Mean	Standard deviation	"t" value	df	Significant p-value
Experimental group pre and post muscle power of neck	.800	.414	7.483	14	.000
Control group pre and post muscle power of neck	.267	.458	2.256	14	.041

Regarding paired sample t test on muscle power of neck in experimental group (p=.000). Significant value is less than 0.05. so that it was highly significant. Mean different was -.800. standard deviation was .414, "t" value was 7.483 and degree of freedom was 14.

In control group (p=.003). Significant value is less than 0.05. so that it was significant. Mean different was .267. standard deviation was 0.458, "t" value was 2.256 and degree of freedom was 14 (Table no. 20).

21. Neck stiffness

Neck stiffness		Experimental group		Control group	
		N	%	N	%
Yes	pre	3	20	3	20
	post	-	-	2	13.3
No	pre	12	80	12	80
	post	15	100	13	86.7
Total	pre	15	100	15	100
	post	15	100	15	100

Regarding frequency distribution of the participants by neck stiffness in experimental group pre yes was 20% where no pre was 80%, post no was 100%. On the other hands in control group pre yes was 20%, post yes was 13.3% where no pre was 80%, post no was 86.7% (Table no. 21).

22. Range of motion (ROM) of neck

Paired Sample "t" test

Variable	Mean	Standard deviation	"t" value	df	Significant p-value
Experimental group flexion pre and post muscle power of neck	5.667	4.577	4.795	14	.000
Experimental group Extension pre and post muscle power of neck	8.333	5.563	5.801	14	.000
Experimental group side rotation pre and post muscle power of neck	7.333	5.300	5.358	14	.000
Control group flexion pre and post muscle power of neck	2.667	3.716	2.779	14	.015
Control group extension pre and post muscle power of neck	1.667	4.082	1.581	14	.136
Control group side rotation pre and post muscle power of neck	2.000	3.162	2.449	14	.028

Result shows that ROM of neck of the experimental group flexion (p=.000). Significant value is less than 0.05. so that it was highly significant. Mean different was 5.667. standard deviation was 4.577, "t" value was 4.795 and degree of freedom was 14.

Experimental group extension (p=.000). Significant value is less than 0.05. so that it was highly significant. Mean different was 8.333. standard deviation was 5.563, "t" value was 5.801 and degree of freedom was 14.

Experimental group side rotation (p=.000). Significant value is less than 0.05. so that it was also highly significant. Mean different was 7.333. standard deviation was 5.300, "t" value was 5.358 and degree of freedom was 14.

Control group flexion (p=.015). Significant value is less than 0.05. so that it was significant. Mean different was 2.667. standard deviation was 3.716, “t” value was 2.779 and degree of freedom was 14.

Control group extension (p=.136). Significant value is less than 0.05. so that it was no significant. Mean different was 1.667. standard deviation was 4.082, “t” value was 1.581 and degree of freedom was 14.

Control group side rotation (p=.028). Significant value is less than 0.05. so that it was significant. Mean different was 2.000. standard deviation was 3.162, “t” value was 2.449 and degree of freedom was 14 (Table no. 22).

Chapter-V Discussion

Thackeray, A. et al.,2016 found that mean age was (41.2 years) with standard deviation of (11.5 years), while the control group mean age was (41.1 years) with standard deviation of (11.3 years). In this table found that age of the participants, the average age of the experimental group mean age was (36 years) with standard deviation of (9.71 years), while the control group mean age was (35 years) with standard deviation of (14.22 years). (Thackeray, A. et al.,2016).

In this literature found that sex of the participants, the experimental group about male 80%, female 20% patient and control group about male 60%, female 40% patient. On the other hands researcher found his research that traction group about male 55%, female 45% patient and control group about male 40%, female 60% patient (Bid, D.et, al.,2014).

This literature found that living area of the participants, the experimental group about semi urban area 60%, rural area 40%. On the other hands control group about urban area 6.7% semi urban area 86.6%, rural 6.7%.

In this result show that educational status of the participants, the experimental group primary 6.7%, SSC 20.0%, graduate 73.3%. Control group primary 13.3%, JSC 6.7%, SSC 6.7%, HSC 26.7%, graduate 46.7%. Another authors found that 50.1%, 31.3%, 18.8 and 0% of the respondents belonged to the level of education had Higher Secondary and above, 0 10 20 30 40 50 60 70 Conventional Physiotherapy Neural Mobilization 56.3% 62.5% 43.8% 37.5% Male Female 0 10 20 30 40 50 60 Illiterate Primary Secondary Higher Secondary and above 18.8 0% 31.3% 50.1% 25% 6.3% 37.5% 31.3% Conventional Physiotherapy Neural Mobilization Page 52 of 138 Secondary, Illiterate and Primary education respectively of conventional physiotherapy group compare to neural mobilization group, 37.5%, 31.3%, 25%and 6.3%had Secondary, Higher Secondary and above, Illiterate and Primary education respectively. The figure shown that Higher Secondary and above is the highest in conventional physiotherapy group (50.1%), moreover, the secondary (37.5%) is the highest in neural mobilization group. (Khalil, I., 2016).

Literature shows that occupation of the participants, the experimental group about teacher 6.7%, banker 6.7%, housewife 13.3%, others 73.3%. On the other hands control group about teacher 6.7%, student 6.7%, housewife 13.3%, others 73.3%. Rahman, M.H., 2016 found that among the 28 participants, housewife was 8 (28.6%), service 4 (14.3%), student 3 (10.7%), farmer 1 (3.6%), teacher 3 (10.7%), driver 1 (3.6%), business 2 (7.1%), garment worker 2 (7.1%), shopkeeper 1 (3.6%), retired from service 1 (3.6%) and banker 2 (7.1%). (Rahman, M.H., 2016).

Mahmudul, H., 2022 found that among the participants 90% were married and 1% were unmarried in both control group and experimental group. This researcher found that marital status of the participants, experimental group married 86.70%, unmarried 13.30% and control group married 93.30%, and unmarried 6.7%. Which is similar to this article (Mahmudul, H., 2022).

In this table found that family type of the participants, the experimental group about nuclear 100% and Control group nuclear 93.3%, extended 6.7%. Another researcher found that among the 20 participants, 60% were nuclear family and 40% were combined family in control group and in experimental group, 90% were nuclear family and 10% were combined family (Mahmudul, H., 2022).

Researcher found that BMI of the participants, the experimental group about underweight 13.3%, normal 53.3%, over weight 33.3% where mean and SD 23.04±2.89 Control group normal 66.7%, over weight 26.7%, obese 6.7%, where mean and SD 23.85±2.51. opponent researcher found that Mean (± SD) BMI in trial group was 23.27 (± 4.54) and in contrast mean (± SD) in control was 22.09 ± 2.23. (Rahman, Z., 2018)

This literature shows that long-time suffering from chronic neck pain experimental group More than six months 86.67% and less than six months 13.33%, control group More than six months 46.67% and less than six months 53.33%.

In this literature found that history of trauma in neck experimental group replied no 100% , control group replied no 100%.

In this research show that contracture in the muscle experimental group replied no 100%, control group replied no 100%.

Literature show that any neck deformity experimental group replied no 100%, control group also replied no 100%.

In this research found that get any treatment for neck pain experimental group replied no 100%, control group replied no 100%.

In this article found that type of intervention has you taken experimental group replied physiotherapy 100%, control group replied medication 20%, physiotherapy 40%, both 40% .

This article shows that pain severity by VAS scale of the experimental group (p=.000). Significant value is less than 0.05. so that it was highly significant. Mean different was 4.53. standard deviation was 1.68, "t" value was 10.42 and degree of freedom was 14. and pain severity by VAS scale of the control group (p=.003). Significant value is less than 0.05. so that it was also highly significant. Mean different was 0.86. standard deviation was 0.91, "t" value was 3.67 and degree of freedom was 14. Other authors found that The VAS pain scale was measured for measuring pain and discomfort in different working position like general pain intensity experimental group significant level was p<.015 and control group significant level was p<.008. Here both groups are significant in in paired t test (p<.05 or more p value) but control group is more significant than experimental group. (Akter, S., 2016).

Literature shows that radiating pain of the participants experimental group pre yes was 53.33%, post yes was 13.33% where no pre was 46.67%, post no was 86.67%. On the other hands control group pre yes was 40%, post yes was 26.67% where no pre was 60% , post no was 73.33%.

Researcher found that sensory deficit of the participants experimental group pre yes was 13.33% where no pre was 86.67%, post no was 100%. On the other hands control group pre yes was 40%, post yes was 26.67% where no pre was 60%, post no was 73.33%.

In this article shows that sensory deficit of the participants experimental group pre normal was 86.67% where normal post was 100%, impaired pre was 13.33%. On the other hands control group normal pre was 40%, normal post was 73.33% where impaired pre was 60%, impaired post was 26.67%.

This result shows that muscle spasm of the participants experimental group pre yes was 33.3% where no pre was 66.7%, post no was 100%. On the other hands control group pre yes was 20%, post yes was 13.3% where no pre was 80%, post no was 86.7%.

Article shows that muscle power of neck of the experimental group (p=.000). Significant value is less than 0.05. so that it was highly significant. Mean different was -.800. standard deviation was .414, "t" value was -7.483 and degree of freedom was 14. and pain severity by VAS scale of the control group (p=.003). Significant value is less than 0.05. so that it was significant. Mean different was -.267. standard deviation was 0.458, "t" value was -2.256 and degree of freedom was 14.

In this article shows that neck stiffness of the participants experimental group pre yes was 20% where no pre was 80%, post no was 100%. On the other hands control group pre yes was 20%, post yes was 13.3% where no pre was 80% post no was 86.7%.

In this result shows that ROM of neck of the experimental group flexion (p=.000). Significant value is less than 0.05. so that it was highly significant. Mean different was 5.667. standard deviation was 4.577, "t" value was 4.795 and degree of freedom was 14. Experimental group extension (p=.000). Significant value is less than 0.05. so that it was highly significant. Mean different was 8.333. standard deviation was 5.563, "t" value was 5.801 and degree of freedom was 14. Experimental group side rotation (p=.000). Significant value is less than 0.05. so that it was also highly significant. Mean different was 7.333. standard deviation was 5.300, "t" value was -5.358 and degree of freedom was 14. Control group flexion (p=.015). Significant value is less than 0.05. so that it was significant. Mean different was 2.667. standard deviation was 3.716, "t" value was 2.779 and degree of freedom was 14. Control group extension (p=.136). Significant value is less than 0.05. so that it was no significant. Mean different was 1.667. standard deviation was 4.082, "t" value was 1.581 and degree of freedom was 14. Control group side rotation (p=.028). Significant value is less than 0.05. so that it was significant. Mean different was -2.000. standard deviation was 3.162, "t" value was 2.449 and degree of freedom was 14. Islam, A.T.M., 2013 found that the outcome of the researched reveals also significant Improvement of ROM In case of neck flexion (p<.0.001), extension (p<0.01), right side bending (p<0.02), left side bending (p<0.001), left side rotation (p<0.001) but not

statistically significant improvement has been found in Right side rotation of neck. (Islam, A.T.M., 2013).

CHAPTER:VI CONCLUSION & RECOMMENDATION

6.1 Conclusion

The result of this experimental study has identified the efficacy of mechanical traction among the patient with chronic neck pain. Mechanical traction is used along with conventional physiotherapy that aims to reduce pain, increase functional activity and also increase range of motion of neck, to facilitate rehabilitation program. The result indicates that the pain intensity, muscle power and range of motion was significant changes in both experimental and control groups. It is important to develop research-based evidence of physiotherapy practice in this area. So, the next generation of physiotherapy members should continue study regarding this area.

6.2 Recommendation

The purpose of the study aims to efficacy of mechanical traction among the patient with chronic neck pain. A large number of patients were suffering from chronic neck pain. In this study, the researcher provided 8 sessions of treatment to both groups and measure pain intensity and muscle strength and ROM. As a consequence of the research, it is recommended that with further well-controlled double blinding study include comparison of the conventional physiotherapy with mechanical traction with the conventional physiotherapy alone and assessing effects and efficacy of these treatments. It is recommended to do further study with a greater number of subjects and with a longer time frame. It is also recommended to include the functional outcome assessment of patient and to identify the average number of sessions that are needed to be discharged from treatment to validate the treatment technique. Physiotherapist may provide proper recommendation for every single risk which will be helpful for better service.

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QUESTIONNAIRE (English)

Title

“COMPARISON BETWEEN EFFECTIVENESS Of MECHANICAL TRACTION AND CONVENTIONAL PHYSIOTHERAPY IN THE TREATMENT OF PATIENTS WITH CHRONIC NECK PAIN”.

Date…. /….. /20.. Code no: | | | |

Participant name: …….

Address: ……

Mobile no: ……

Section:1. Sociodemographic information

Q.no.	Question	Answer
1.	How old are you?	
2.	Gender/sex of the participant? 1. Male 2. Female 3. Third gender	
3.	Where do you live? 1. Urban 2. Semi urban 3. Rural	
4.	What is your education level? 1. Primary 5. Graduate 2. JSC 6. Illiterate 3. SSC 7. Others / above	

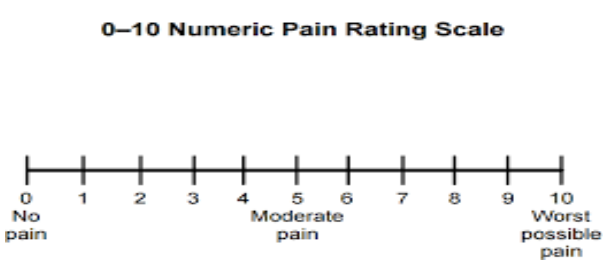
	4. HSC	
5.	What is your occupation? 1.Teacher 5. Student 2.Doctor 6. Farmer 3.Banker 7. Housewife 4.Player 8. Others	
6.	Marital status? 1.Maried 4. Divorced 2.Unmarried 5. Separated 3.Widowed 6. Others	
7.	What is your family type? 1. Nuclear 2. Extended	
8.	What about your family monthly income?	
9.	BMI Body weight in kg Hight in cm	

Section: 2. Condition related information:

Q.no.	Question	Answer
10.	How long time have you been suffering from chronic neck pain?	
11.	Have you any history of trauma in the neck? 1.Yes 2. No	

12.	Have any contracture in the muscle? 1.Yes 2.No	
13.	Have any neck deformity? 1. Yes 2. No	
14.	Did you get any treatment for neck pain? 1. Yes 2. No If yes, please answer 14	
15.	What type of intervention have you taken? 1. Medication 2. Physiotherapy 3. Both 4. Others	

Section: 3. Treatment related information:

Q.no.	Question	Pre test	Post test
16.	Severity of pain? (VAS scale) 		

17.	Do you have radiating pain? 1. Yes 2. No		
18.	Do you have sensory deficit? 1. Yes 2. No		
19.	If yes, what are the condition of sensory deficit? 1. Normal 2. Impaired 3. Absent		
20.	Do you have muscle spasm? 1. Yes 2. No		
21.	Muscle power of neck. (According to oxford muscle grade).		
22.	Do you have neck stiffness? 1. Yes 2. No		
23.	ROM of neck 1. Flexion (40-50 degree) 2. Extension (70-80 degree) 3. Side rotation (60-70 degree)		

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সম্মতিপত্র

উত্তর দাতার আইডি নম্বর | | | |

প্রিয় অংশগ্রহণকারী,

আমি স্বপন চন্দ্র সাহা সাইক কলেজ অব মেডিকেল সায়েন্স অ্যান্ড টেকনোলজি (এস সি, ,এম,এস,টি,)-এর বি এস সি ইন ফিজিওথেরাপী বিভাগের ফাইনাল বর্ষের ছাত্র । আমার বি এস সি ইন ফিজিওথেরাপী ডিগ্রি সম্পন্ন করতে গবেষণার অংশ হিসাবে "দীর্ঘস্থায়ী ঘাড় ব্যথা রুগীদের মধ্যে যান্ত্রিক ট্র্যাকশনের কার্যকারিতা" শিরোনামের একটি গবেষণার কাজ করছি । এখানে আপনার সামাজিক – জনতাত্বীক তথ্য , আপনার ব্যবহারিত দ্রব্য এবং পেশাগত স্বাস্থ্য ঝুঁকি সম্পর্কে কিছু প্রশ্ন দেয়া আছে যা আপনাকে পূরণ করতে হবে ।আপনার নিজের দেয়া সাক্ষাতকার দিতে ১৫-২০ মিনিট সময় লাগবে । এখানে প্রশ্নাবলীর একটি তালিকা দেয়া আছে এবং আপনাকে প্রত্যেকটি প্রশ্নের উত্তর দিতে হবে । এই গবেষণার প্রাপ্ত তথ্য শুধুমাত্র শিক্ষা ক্ষেত্রে ব্যবহার করা হবে এবং অংশগ্রহণকারীর ব্যক্তিগত তথ্য সম্পূর্ণ গোপণীয়তার মধ্যে থাকবে , অন্য কোথাও প্রকাশ করা হবে না । গবেষণা চলাকালীন সময়ে অংশগ্রহণকারী কোনোরকম দ্বিধা বা ঝুঁকি ছাড়াই যেকোনো সময় এটাকে বাদ দিতে পারবেন । আপনার একান্ত সহযোগীতা কামনা করছি ।

অংশগ্রহণকারীর ঘোষণা

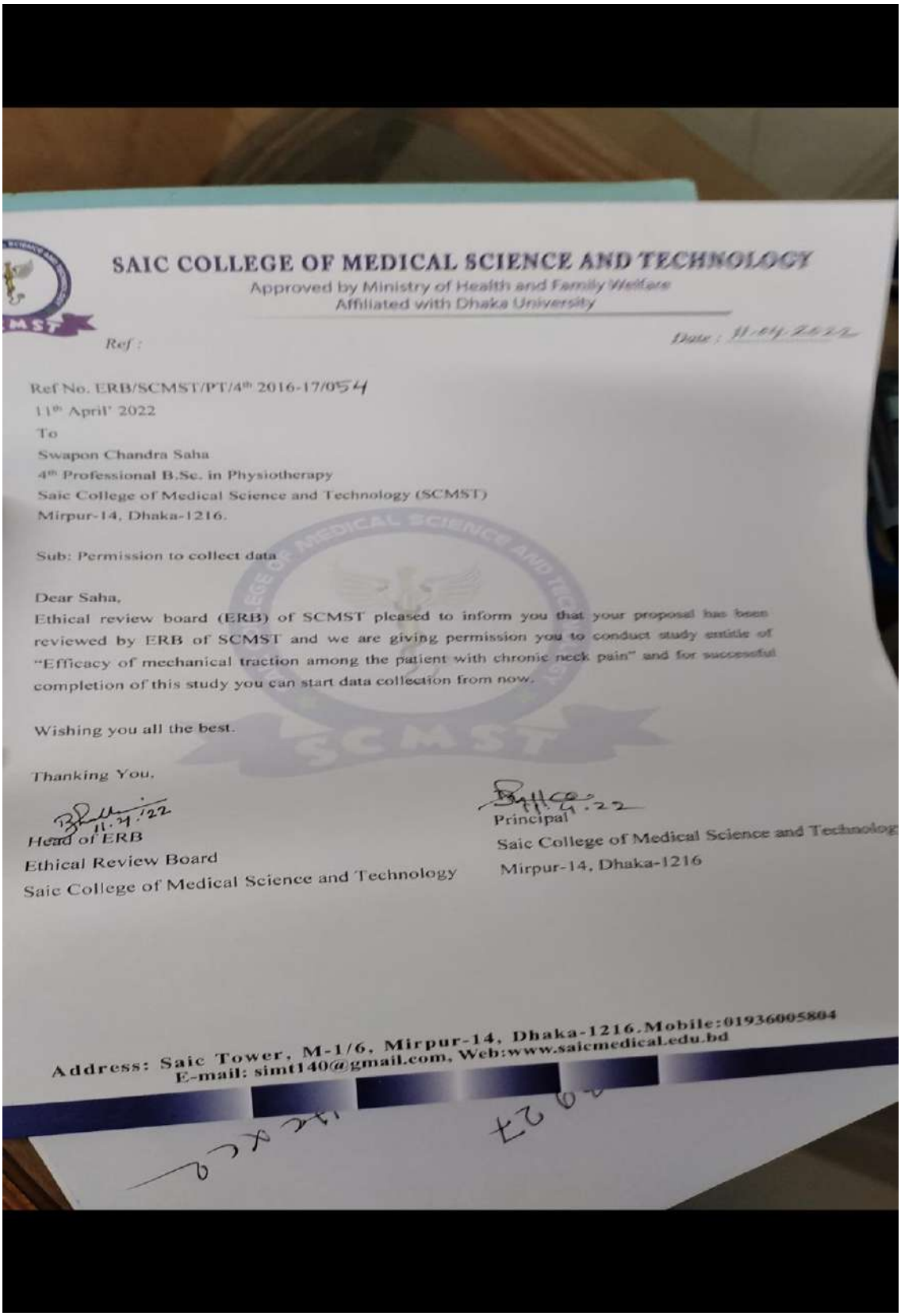
আমাকে এই নিরীক্ষার জন্য আমন্ত্রন জানানো হয়েছে ।আমাকে সম্পূর্ণ প্রশ্নগুলো পরে বুঝানো হয়েছে এবং আমি কোন দ্বিধা ছাড়াই উত্তর দিয়েছি ।আমি লক্ষ্য করেছি, এই গবেষণায় আমার অংশগ্রহণ শেচ্ছায় এবং কোনোরকম ঝুঁকি ছাড়াই, আমি যে কোন সময় এটাকে বাদ দিতে পারব । আমি এই গবেষণায় অংশগ্রহণ সম্পূর্ণ সম্মতি জ্ঞাপন করছি ।

অংশগ্রহণকারীর নাম.....

স্বাক্ষর এবং তারিখঃ.....

টিপসইঃ.....

সাক্ষীর স্বাক্ষরঃ.....



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref :

Date : 11-04-2022

Ref No. ERB/SCMST/PT/4th 2016-17/054
11th April' 2022

To
Swapon Chandra Saha
4th Professional B.Sc. in Physiotherapy
Saic College of Medical Science and Technology (SCMST)
Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Saha,
Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving permission you to conduct study entitle of "Efficacy of mechanical traction among the patient with chronic neck pain" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

11.4.22
Head of ERB
Ethical Review Board
Saic College of Medical Science and Technology

11.4.22
Principal
Saic College of Medical Science and Technology
Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216.Mobile:01936005804
E-mail: simt140@gmail.com, Web:www.saicmedicaLedu.bd

Gantt Chart/ Time frame

Activities / Month	Nov 22	Dec 22	Jan 23	Feb 23	Marc 23	April 23	May 23	Jun 23	July 23	Aug 23	Sep 23	Oct 23
Proposal presentation												
Introduction												
Literature review												
Methodology												
Data collection												
Data analysis												
Result												
1st presentation												
Discussion												
Conclusion & recommendation												
2nd presentation												
Communicate with supervisor												
Final submission												