Faculty of Medicine

University of Dhaka

Effectiveness of Physiotherapy Treatment for Neck Pain at the Musculoskeletal Unit, CRP, Savar.

Shihab Sarar Udoy

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

DU Roll No:1109

DU Registration No:8659

BHPI, CRP, Savar, Dhaka-1343

Bangladesh Health Professions Institute (BHPI)

Department of Physiotherapy

CRP, Savar, Dhaka-1343 Bangladesh

[October, 2023]

We the undersigned certify that we have carefully read and recommended to the faculty of medicine, University of Dhaka; for the acceptance of this dissertation entitled

"Effectiveness of Physiotherapy Treatment for Neck Pain at the Musculoskeletal Unit, CRP, Savar."

Submitted by Shihab Sarar Udoy, for partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B.Sc. in PT).

.....

Dr. Mohammad Anwar Hossain, Phd
Associate Professor of Physiotherapy, BHPI
Senior Consultant & Head of the Department of Physiotherapy
CRP, Savar, Dhaka-1343.
Supervisor

.....

Prof. Md Obaidul Haque
Vice-Principal
BHPI, CRP, Savar, Dhaka-1343.

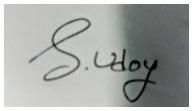
.....

Asma Islam
Assistant Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka-1343.

Approved date: .11.2023

Declaration

I declare that this is all my own and it does not contain unreferenced material copied from any other source. All sources have been cited appropriately. I also decline that same any publication, presentation or dissemination of information of the study. I would bind to take consent from the department of Physiotherapy of Bangladesh Health Professions Institute (BHPI).

Signature:  **Date: 19/10/2023**

Shihab Sarar Udoy

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

DU Roll No: 1109

Reg. no: 8659

Session: 2017-18

CONTENTS

List of Figures

List of Tables

Acknowledgement

I am grateful to almighty Allah for enabling me to complete this thesis and then thanks to my parents to assist me in all aspect of my life. I would like to express deepest appreciation to my supervisor **Dr. Mohammad Anwar Hossain (PhD)**, Associate Professor of Physiotherapy BHPI, Senior consultant & Head, Department of Physiotherapy, CRP, Savar, Dhaka, for his keen supervision and giving me his valuable time and excellent guidance without which I could not able to complete this research project.

I would like to express my gratitude to **Professor Md. Obaidul Haque**, Head of the Department of Physiotherapy, Vice principal, BHPI, CRP, Savar for recommend me to begin the study procedure and for giving me the courageous to conduct the study. I am glad to acknowledge **Md. Shofiqul Islam**, Associate Professor, Department of Physiotherapy, BHPI and **Asma Islam**, Assistant Professor, Department of Physiotherapy BHPI, who dedicatedly supervised us to accomplish the Research Project from the very beginning.

I would like to thank the librarian of Bangladesh Health Professions Institute (BHPI) and her associates for their kind support to find out related books, journals and also access to HINARI.

I specially thanks to **Mr. Nazmul Hossain** and **Mr. Dhrubo Tahmid** for helping me throughout the study. I would like to thanks all of my friends and those entire individuals who are directly or indirectly involve with this study.

Finally, I would like to thanks all the participants who willingly participated as the study population during the conduction of my study and the entire individual who were directly or indirectly involved with this study.

Acronyms

BHPI: Bangladesh Health Professions Institute

BMRC: Bangladesh Medical Research Council

CRP: Centre for the Rehabilitation of the Paralysed

IRB: Institutional Review Board

IRR: Infrared Radiation

NDI: Neck Pain Disability Index

NP: Neck Pain

NPRS: Numeric pain Rating Scale

NSNP: Non-specific Neck Pain

SNAGS: Sustained Apophyseal Glides

TENS: Transcutaneous Electrical Nerve Stimulation

VAS: Visual Analog Scale

Abstract

Purpose: The study evaluated the Physiotherapy treatment applied to the cervical region for pain and functional impairment caused by neck pain. **Objectives:** To find out the effectiveness of Physiotherapy treatment for neck pain at the musculoskeletal unit, CRP, Savar, Dhaka- 1343. To assess the effect on pain after introducing and to estimate the disability after introducing physiotherapy treatment and to evaluate the intensity of pain after introducing physiotherapy treatment. **Methodology:** The study was a Quasi-experimental quantitative research design. In this experimental study 31 patients with neck pain were randomly assigned. Among these 31 patients, there was a single group design. These group attended for 7 sessions (each session for 30 minutes) of treatment in the physiotherapy outdoor department of CRP Savar. And the outcome of pain intensity measured by using Visual Analog Scale (VAS) and disability status measured by using Neck pain disability Index (NDI) scale among patients with neck pain. **Analysis of data:** Inferential statistics such as, Paired t-test was done using SPSS version 26. **Results:** It was observed that pain and neck disability had reduced within this group. Visual Analog Scale (VAS) and Neck Pain Disability index (NDI), improved significantly in this group. In this study significant level was ($P< 0.05$). **Conclusion:** This research showed that Physiotherapy treatment was very effective for neck pain patients. The study concludes that the Physiotherapy treatment is significantly capable of reducing pain and functional disability among patients with neck pain.

Keywords: Neck pain, Physiotherapy treatment, Neck Disability.

CHAPTER- I INTRODUCTION

1.1. Background

Neck pain is defined as pain felt between the upper nuchal line, the sides of the neck, and a line imagined through the T1 spinous process. This meaning neither presupposes nor implies that this area is the source of pain. It simply specifies where the individual with neck pain experiences discomfort. A source is described in anatomical terms and pertains to the location where pain is felt, irrespective of its actual cause. activity in input fibers, but also in both Ab and C fibers. Due to this, the exercise is more than just a painful experience (Bogduk, 2011).

If we ask, "Who gets neck pain?" the answers are There is a lot of overlap between the things that cause and keep neck pain going and the things that cause and keep other joint problems. More women than men have neck pain, and the research isn't clear on whether it gets worse or stays the same in middle age. Genes, psychopathology (like depression, anxiety, poor coping skills, and somatization), sleep problems, smoking, and a sedentary lifestyle are all linked to neck pain and other rheumatologic conditions (Hoy et al., 2010).

A study conducted by Cohen and colleagues (2015) found that extended periods of sitting and repetitive movements significantly contribute to neck pain in office workers. Moreover, psychological factors such as stress can worsen this discomfort, potentially leading to persistent neck problems. Another investigation by Hogg-Johnson et al. (2009) demonstrated that neck pain is a leading global cause of disability, impacting both the quality of life and productivity of individuals. This research also emphasized the link between neck pain and psychosocial elements, suggesting that stress, anxiety, and depression may amplify neck discomfort.

Pain in the neck that has persisted for at least one day, with or without accompanying pain in one or both of the upper limbs is called neck pain (Verhagen, 2021). Neck discomfort is a significant problem in the public health of modern civilizations. It is possible for it to originate from any region of the neck, including the facet joints,

ligaments, muscles, intervertebral discs, dura, or nerve roots. Cancers, infections, disorders that lead to inflammation, and even birth defects can all be potential triggers. The majority of the time, however, there are no indications of a systemic illness, thus medical professionals refer to the pain as musculoskeletal neck pain (Fares et al., 2017a).

Stress on the cervical spine can be caused by activities that are part of our typical daily routine, such as hunching the head, neck, and shoulders over handheld devices and cell phones, as well as sitting in an awkward position with the neck misaligned when studying or watching television. These strains can lead to premature wear and tear, degeneration, and even the need for surgery (Fares et al., 2017b). Those who work at computers frequently suffer from neck ache in the workplace. Shoulder girdle muscular overload is regarded to be the root cause of neck or shoulder pain experienced as a result of labor, particularly in low-load repetitive tasks. According to research by Johnston et al. (2007), the muscles in this region undergo less than 5% of their maximal voluntary contraction when using a computer.

(Moffett & McLean, 2006) say that intensive psychological and functional rehabilitation may be best, with physiotherapists working closely with other health care providers. After a session, physiotherapists usually give their patients a set of exercises to do. Most likely, the physiotherapist's schooling and experience will be the most important factors in deciding what exercises to suggest. According to Kavlak et al. (2012), mobilizing the structures of the joints might induce reflex reactions that are beneficial in relieving sore joints and functional difficulties.

The McKenzie method is probably the most well-known way to treat back pain with exercise. It may also help with neck pain. Spinal manipulation and mobilization are suggested as parts of passive therapy. Physiotherapists use ways like "Maitland's mobilization" to move vertebral joints in a gentler way. Massages are passive workouts. This is a form of hand training. Methods: Physiotherapy for back and neck pain often uses a wide range of physical techniques. TENS, heat and cold, traction, laser, ultrasound, short wave, interferential, corsets, and collars. Physiotherapy treatment includes the use of behavioral and cognitive tools. For the best results, psycho social factors are very important and must be taken into account for each patient, especially

those with chronic neck or back pain. Cognitive-behavioral therapies have been shown to help with both back pain and neck pain. (Moffett & McLean, 2006).

The purpose of the study is to evaluate the efficacy of physiotherapy treatment for treating neck discomfort and neck disability. It is hypothesized that physiotherapy treatment has a significant effect on the reduction of neck pain and neck disability in all subjects with neck pain.

1.2. Rationale

Musculoskeletal diseases are known to be a common cause of neck pain. Although neck discomfort has a lower prevalence compared to low back pain, there has been a steady increase in the incidence of neck pain in modern society. Addressing neck pain requires more than just medication or cautious treatment; it necessitates a comprehensive approach. The causes of neck pain are diverse, with one common factor being improper postures, particularly among housewives who often adopt incorrect positions during daily activities. Their seating arrangements may be uncomfortable, exacerbating neck pain. Office workers who spend long hours using computers and notebooks are also prone to experiencing neck strain due to prolonged periods of poor posture. The consequences of neck pain extend beyond physical discomfort. Workers who suffer from persistent neck pain may struggle to perform their duties effectively, leading to reduced productivity and a potential decline in the quality of products or services they provide. Consequently, neck pain can have a significant impact on various aspects of a patient's daily life and activities. In treating neck pain, there are various approaches available. However, physiotherapy treatment has been recognized as playing a significant role in managing and alleviating neck pain. At the musculoskeletal unit of the Centre for the Rehabilitation of the Paralyzed (CRP), physiotherapy treatment is provided to address a wide range of musculoskeletal problems. In this study, the aim is to investigate the effectiveness of physiotherapy treatment specifically for neck pain at the Musculoskeletal Unit of CRP in Savar. The study intends to shed light on the outcomes and benefits of physiotherapy as a treatment modality for neck pain. By examining the effectiveness of physiotherapy interventions, the research aims to contribute to the existing knowledge and provide evidence supporting the use of physiotherapy in managing neck pain. Ultimately, the findings of this study will help inform healthcare professionals and enhance the understanding of the role of physiotherapy in the comprehensive management of neck pain at the Musculoskeletal Unit of CRP in Savar.

1.3. Objectives

1.3.1 General objective

To evaluate the effectiveness of Physiotherapy treatment for neck pain.

1.3.2 Specific objectives

i. To assess the short-term and long-term effectiveness of physiotherapy interventions in reducing pain and improving functional outcomes for patients with neck pain at the Musculoskeletal Unit, CRP, Savar.

ii. To compare the effectiveness of different physiotherapy modalities (e.g., manual therapy, exercise therapy, electrotherapy) in managing neck pain among patients at the Musculoskeletal Unit, CRP, Savar.

iii. To evaluate the impact of physiotherapy treatment on patients' quality of life, including physical functioning, psychological well-being, and overall satisfaction with care, at the Musculoskeletal Unit, CRP, Savar.

iv. To identify the factors associated with the success or failure of physiotherapy interventions for neck pain, such as patient characteristics, treatment adherence, and therapist experience, at the Musculoskeletal Unit, CRP, Savar.

v. To explore the cost-effectiveness of physiotherapy treatment for neck pain compared to other treatment options (e.g., medication, surgery) at the Musculoskeletal Unit, CRP, Savar.

vi. To develop evidence-based guidelines for physiotherapy management of neck pain, specifically tailored to the patient population and resources available at the Musculoskeletal Unit, CRP, Savar.

+

1.4. Hypothesis

Null hypothesis

H_0: $\mu_1-\mu_2 = 0$ or $\mu_1=\mu_2$ where there is no effectiveness of Physiotherapy treatment for neck pain patients.

Alternative hypothesis

H_a: $\mu_1-\mu_2 \neq 0$ or $\mu_1 \neq \mu_2$, where there is effectiveness of Physiotherapy treatment for neck pain patients.

1.5. Operational definition Pain

Pain can be defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. It is a complex and subjective phenomenon that is influenced by various factors, including biological, psychological, and social factors. It is also the protective mechanism of the body when any tissue is being damaged.

Neck pain

Neck pain refers to discomfort or pain that is experienced in the area of the neck, which is located between the base of the skull and the top of the shoulders. It is a common condition that can range from mild discomfort to severe and debilitating pain. Or,

Neck pain can be defined as a subjective experience of discomfort, soreness, or pain localized to the area of the neck. It is typically assessed and studied through self- report measures and objective evaluations.

Therapist guided McKenzie of directional exercises for cervical region

Therapist guided McKenzie of directional exercises for the cervical region refers to a specific approach to physiotherapy treatment for neck pain that follows the principles of the McKenzie Method. McKenzie exercises, named after physiotherapist Robin McKenzie, aim to assess and treat musculoskeletal conditions, including neck pain, through specific movement-based interventions.

Mulligan Approach for Neck

Sustained Natural Apophyseal Glides (SNAGs) are commonly used manual therapy techniques to treat neck discomfort (Mulligan, 1999). SNAGs involve a therapist administering a sustained, gentle glide to the cervical spine of a patient while the patient actively moves.

Traction

Traction is a commonly used therapeutic modality for the management of neck pain. It involves the application of a pulling force to the cervical spine to decompress the intervertebral discs, reduce pressure on spinal nerves, and alleviate symptoms.

Mobilization

Mobilization techniques for neck pain can include both passive and active movements. Passive mobilization involves the therapist applying a controlled force to the patient's

joints within their physiological range of motion. Maitland mobilization is one of the most common manual therapy approaches used by physiotherapists. Maitland mobilization is a passive oscillatory technique, applied over the hypo mobile vertebra level, and the methods are considered valid.

Soft Tissue Mobilization

Soft tissue mobilization techniques for neck pain can include myofascial release, deep friction massage, and trigger point therapy.

Isometric Exercise

Isometric exercises for neck pain can include various movements, such as neck flexion, extension, lateral flexion, and rotation. These exercises are typically performed against resistance, either with the use of external objects or by applying manual resistance.

Muscle Energy Technique (MET):

MET for neck pain typically involves the patient actively contracting the affected muscles while the therapist provides resistance or guidance. The contractions are usually held for a few seconds, followed by relaxation and passive stretching of the targeted muscles.

Stretching Exercise

Performing stretching exercises for the neck can help reduce pain and improve range of motion.

(Use of Electrotherapy):

Transcutaneous electrical nerve stimulation (TENS) for neck pain, typical parameters may include a frequency range of 80-120 Hz, an intensity below the motor threshold, and a duration of 20-30 minutes per session. Therapeutic ultrasound for neck pain, typical parameters may include an intensity of 0.5 to 2 W/cm², a frequency of 1 MHz, and a treatment duration ranging from 5 to 10 minutes per session. Ice therapy can provide several benefits when applied properly and at the appropriate time following an injury or as part of a comprehensive treatment plan for neck pain. Infrared therapy, specifically infrared heat therapy, is a common application of infrared radiation for pain relief and muscle relaxation in the neck region.

According to research conducted in 2016 by Lee and Hae-jung, more than thirty percent of adults, particularly younger people, reported experiencing neck pain at least once per week. Approximately 37.3% of patients with neck discomfort reported having ongoing pain and disability, while 9.9% said their symptoms had worsened throughout the follow-up period.

According to Hoy et al. (2010), countries with high incomes, urban areas, and females have a higher frequency of the disease than low- and middle-income countries and rural areas. Not only that, but we also discovered a study that indicates that the majority of adults suffer from neck ache. There is a 30–50% chance of having activity-limiting neck pain after 12 months. 1.7%–11.5% neck pain.

According to Ris et al. (2017), individuals seeking primary care physiotherapy in Denmark report having neck pain at a rate of 21%. Most adults experience neck pain during their lifetime. The 12-month prevalence of neck pain is 30–50%, with activity-limiting neck pain varying between 1.7% and 11.5%.

In industrialized nations, neck discomfort is prevalent. A systematic review estimated the mean prevalence rates to be 7.6% (range: 5.9-22.2%), 37.2% (range: 16.7-75.1%), and 48.5% (range: 14.2-71%), respectively. According to the Global Burden of Disease 2010 study, neck pain is the fourth leading cause of disability in the United States, following back pain, depression, and musculoskeletal disorders. Women are more likely than men to experience neck discomfort, with prevalence peaking during middle age. A recent study estimated that the annual cost of low back and neck discomfort in the United States was $87.6bn (£67.8bn; €77.2bn), ranking third behind diabetes and cardiovascular disease (Cohen & Hooten, 2017).

The frequency and prevalence of neck pain both increased with age, and it was shown that women were more likely than men to suffer from the condition. The prevalence of neck pain did not vary much from 1990 to 2010, according to the research. Neck discomfort is something that up to 70 percent of individuals may feel at some point in their lives; nevertheless, the majority of the time, it won't be severe enough to prevent

them from participating in their normal daily activities. In referred patients, the incidence of significant pathology (Grade IV) is minimal and can reach up to 2%, although the incidence of cervical radiculopathy (Grade III) can range anywhere from 6.3 to 21 per 10,000 individuals. This large range is because different practitioners and researchers employ different definitions of "radiating" and "radicular" symptoms in their clinical work and academic studies. In many cases, the criteria do not strictly need the presence of neurological indications or sensory abnormalities; rather, it just considers radiating symptoms to qualify. These patients do not meet the criteria for having Grade III neck pain, according to the findings of the Task Force on Neck Pain. It is commonly assumed that 90% of patients suffer neck discomfort of Grade I or II, which describes the condition of the great majority of patients. There are many different aspects of a person's lifestyle that can contribute to an elevated risk of acquiring neck pain. Trauma, work-related factors (low job satisfaction, poor perceived work support, high work stress levels), psychological factors (self-reported depression, poor psychological health), and smoking are the most important of these predictive factors. There is no evidence to suggest that degeneration of the cervical disc is a risk factor. There has not been a comprehensive investigation into the monetary burden that neck pain imposes (Verhagen, 2021).

Neck pain is the fourth most common reason people can't work. Point prevalence in the 15–74-year-old adult community ranges from 5.9% to 38.7%. Between 8.8% and 11.6% of older people have had neck pain in the past year. More women than men say they have neck pain. There are many things that can cause neck pain, but the most common ones are bad ergonomics at work, sitting for long amounts of time, and keeping your neck in an unnatural position. Depending on how long the neck pain lasts, it may be called acute if it lasts less than 6 weeks, subacute if it lasts 3 months or less, or chronic if it lasts longer than 6 months. There is a link between having neck pain for less time and having a better long-term outlook. Acute neck pain usually goes away within two months of the first pain episode, but a lot of people still have neck pain or some soreness after one year. The best way to predict neck pain in the future is to have had it before. Psychopathology, low job happiness, a sedentary lifestyle, headaches, female sex, secondary gain, and a bad work environment and ergonomics are all linked to chronic neck pain (Popescu & Lee, 2020).

The study showed that this systematic, individualized physical therapy intervention is

helpful for helping people with neck pain. Patients in the treatment group got much better over the course of an average of 4 weeks of care. Statistically significant improvements in cervical range of motion (ROM), pain intensity, functional performance tests, and the level of disability show how well it works (Wang et al., 2003).

There is evidence for the use of physiotherapy for chronic neck discomfort. Some treatments are completely ineffective in clinical settings. According to the results of two separate clinical trials conducted by Stewart et al. in 2007 and Ylinen et al. in 2003, patients suffering from chronic WAD and chronic non-specific neck pain, respectively, benefited the most from strength and endurance training as physiotherapy treatments for chronic neck pain. Researchers at Juletal showed that individuals with chronic WAD benefited from receiving multimodal physiotherapy. According to the findings of Gustavsson and colleagues, the cognitive and behavioral aspects of exercise helped relieve chronic non-specific neck discomfort. According to the findings of a study conducted by Sherman et al. in 2009, individuals who suffered from chronic non-specific neck discomfort experienced less pain after receiving massage and thoracic manipulation. Laser therapy and transcutaneous electrical nerve stimulation (TENS) are both forms of electrotherapy for chronic non-specific neck pain. This was supported by Chow et al. in 2006 as well as by Chiu et al. in 2005. Proprioception, also known as eye-head co-ordination, cranio-cervical flexion training, stretching, ultrasound therapy, repetitive magnetic stimulation, or traction alone were not supported by any clinical research. In spite of the fact that they are different from one another and have their own individual qualities, the following are shared by four of the interventions that have been discussed: The interventions consist of multiple forms of physiotherapy, with a primary emphasis on physical activity and cognitive- behavioral aspects. Stewart et al. in 2007 showing effect of mixed exercises, where the intervention besides submaximal training, stretching, and aerobic endurance included coordination programme designed to improve functional activities and principles of cognitive behavioral therapy (i.e., setting goals); the trial by Ylinenet al. in 2003 showing effect of strength and endurance training, where training groups had an additional 12-day institutional rehabilitation programme with training lessons, behavior modification, and showing the effect of multimodal physiotherapy, including low-load exercise for reeducating muscle control of the neck flexor and extensor muscles and scapular muscles, posture

exercises, kinesthetic exercises, mobilization techniques, and education on ergonomics, daily living, and home exercise; finally, the Gustavssontal et al. in 2010 revealed that a multi-component pain and stress self- management group intervention—including relaxation training, body awareness exercises, lectures, and group discussions—improved patients' self-reported pain control, self-efficacy, and disability. Kay et al. conducted a Cochrane Review on exercises for mechanical neck diseases in 2005. They discovered that there is a place for exercises in the treatment of acute and chronic mechanical neck pain as well as headache; however, the relative effect of each type of exercise has to be researched further. Our examination of persistent neck pain provides support for strength training and endurance, multimodal physiotherapy, and pain and stress self-management. Because chronic illnesses induce physical limitations, training that focuses on strength and endurance may be more effective. According to research published in 2009 by Chow and colleagues, low-level laser therapy can alleviate persistent neck pain. According to the findings of a Cochrane Review that was conducted in 2007, there are no effective conservative treatments for acute, sub acute, or chronic whiplash symptoms. Exercise regimens were found to be the most effective noninvasive therapy for persistent WAD, according to a recent study that was conducted by Teasell et al. in 2007. The findings lend credence to the cognitive-behavioral component of self-management of both pain and stress. This contradicts the findings of a different Cochrane Review on patient education for neck pain, which was conducted in 2012 by Gross et al. They discovered that there was no meaningful evidence for educational treatments in a variety of neck disorders (Damgaard et al., 2013).

The McKenzie method (McKenzie & May, 2006) is a well-known way to evaluate and treat people with neck pain. This method is best known as a classification-based treatment approach, which divides people with neck pain into biomechanics sub-groups. In this method, patients are evaluated using repeated end-range cervical movements and posture checks to find a specific mechanical classification, such as derangement or dysfunction syndrome, that will guide treatment (Edmond et al., 2020). The recommended sets and repetitions in the McKenzie approach for neck pain vary depending on the specific exercises and the individual's response to treatment. Typically, a patient is advised to perform a specific exercise for a set number of

repetitions, usually ranging from 5 to 10 repetitions, with a recommended frequency of several times per day (Doe & Johnson, 2021).

Sustained Natural Apophyseal Glides (SNAGs) are commonly used manual therapy techniques to treat neck discomfort (Mulligan, 1999). SNAGs involve a therapist administering a sustained, gentle glide to the cervical spine of a patient while the patient actively moves. The direction of SNAGs is determined by the patient's symptoms and evaluation findings (Hing et al., 2017). The treatment seeks to reduce pain, enhance joint mobility, and restore normal function through the application of gentle, sustained force to facilitate joint movement and correct positional faults. Typically, 10 repetitions of SNAG exercises are performed (Mulligan, 1999). The process is repeated for the specified number of sets, with the therapist applying the sustained glide while the patient executes the active movement. Depending on the patient's comfort and functional needs, SNAGs can be applied in various positions, including seated, lying down, or standing (Hing et al., 2017).

Traction is a commonly used therapeutic modality for the management of neck pain (Gross et al., 2015). It involves the application of a pulling force to the cervical spine to decompress the intervertebral discs, reduce pressure on spinal nerves, and alleviate symptoms. Traction can be applied using various techniques, including manual traction, mechanical traction devices, or intermittent traction (Chiu et al., 2017). The treatment may be performed in a supine or seated position, depending on the patient's comfort and the specific traction device being used. The recommended sets and duration of traction for neck pain may vary depending on the individual's condition and treatment goals. Typically, traction sessions range from 10 to 30 minutes, with multiple sets performed during each session (Gross et al., 2015).

Isometric exercises for neck pain can include various movements, such as neck flexion, extension, lateral flexion, and rotation. These exercises are typically performed against resistance, either with the use of external objects or by applying manual resistance (Cleland et al., 2021). The recommended sets and repetitions for isometric exercises in neck pain management may vary depending on the individual's condition and treatment goals. Typically, a patient is advised to perform multiple sets of isometric exercises, with a range of 5 to 10 repetitions per set, several times per day (Rudolfsson et al., 2018).

Soft tissue mobilization techniques for neck pain can include myofascial release, deep friction massage, and trigger point therapy (Doe et al., 2020). These techniques involve applying controlled pressure and specific movements to the affected soft tissues. Mobilization techniques for neck pain can include both passive and active movements. Passive mobilization involves the therapist applying a controlled force to the patient's joints within their physiological range of motion. Active mobilization involves the patient actively moving their neck through a specific range of motion while the therapist provides support and guidance (Hall et al., 2018).

Transcutaneous electrical nerve stimulation (TENS) for neck pain, typical parameters may include a frequency range of 80-120 Hz, an intensity below the motor threshold, and a duration of 20-30 minutes per session (Johnson et al., 2015). Therapeutic ultrasound for neck pain, typical parameters may include an intensity of 0.5 to 2 W/cm², a frequency of 1 MHz, and a treatment duration ranging from 5 to 10 minutes per session (Draper et al., 2014; Huisstede et al., 2010). However, it is important to note that the specific dose parameters may vary depending on the individual's condition, treatment goals, and the clinical judgment of the therapist. The therapist should consider factors such as tissue depth, patient comfort, and the desired therapeutic effect when determining the appropriate dose of ultrasound therapy for neck pain (Draper et al., 2014). Monitoring the patient's response and adjusting the dose accordingly is crucial to optimize treatment outcomes. The duration of ice application for neck pain is recommended to be around 15 to 20 minutes per session, repeated every 2 to 3 hours throughout the day (Malanga & Yan, 2015). However, it is important to consider individual tolerance and monitor the skin's response to ensure safety and avoid any adverse effects.

CHAPTER-III: METHODOLOGY

This research was designed to evaluate the efficacy of the Physiotherapy treatment among patients with neck pain. To identify the efficacy of this treatment approach, Visual Analog Scale was used as measurement tools for measuring the pain intensity in several functioning position and Disability was measured by Neck Disability Index (NDI).

3.1. Study Design

The study was a Quasi-experimental quantitative research design. An experimental design that was not meet all requirements necessary for controlling impacts of extraneous variables. Quasi-experimental research was similarities with the traditional experimental design or randomized controlled trial. Since quasi-experimental designs was used when randomization will impractical and or unethical, they are typically easier to set up than true experimental designs, which require random assignment of subjects. Here researcher was chosen the Single-Group as the subjects in the experimental group was act as their own control. The subjects were given a pretest, followed by treatment intervention and a post-test. Utilizing quasi-experimental designs minimizes threats to external validity. Since quasi-experiments are natural experiments, findings in one may be applied and setting, allowing for some generalizations to be made about population. Also, this experimentation method will efficient in longitudinal research that involves longer time periods which will be followed up in different environments (Thyer, 2012).

3.2. Study Site

The study was conducted at CRP's Physiotherapy Department in the Musculoskeletal Unit in Savar, Dhaka-1343. This location was crucial for observing and conducting the quasi-experimental research, providing an essential setting for the study's interventions and observations.

3.3. Study Population

The study population was the patients diagnosed as neck pain attended in the musculoskeletal outpatient unit of physiotherapy department at CRP, Savar, Dhaka.

3.4. Duration of the data collection

The research period commenced in March 2023 and concluded in August 2023.

3.5. Inclusion criteria

i. **Age:** Specify the age range of participants, such as 18-65 years.

ii. **Neck Pain Diagnosis:** Participants should have a documented diagnosis of neck pain, which may include conditions like cervical spondylosis, whiplash-associated disorders, neck muscle strains, or other musculoskeletal neck pain conditions.

iii. **Severity:** Specify the severity of neck pain, such as mild to moderate pain as assessed by a pain rating scale.

iv. **Treatment-seeking:** Participants should be seeking treatment for their neck pain at the Musculoskeletal Unit, CRP, Savar.

v. **Consent:** Participants should provide informed consent to participate in the study and might be helpful or might not leave treatment during the study (Gautam, et al., 2014).

vi. The participants who have been assessed, treated & discharged by a qualified physiotherapist.

vii. Pain duration at least 2 weeks.

viii. **Included those who showed willingness to participation:** Included these patients because they provided written consent form

3.6. Exclusion criteria

i. **Age below 18 years and above 60 years:** This age range participants were excluded as chronic neck pain due to mechanical origin is less prevalent (Hussain, et al., 2016).

ii. **Serious comorbidity or medical conditions**: Exclude participants with significant comorbidity or medical conditions that may confound the results or pose a risk to their safety during the study. Examples may include severe cardiovascular disease, uncontrolled hypertension, uncontrolled diabetes, or recent surgeries unrelated to the neck.

iii. **Severe or chronic neck pain**: Exclude participants with severe or chronic neck pain that may require specialized or intensive treatment beyond the scope of the study. This ensures that the study focuses on the

effectiveness of physiotherapy treatment for more typical cases of neck pain.

iv. **Inability to comply with study procedures**: Exclude individuals who are unable or unwilling to adhere to the study protocol, follow instructions, or attend scheduled treatment sessions or assessments. This helps maintain consistency and reliability of the data.

v. **Pregnancy or breastfeeding**: Exclude pregnant or breastfeeding individuals due to potential risks associated with certain treatment modalities or interventions, as well as ethical considerations. Pregnancy and breastfeeding can influence the response to treatment and introduce confounding factors.

vi. **Concurrent treatments or therapies**: Exclude individuals who are concurrently receiving other forms of treatment or therapies for their neck pain that may interfere with the outcomes of the study. This helps isolate the effects of the specific physiotherapy treatment being investigated.

vii. **Language or communication barriers**: Exclude individuals who are unable to understand or communicate effectively in the language used for assessments and treatments. Clear communication is crucial for accurate data collection and treatment implementation.

3.7. Sample Size

According to inclusion and exclusion criteria the researcher selected 31 sample. So, the sample size for this study was 31. These 31 participants were in a single group for pre-test & post-test intervention.

3.9. Sampling Technique

As the period of data collection was limited so the researcher was selected 31 neck pain patients for this study. The sampling procedure was Hospital based simple random sampling technique. In this sampling procedure; sample contains subjects who were simply available in a convenient way to the researcher. Subjects, who met the inclusion criteria, was taken as sample in this study. The study subjects were selected in such a way that those patients who were coming to CRP at Savar within a particular time period. 31 patients with neck pain were selected randomly from musculoskeletal outpatient unit of physiotherapy department at CRP, Savar, Dhaka during this particular period.

The samples were given numerical number A01, A02, A03 etc.

3.9. Method of Data collection

3.9.2. Data Collection Tools

Data collection tools were informed consent form, structured questionnaire, papers, pen and pencil.

3.9.2. Measurement Tools

Socio-demographic questionnaire was used to know the socioeconomic status of the patient that was related to neck pain.

Neck Disability Index (NDI) and Disability Visual Analogue Scale (VAS)

VAS is a self-reported assessment that consists of a vertical or horizontal line with extreme anchors ranging from 'no pain' to 'severe pain'. This line, which is usually 10 cm long, illustrates a pain intensity continuum. The patient is asked to mark the line with their perceived level of pain severity (for a set period of time). The examiner assesses the instrument by measuring the distance in millimeters between the 'no pain' anchor and the mark that the patient identified as their pain level. The VAS's key

advantages are thought to be its ease of building and use. The measurement continuum is likewise thought to have higher sensitivity than a numerical scale. (Kahl & Cleland, 2005).

The most popular survey for assessing the disability caused by neck discomfort is the Neck Disability Index (NDI). It was initially created to assess patients with incapacitating neck discomfort, particularly that brought on by whiplash injuries, in their daily routines of life (Vernon and Mior, 1991). Ten questions make up the NDI, seven of which examine functional activities, two of which inquire about symptoms, and the tenth of which takes focus into account. In order to give clinicians a tool to evaluate the multi-dimensional impacts of the neck pain problem, the Neck Pain and Disability Scale (NPAD) was created (Wheeler et al., 1999). The scale consists of 20 items covering 4 categories (neck function, pain severity, emotion/cognition, and activities of daily life) that examine how patients' physical and psychological functions are affected by their neck pain illness. These and other questionnaires with set questions may have the drawback of limiting the scope of the evaluation to the particular subjects covered. As a result, the questionnaire could contain questions that are irrelevant to some patients and might leave out important topics. The average pain intensity was measured using a 10 cm visual analogue scale (VAS) (Chan Ci En et al., 2009).

3.10. Data collection procedure

Following the fulfillment of inclusion and exclusion criteria, the data collecting technique was carried out by assessing the patient, beginning recording, treatment, and final recording. Patients were evaluated by a graduate physiotherapist after being screened at the department. Each subject received six sessions of treatment. Data was acquired through a pretest, intervention, and post-test, and it was collected using a written questionnaire form developed by the researcher. Before initiating treatment, a pretest was performed, and the level of pain was measured using a numeric pain rating scale, as well as disability using the Neck disability index. The same approach was used to administer the post-test at the end of the six treatment sessions. The data was obtained from the group in front of a competent physiotherapist by the researcher.

3.11. Intervention

Physiotherapists who were expert in treatment of musculoskeletal patient were involved in treatment of patients. The treatment protocol for this patient were mainly -

1. Therapist guided McKenzie of directional exercises for cervical region
   - Repeated retraction
   - Repeated retraction with over pressure
   - Repeated retraction with extension
2. Mulligan Concept for Neck - SNAGS
3. Traction retraction extension rotation mobilization
4. Traction
   -Manual Traction
   -Mechanical Traction
5. Maitland mobilization technique
   - Posterior-anterior side
   - Lateral side
6. Movement with mobilization exercise
7. Neck muscle strengthening exercise
8. Neck muscle stretching exercise
9. Soft tissue release technique
10. Isometric Exercise

- Concentric Exercise
- Eccentric Exercise

11. Muscle Energy Technique (MET)
12. Neural Stretching
13. Electrotherapy
    - TENS
    - IRR
    - Ultrasound
    - Ice

    and home advice.

These are the Conventional Physiotherapy Treatment which are given to neck pain patients at the Musculoskeletal Unit, CRP, Savar.

3.12. Data Analysis

Statistical analysis was performed by using statistical package for social science (SPSS) version 26. The Visual Analog Scale (VAS) for pain & Oswestry NDI (Neck pain Disability Index) was analyzed by paired t-test.

3.13. Statistical Test

Statistical analysis refers to the well-defined organization and interpretations of the data by systemic and mathematical procedure and rules.

Hypothesis Test

Paired t test

Pair t test is used to compare difference means of paired samples.

Assumptions

- Paired data
- The data are quantitative
- Distributions are normal

Null hypothesis & Alternative hypothesis

Ho: $\mu_1 - \mu_2 = 0$ or $\mu_1 \geq \mu_2$; where the initial and final mean difference was same. Ha: $\mu_1 - \mu_2 \neq 0$, $\mu_1 < \mu_2$; where the initial and final mean difference was not same

Here,

H_0 = Null hypothesis

H_a = Alternative hypothesis

μ_1 = Mean difference in initial assessment

μ_2 = Mean difference in final assessment.

Formula: pair *t* test defined by-

$$t = \frac{\bar{d}}{SE(\bar{d})} = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}}$$

Here,

$\bar{d}$ = mean of difference (d) between paired values,

SE = Standard Error of the mean difference,

SD = standard deviation of the differences and

n = number of paired observations

Example:

Suppose we have the following data: Before (mmHg): 130, 135, 125, 140, 128, 132, 129, 131, 138, 127 After (mmHg): 125, 130, 120, 135, 125, 128, 124, 128, 136, 123

Step 1: Calculate the differences between the paired observations (After - Before): Differences=After−Before Differences=After−Before

Differences = (125-130), (130-135), (120-125), ..., (136-138), (123-127) Differences = -5, -5, -5, -5, -3, -4, -5, -3, -2, -4

Step 2: Calculate the mean and standard deviation of the differences:

Mean of differences = (-5 - 5 - 5 - 5 - 3 - 4 - 5 - 3 - 2 - 4) / 10 = -3.6 Standard deviation of differences ≈ 1.35 (rounded for simplicity)

Step 3: Calculate the standard error (SE) of the mean of differences:

$SE(\bar{d})$=101.35≈3.161.35≈0.427

Step 4: Calculate the t-statistic using the formula:

t= $\bar{d}$ /$SE(\bar{d})$ =-3.6/0.472≈−8.43.

Table 3.1.: Researcher has calculated the value of pain and disability of **Dallas Neck Pain & Visual Analog Scale (VAS)** questionnaire through paired– t test in between pretest and posttest values of physiotherapy treatment.

Conventional Physiotherapy Treatment

Serial no.	Variables	t	df	Sig-2 tailed
1	Present condition of the pain	9.342	30	0.000
2	Condition of the pain on average	7.645	30	0.000
3	Pain when it is at worst	8.957	30	0.000
4	Pain interferes during sleep	3.008	30	0.005
5	Pain during standing	6.316	30	0.000
6	Pain during walking	4.758	30	0.000
7	Pain during travelling	7.569	30	0.000
8	Pain interferes on social activities	6.883	30	0.000
9	Pain interferes with the recreational activities	7.303	30	0.000
10	Pain interferes with the work activities	6.689	30	0.000
11	Pain interferes with personal care	1.278	30	0.021
12	Pain interferes in personal relationship	2.875	30	0.007

13	Pain changing on the outlook on life and future	3.794	30	0.001
14	Pain affecting on emotion	4.918	30	0.000
15	Pain affecting the ability to think or concentrate	8.032	30	0.000
16	Stiffness of the neck	7.227	30	0.000
17	Difficulties when turning neck	2.273	30	0.000
18	Difficulties when looking up or down	7.757	30	0.000
19	Difficulties when working over head	6.193	30	0.000
20	Pills reducing neck pain	4.338	30	0.000

Table 3.2.: Researcher has calculated the value of pain and disability of **Oswestry NDI (Neck pain Disability Index)** questionnaire through paired– t test in between pretest and post-test values of physiotherapy treatment.

Conventional Physiotherapy treatment

Serial no	Variable	t	df	Sig-2 tailed
1	Present pain intensity	8.390	30	0.000
2	Personal independence	4.532	30	0.000
3	Independence during lifting object	6.445	30	0.000
4	Feeling while reading newspaper	6.158	30	0.000
5	State of headache	5.692	30	0.000
6	Concentration of work	8.849	30	0.000
7	Pain affecting daily life	5.220	30	0.000
8	Pain during travelling	7.826	30	0.000
9	Pain affecting sleep	4.227	30	0.000
10	Pain affecting recreational activities	7.045	30	0.000

3.14. Level of Significance

In order to find out the significance of the study, the “p” value was calculated. The p values refer to the probability of the results for experimental study. The word probability refers to the accuracy of the findings. A “p” value is called level of significance for an experiment and a “p” value of < 0.05 was accepted as significant result for health service research. If the “p” value is equal or smaller than the significant level, the results are said to be significant.

3.15 Ethical Consideration

The researcher maintained some ethical considerations: A research proposal was submitted to the physiotherapy department of BHPI for approval and the proposal was approved by the faculty members and gave permission initially from the supervisor of the research project and from the course coordinator before conducting the study. The proposal of the dissertation including methodology was presented to the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) for oral presentation defense was done in front of the IRB. Then the necessary information was approved by Institutional Review Board and was permitted to do this research. After getting the permission of doing this study from the academic institute the researcher had been started to do it. The researcher had been taken permission for data collection from the Musculoskeletal unit of Savar, CRP. Researcher followed the Bangladesh Medical Research Council (BMRC) guideline & WHO research guideline. The researcher was eligible to do the study after knowing the academic and clinical rules of doing the study about what should be done and what should not. All rights of the participants were reserved and researcher was accountable to the participant to answer any type of study related question.

3.16. Informed Consent

Written consent was given to all participants prior to completion of the questionnaire. The investigator explains to the participants about his or her role in this study. The investigator received a written consent form every participant including signature. So, the participant assured that they could understand about the consent form and their participation was on voluntary basis. The participants were informed clearly that their information would be kept confidential. The investigator assured the participants that the study would not be harmful to them. It was explained that there might not a direct benefit from the study for the participants but in the future cases like them might get benefit from it. The participants had the rights to withdraw consent and discontinue participation at any time without prejudice to present or future care at the community. Information from this study was anonymously coded to ensure confidentiality and was not personally identified in any publication containing the result of this study.

CHAPTER-IV RESULTS

4.1. Age group

The study was conducted on 31 participants with Neck pain. Out of the participant the mean age of the participants was 41.23 (±12.37) years. There were several age groups among 31 participants. The range was minimum age 19 years and maximum 64 years. But the results say age between 29-39 years and 40-49 years had the highest percentage of 29.03% and 22.58% are mostly affected by neck pain.

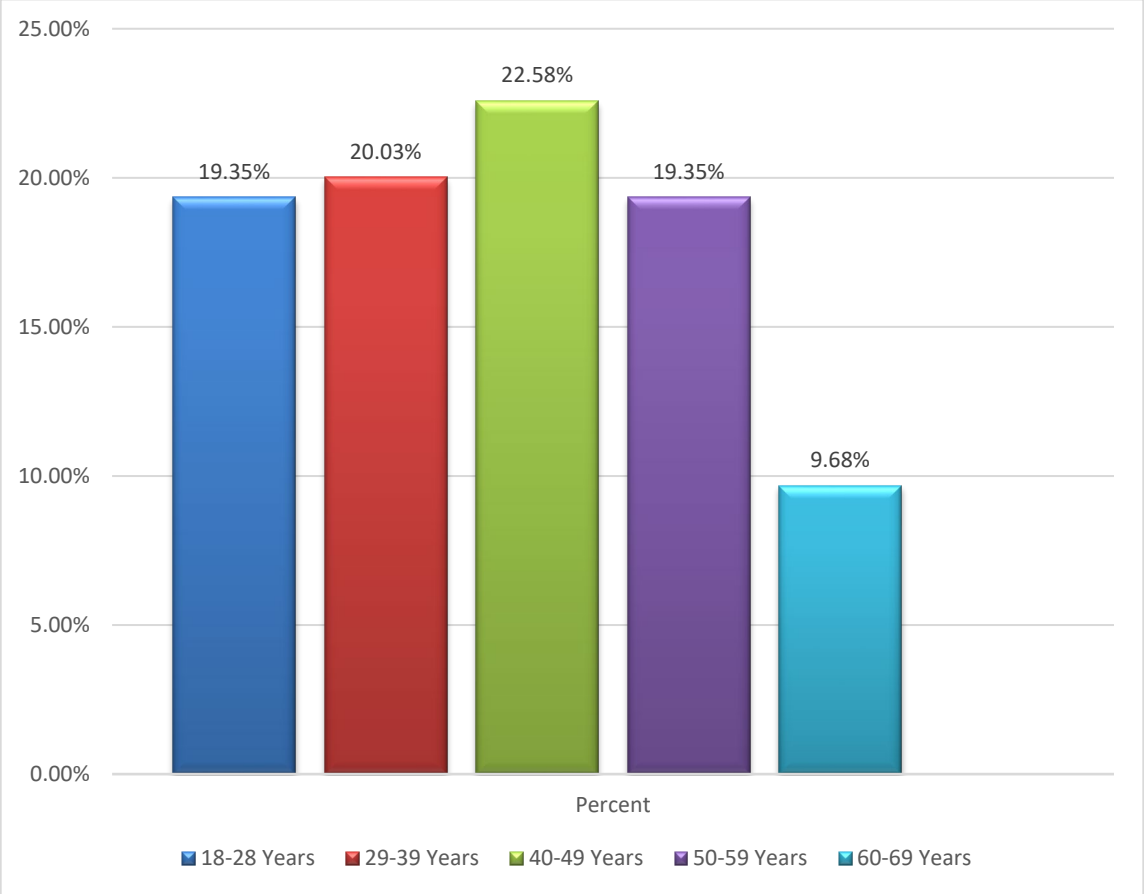


Figure 1: Age groups of the participants.

4.2. Gender of the participants

Total 31 patients with neck pain were included as sample of the study. Among 31 participants, most of them were male 93.55% (n=28) and the rest were female 6.45% (n=2). According to data view, maximum participants were male participants and there was a relationship with neck pain.

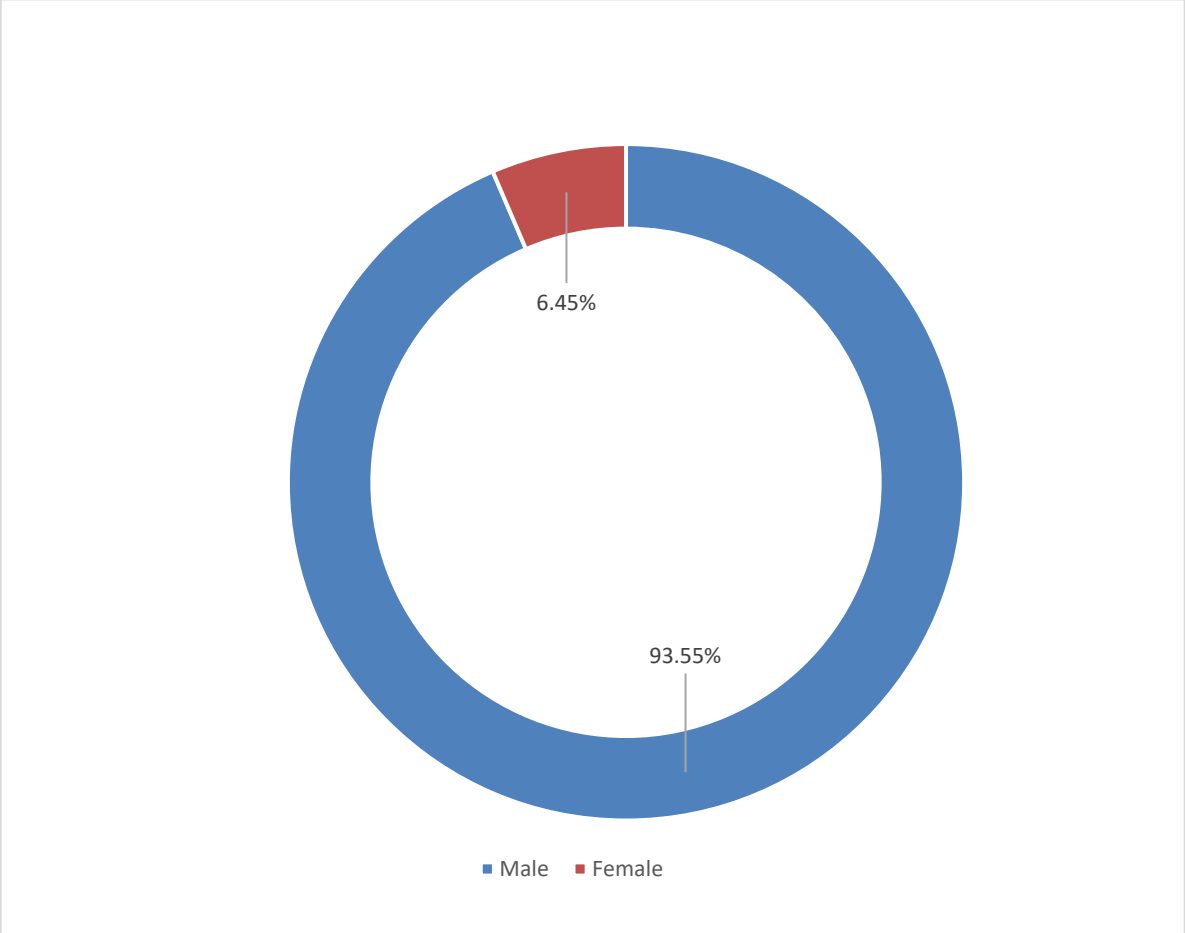


Figure 2: Gender of the participants

4.3. Educational background

Among 31 patients, no illiterate person was found (n=0), 6.45% (n=2) participants had primary level education, 12.90% (n=4) participants had secondary level education, 16.13% (n=5) participants completed higher secondary education, 38.71% (n=12) participants completed graduation, 25.81% (n=8) participants completed masters and above level education.

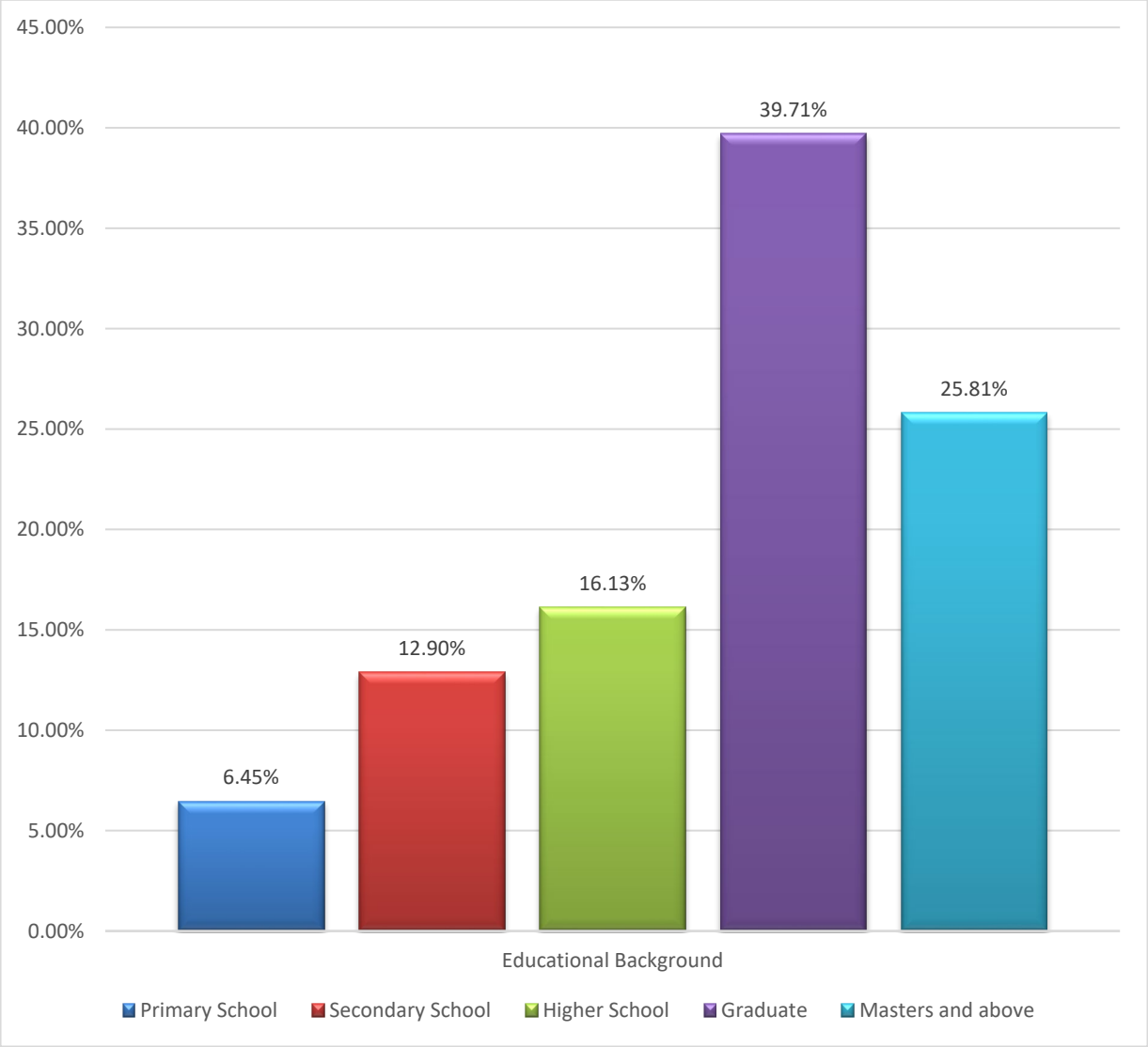


Figure 3: Educational background

4.4. Occupation of the participants

Among 31 participants, most of them were service holder 25.8% (n=8), 12.9% (n=4) participants were students, 16.13% (n=5) were businessman, 6.5% (n=2) participants were housewife, 9.7% (n=3) were desk worker, 3.2% (n=1) were teacher, 9.7% (n=3) were daily worker, 3.2% (n=1) participants were carpenter, 9.7 % (n=3) were retired persons and 3.2% (n=1) were the garments worker. So, it is shown that according to individual occupations, service holders were mostly affected part. But cluster of profession can experience neck pain and occupation has great relation with neck pain.

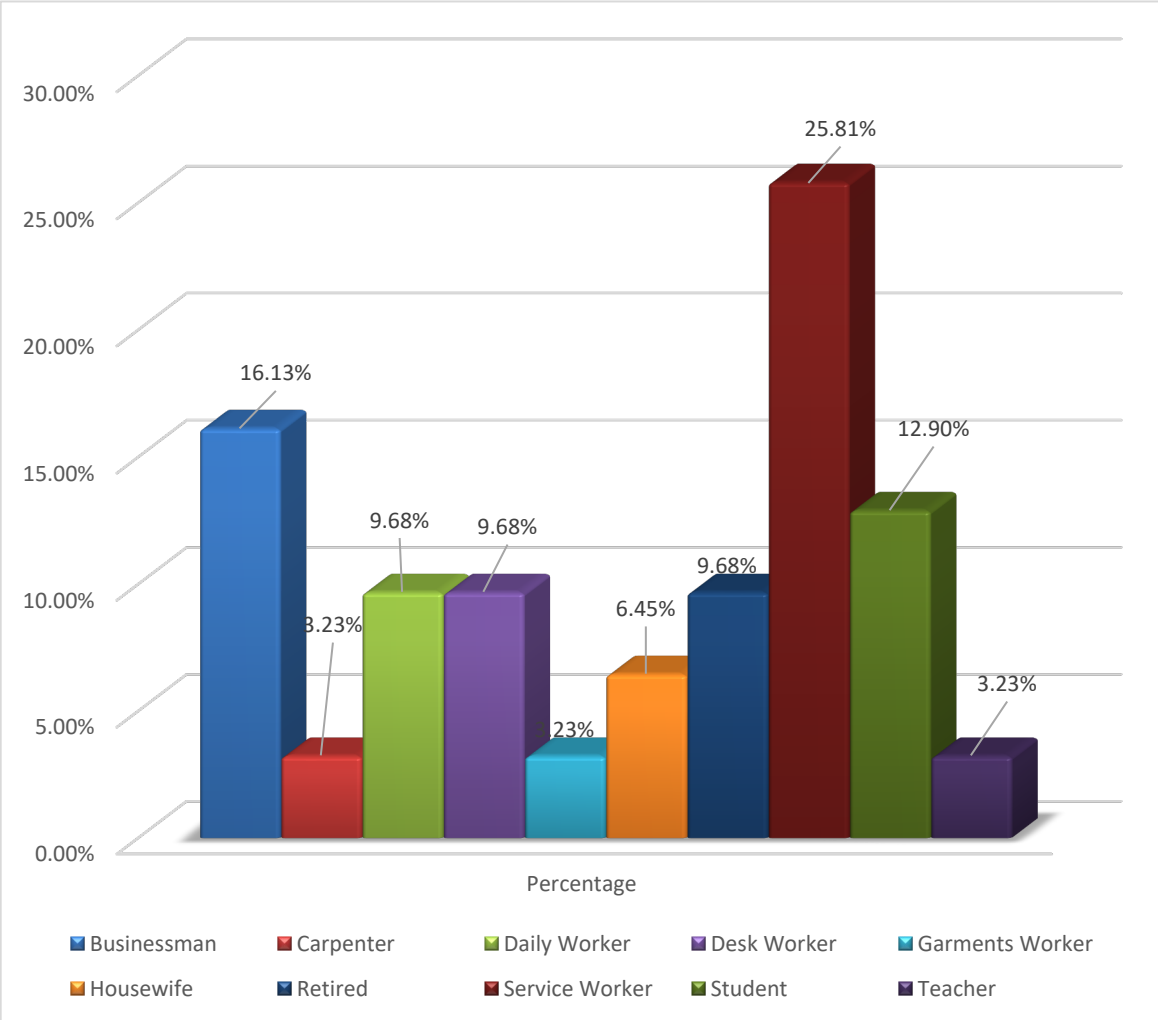


Figure 4: Occupation of the participants

4.5. Marital status of the participants

Among the 31 participants, 24 participants were married and 7 participants were unmarried. In percentage 77.42% participants were married and 22.58% participants were unmarried, 2.6% were widow. So, we have to understand that married persons were mostly affected and vulnerable for experiencing neck pain.

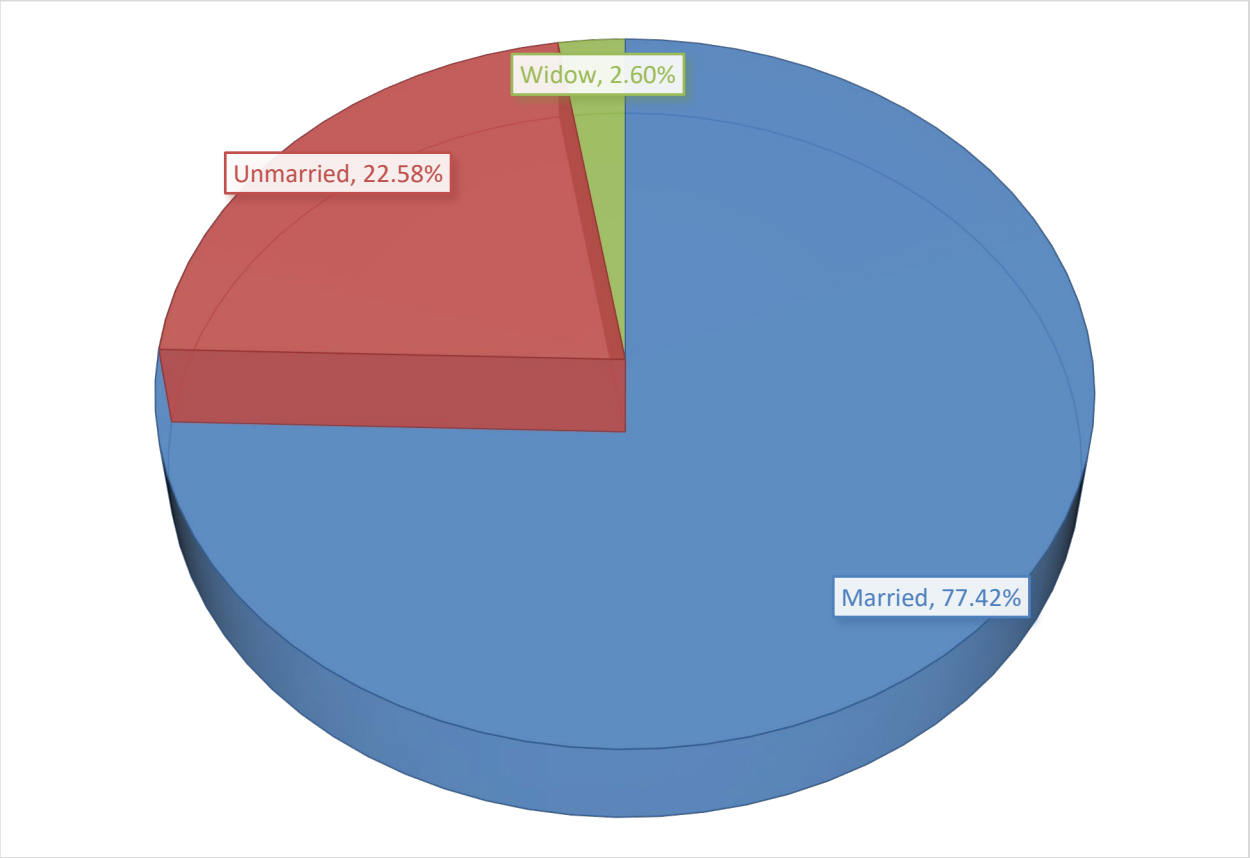


Figure 5: Marital status of the participants

4.6. Monthly Income

Among the 31 participants, 19.35% (n=6) participants had a monthly income of 20000 & 30000 Taka. 9.7% (n=3) participants had no monthly income. The highest income was 50000 Taka having just 3.2% (n=1).

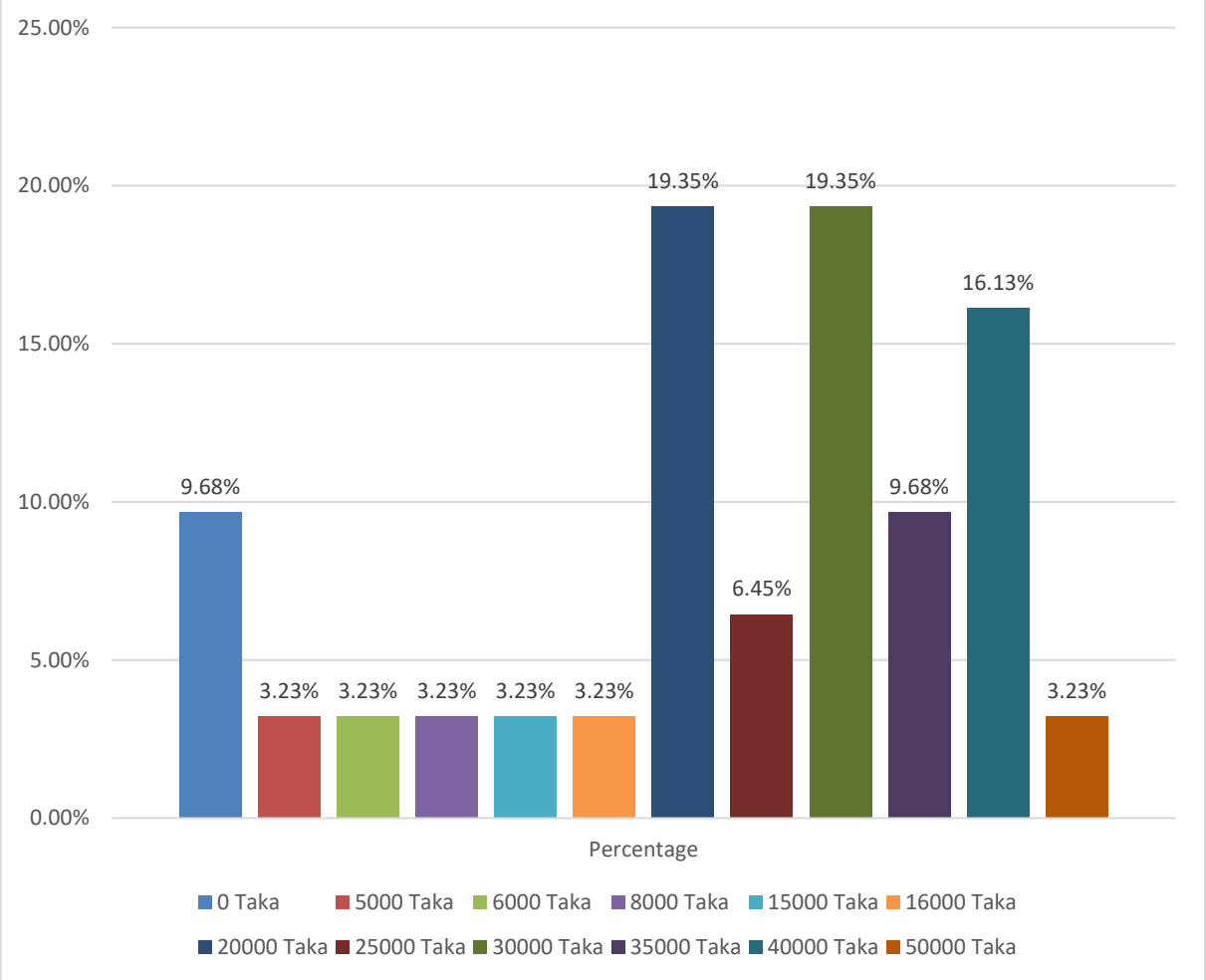


Figure 6: Monthly Income

4.7. Family Size

Among the 31 participants most of them had 4 and 5 family members 22.2% (n=7). The highest family size was counted 11 with a percentage of 6.5% (n=2) and lowest was counted 2 with a percentage of 6.5% (n=2).

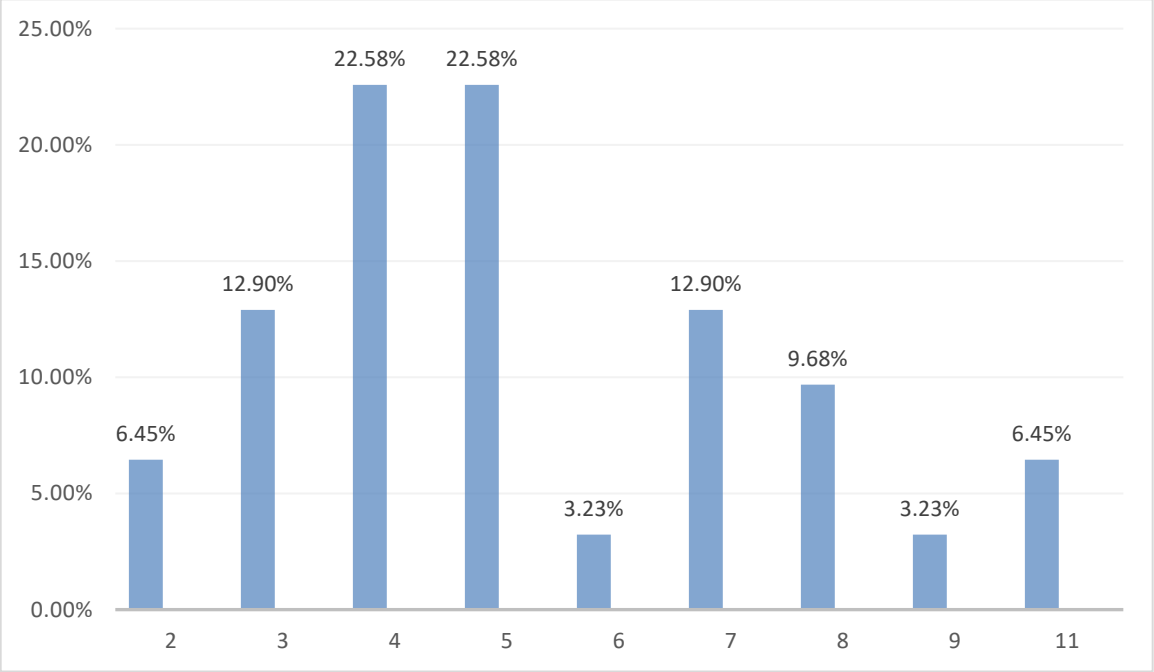


Figure 7: Family member

4.8. Family type

Among the 31 participants 22.58% (n=7) were extended / Joint family and 77.42% (n=24) were nuclear family.

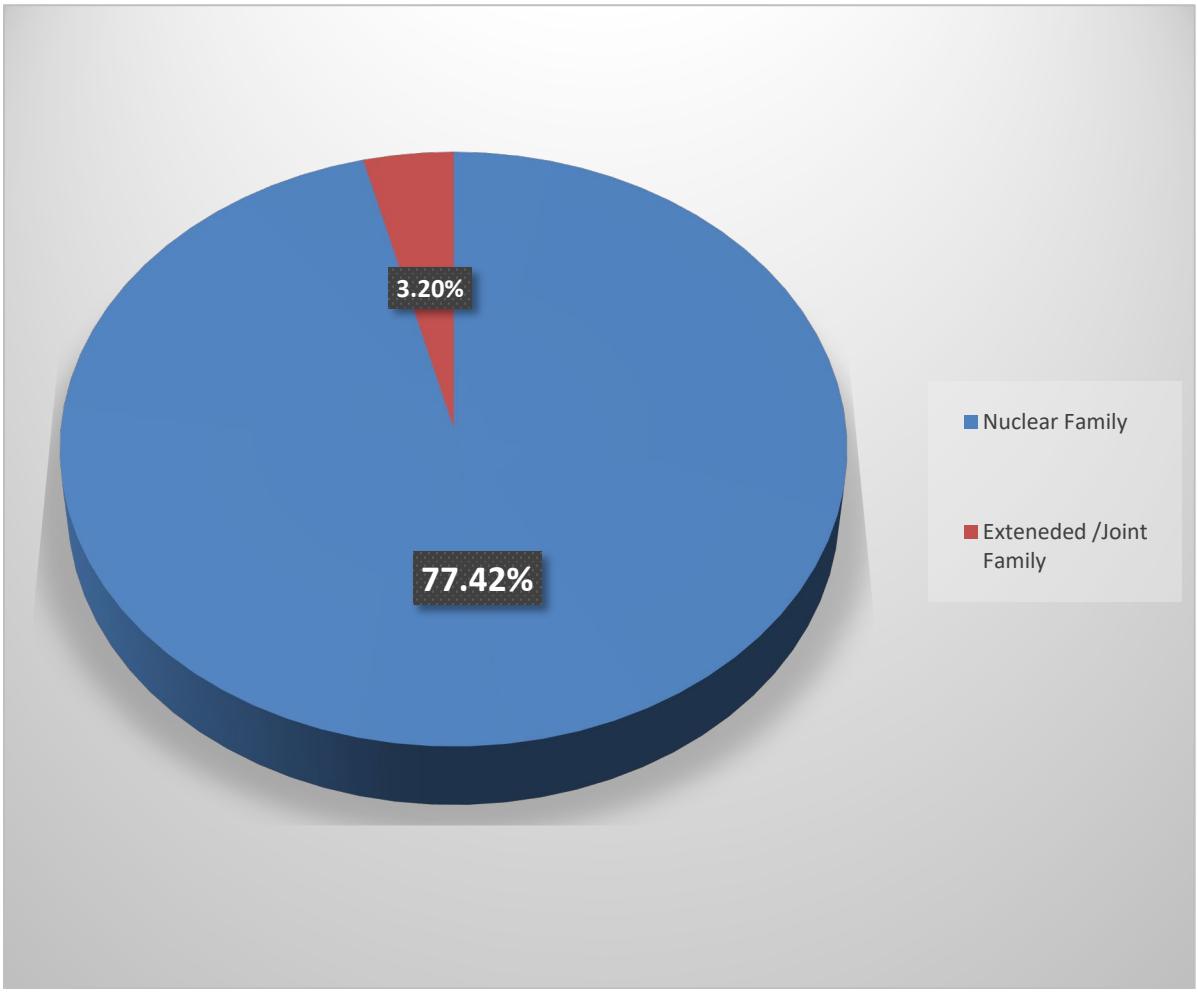


Figure 8: Family types

4.9. Comorbidity

Among the 31 participants 35.5% (n=11) had hypertension, 16.1% (n=5) having diabetes mellitus, 9.7% (n=3) had asthma, 6.5% (n=2) got epilepsy and 32.3% participants had no record of any comorbidity.

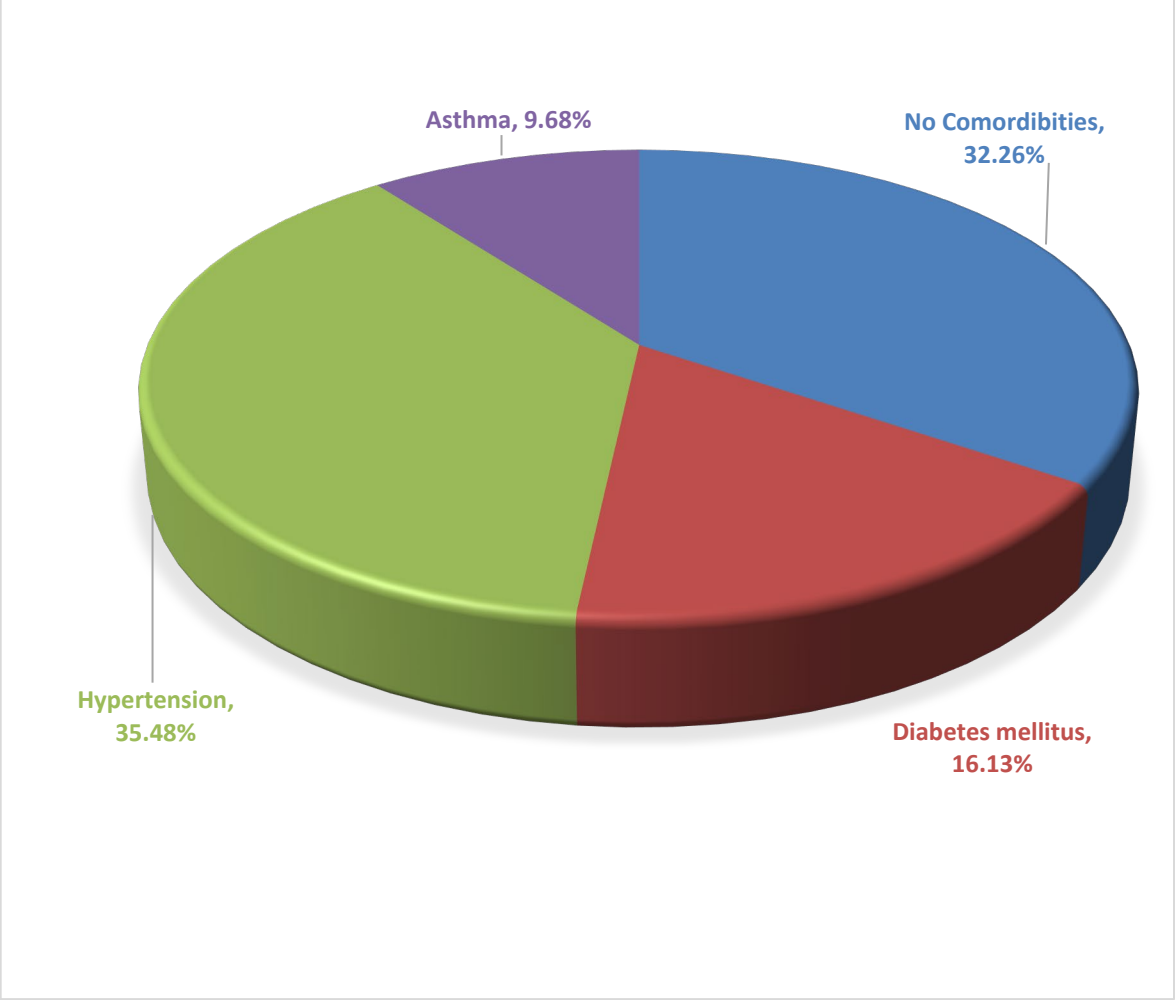


Figure 9: Comorbidity

4.10. Reason of neck pain

Among 31 participants mostly the cause of neck pain was disc degeneration with percentage of 38.7% (n=12). Postural was the second most reason for neck pain with a percentage of 22.6% (n=7). Other reason was narrowing of spinal canal 16.1 (n=5), inflammation of the muscle 16.1 (n=5) and lastly the arthritis with a percentage of 6.45% (n=2).

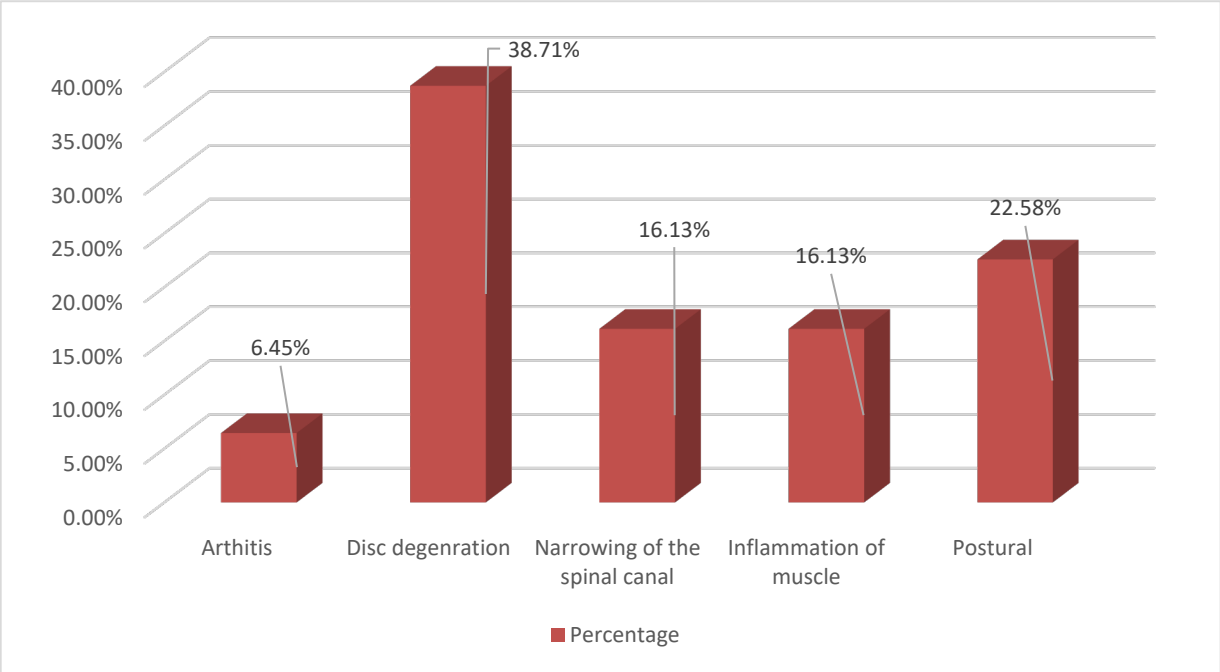


Figure 10: Cause of neck pain

4.11. Area of neck pain

Among the 31 participants most of them had pain in the neck region with the percentage of 51.6% (n=16). Other areas of pain they felt were at scapula 22.6% (n=7), at shoulder 16.1% (n=5) and at arm 9.7% (n=3).

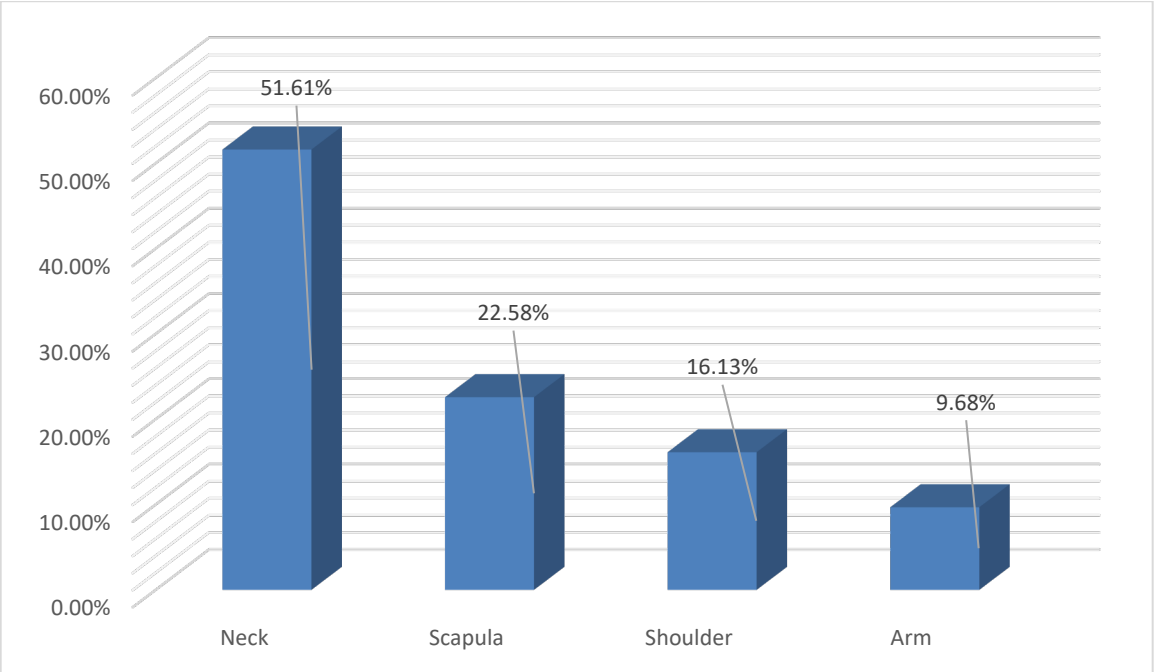


Figure 11: Area of the neck pain

4.12. Constant pain

Among the 31 participants most of them didn't have constant pain with the percentage of 80.6% (n=25) and having constant neck pain was about 19.4% (n=6).

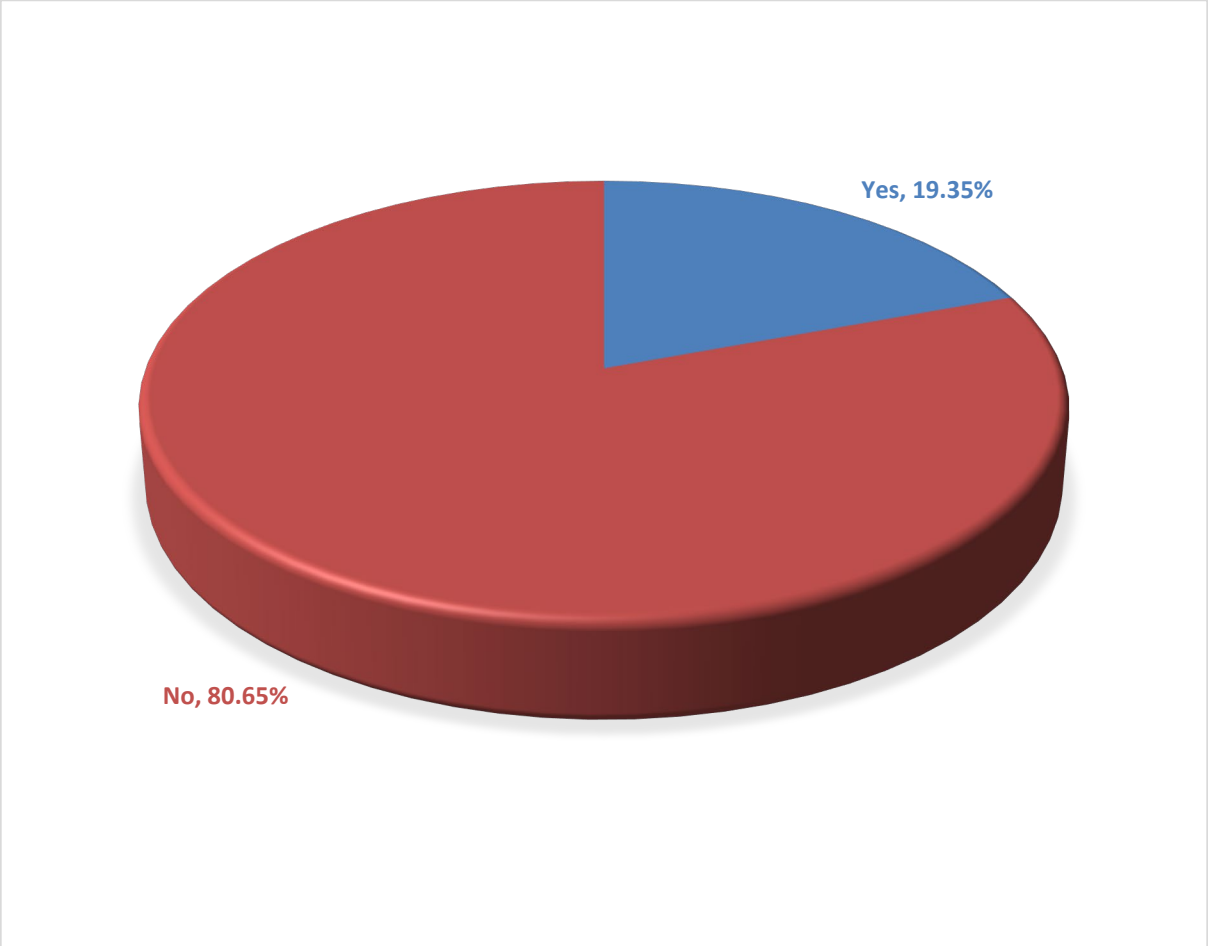


Figure 12: Constant pain

4.13. Intermittent pain

Among the 31 participants most of them had intermittent pain with the percentage of 83.87% (n=26). Participants who didn't have intermittent pain was 16.1% (n=5).

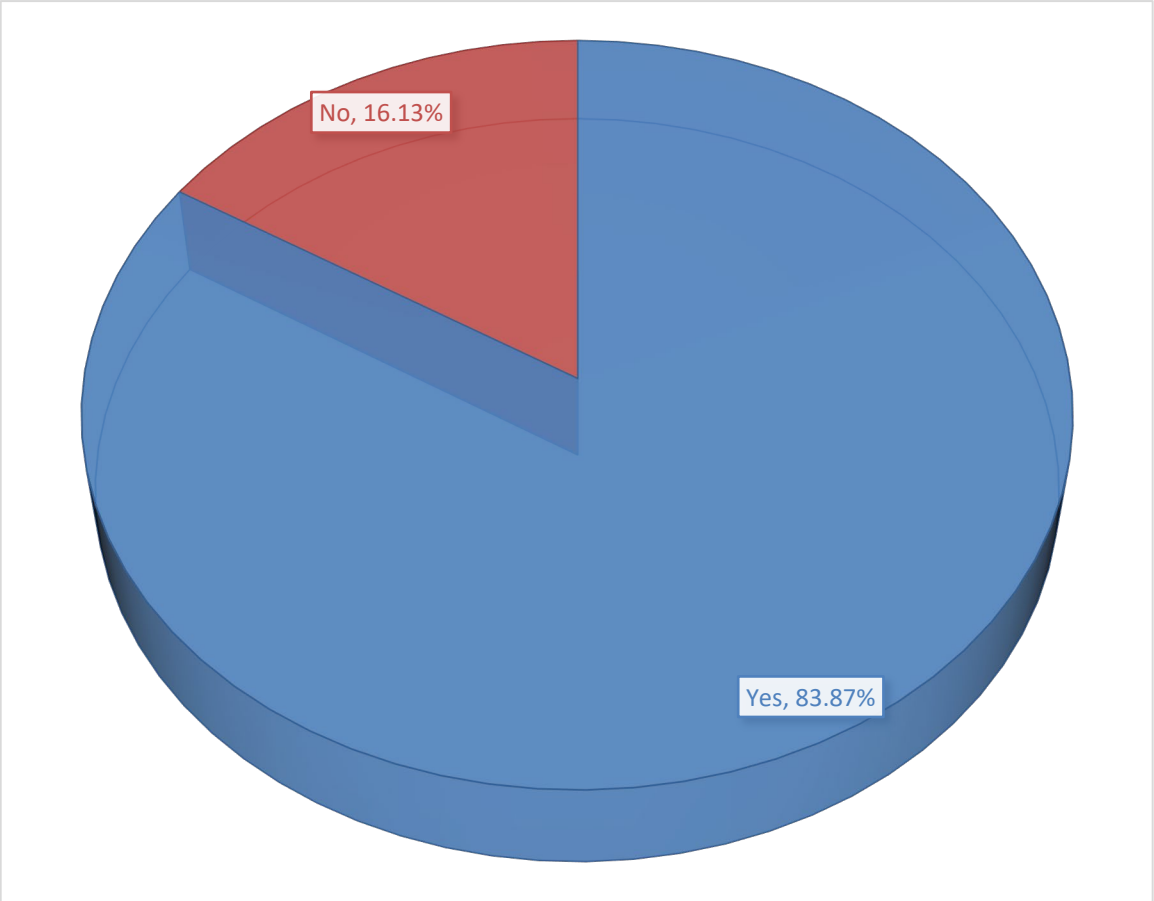


Figure 13: Intermittent pain

4.14. Symptoms get worse when

Most of the participant's symptoms get worse when they are bending 45.2% (n=14). Other postures like sitting had 19.4% (n=6), turning had 19.4% (n=6), lying had 12.9% (n=4) and at night symptoms get worse for the lowest percentage of 3.2% (n=1).

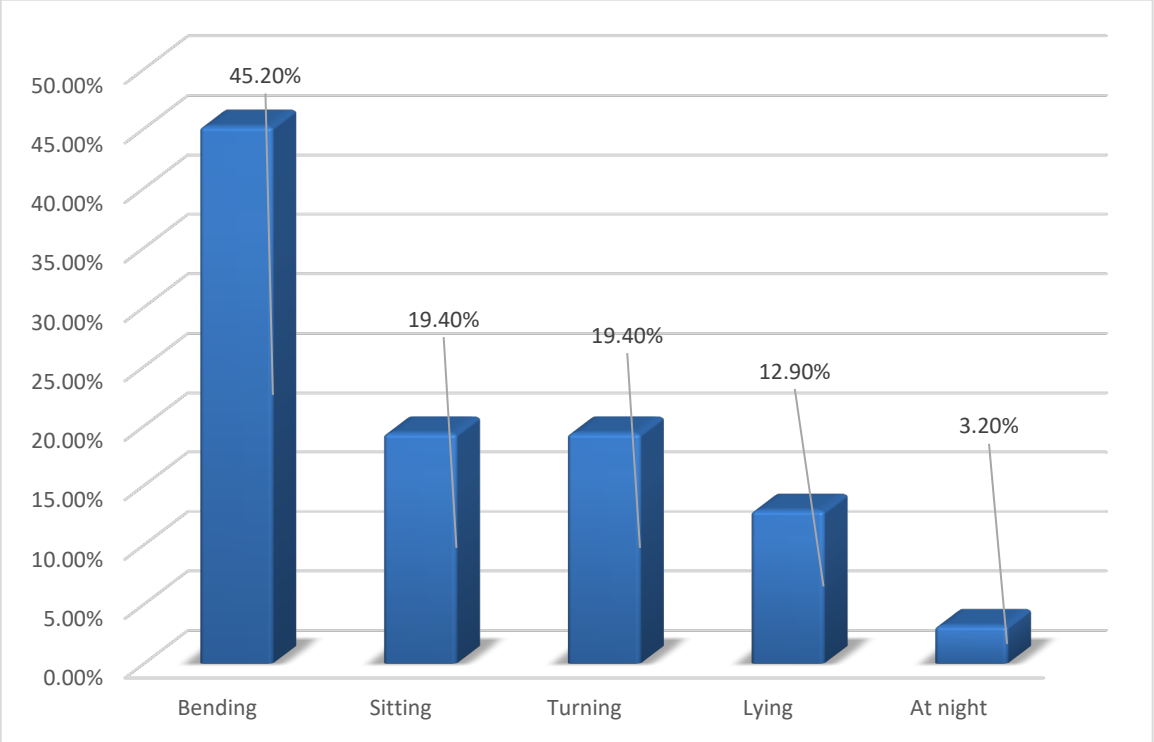


Figure 14: Symptoms get worse during

4.15. Symptoms ease when

Most of the participant's symptoms ease when they are lying 64.5% (n=20). Other postures like sitting had 3.2% (n=1), bending 6.5% (n=2) and as the day progress had 25.8% (n=8).

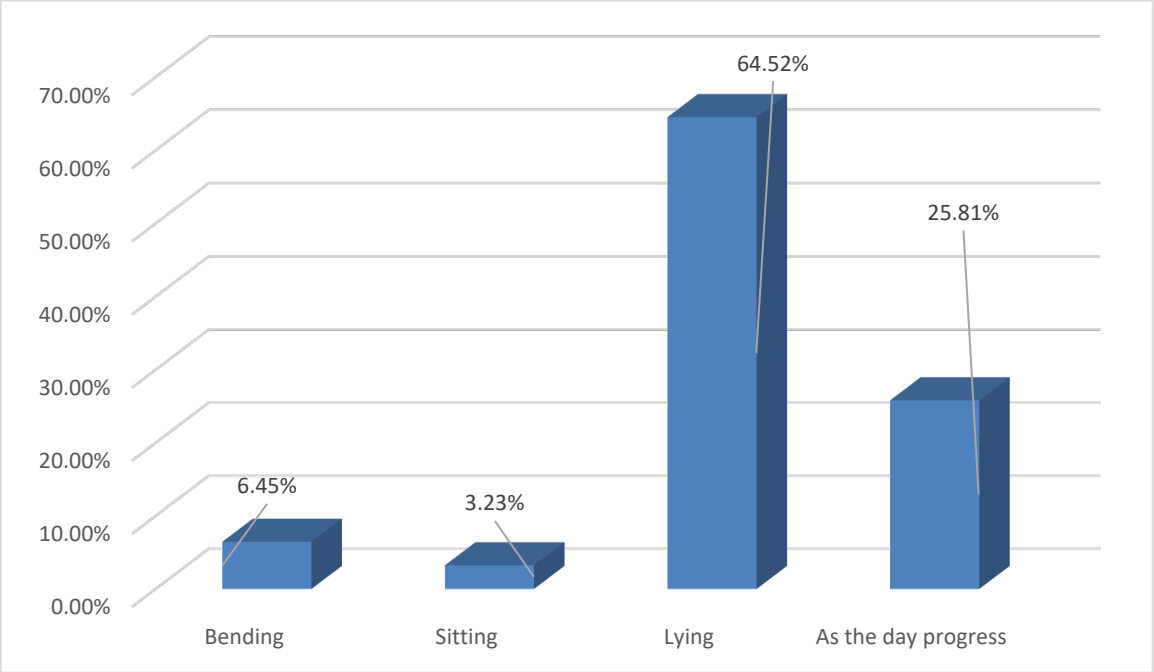


Figure 15: Symptoms ease during

4.16. Disturbed sleep

Among the 31 participants neck pain had caused disturbed sleep for 45.2%(n=14) and without any disturbance in sleep was 54.8% (n=17). The highest number of disturbances of sleep was 2 times with a percentage of 22.6% (n=7).

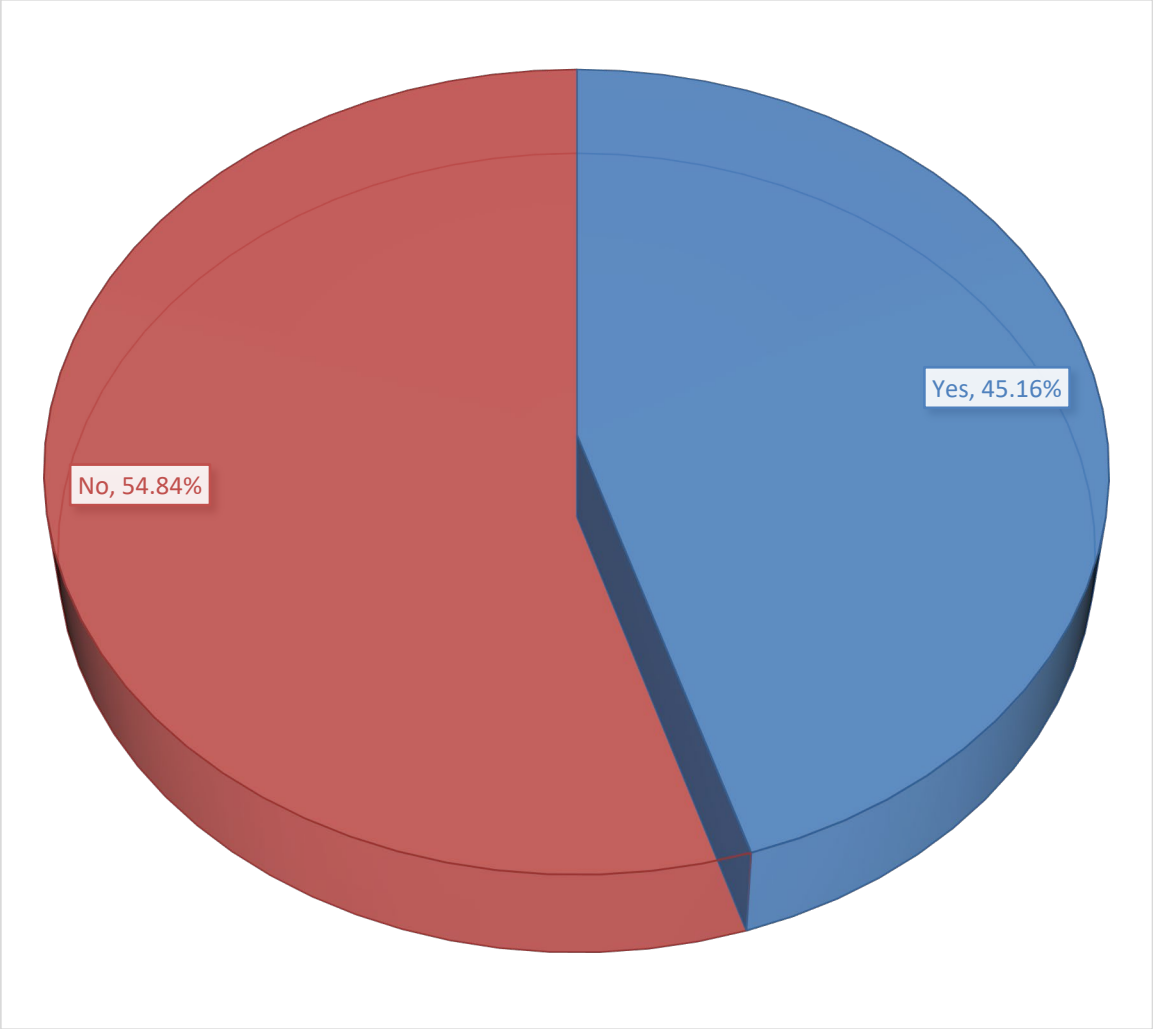


Figure 16: Disturbed sleep

4.17. Traumatic history

Among 31 participants, record of any traumatic history was 6.2% (n=2) and both were RTA (Road Traffic Accident). So, we can say majority of the participants didn't have any record of traumatic history.

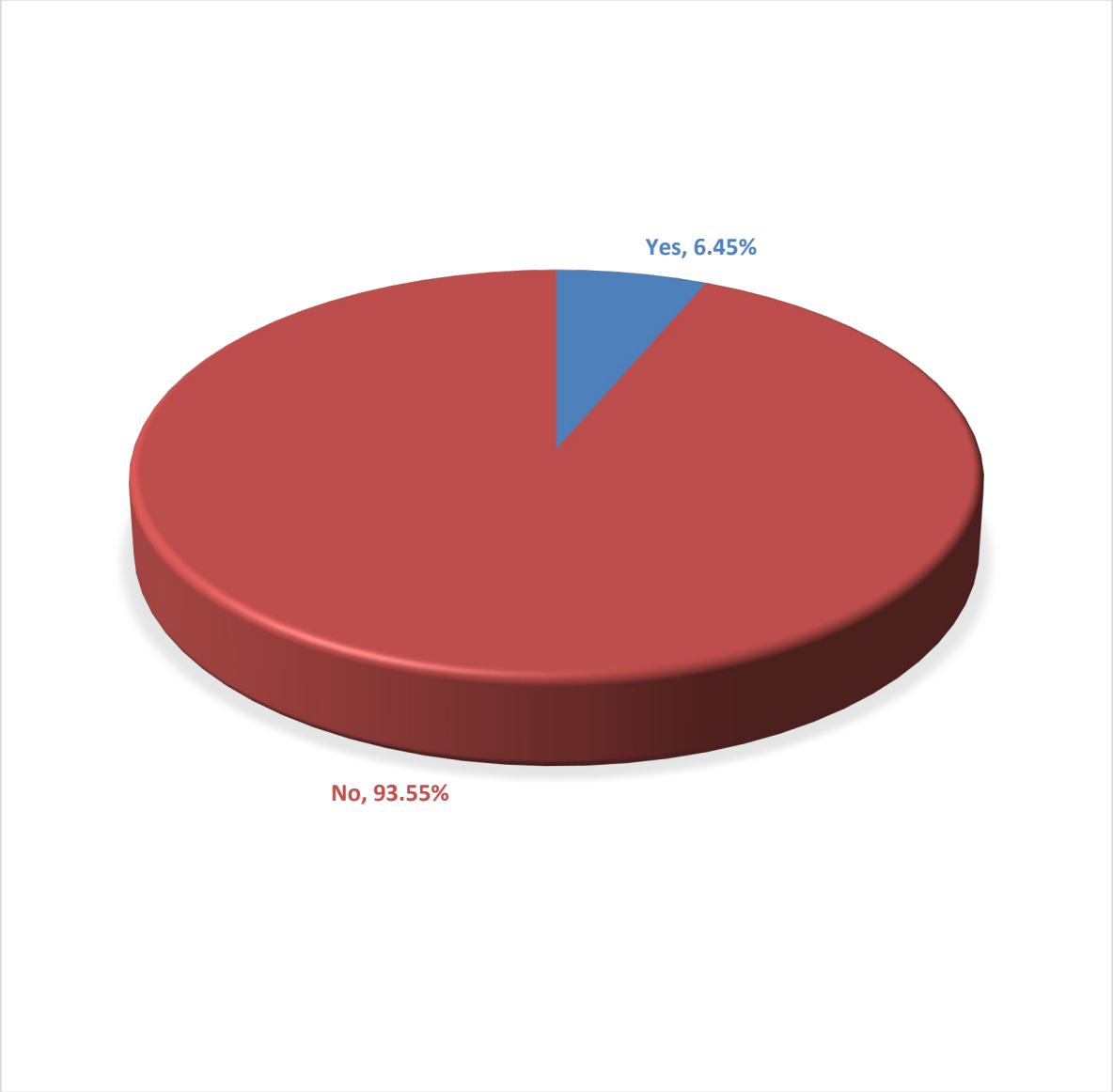


Figure 17: Traumatic history

4.18. Medication received for neck pain

Among the 31 participants most of them received medication of neck pain and the percentage was 87.1% (n=27). The percentage of participants who didn't receive any medication was 12.9% (n=4).

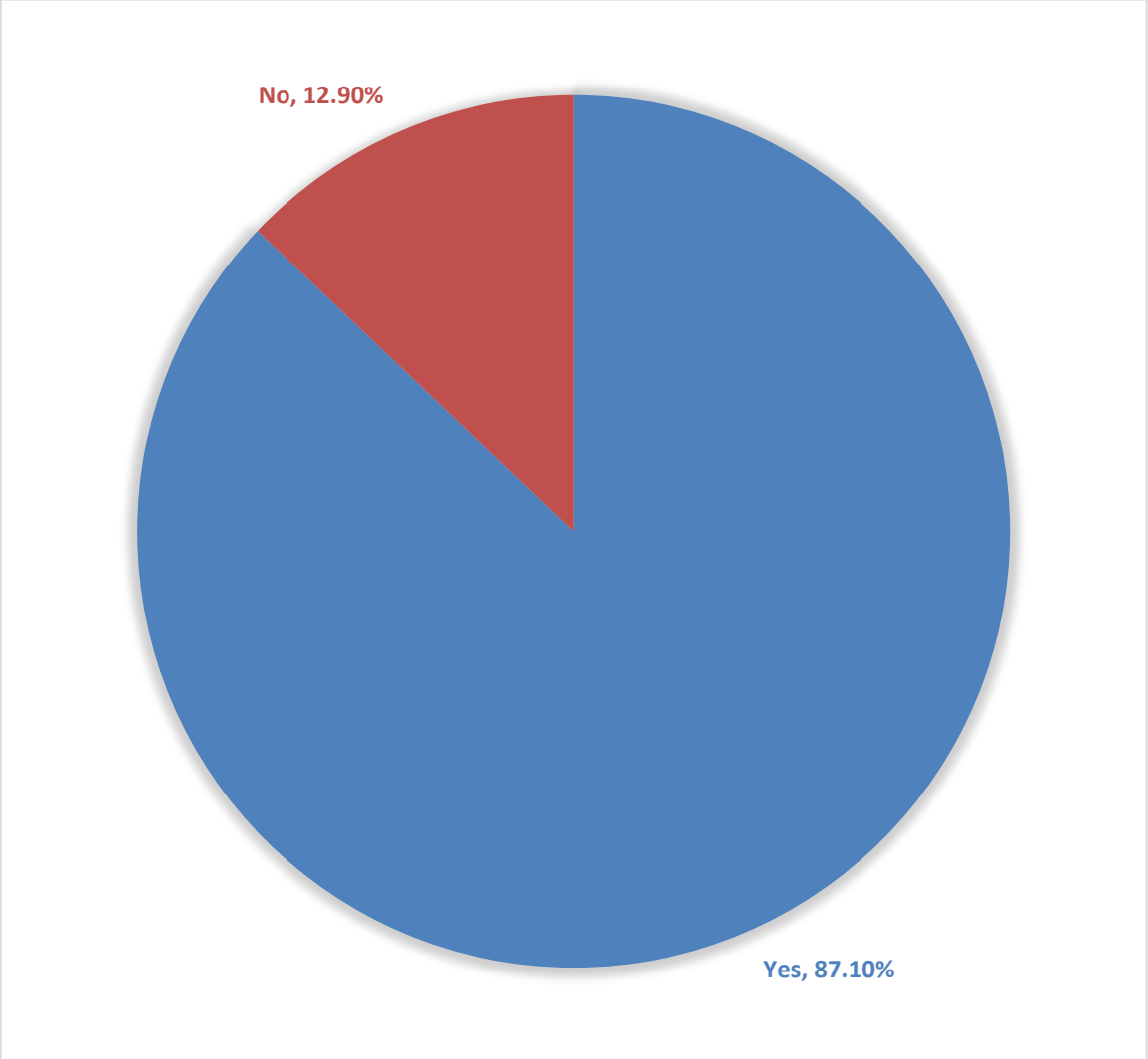


Figure 18: Medication received for neck pain

4.19. Which kind of medication received for neck pain

Among 31 participants who received medication for neck pain were mostly dependable for NSAIDs with percentage of 59.26% (n=16). Rest of the medication includes anticonvulsants 7.41% (n=2), muscle relaxants 22.22% (n=6) and other medication was only 7.41% (n=3).

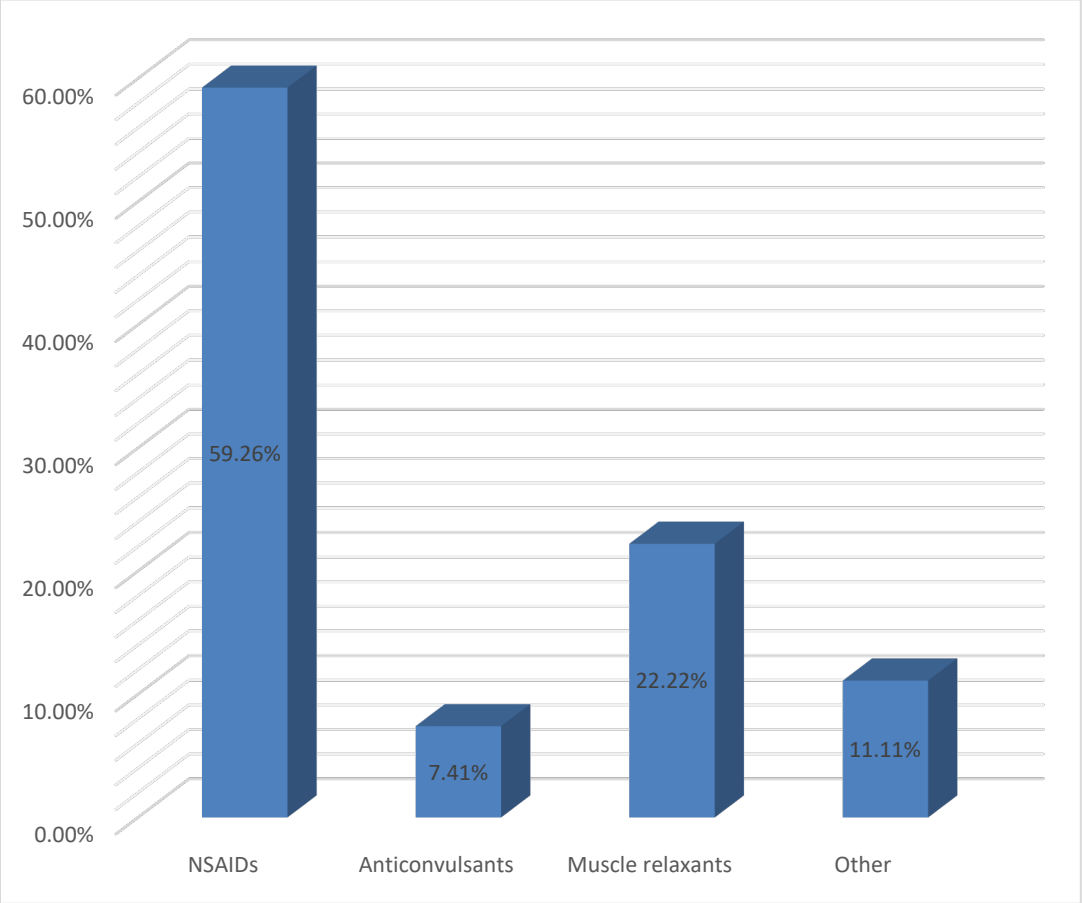


Figure 19: Types of medication received for neck pain

4.20. Scoring the Neck Disability Index (NDI)

This research found that, within group analysis of NDI (Neck Pain disability Index) score the improvement was significantly changed. Among the 31 participants 3.2% patients (n=1) had no disability, 32.3% patients (n=10) had mild disability, 58.1% patients (n=18) had moderate disability and 2% patients (n=1) had severe disability during pretest. But after the intervention that means during posttest 6.5% patients (n=2) had no disability, 80.6% patients (n= 25) had mild disability, 9.7% patients (n=3) had moderate disability and 3.2% patients (n=1) had severe disability.

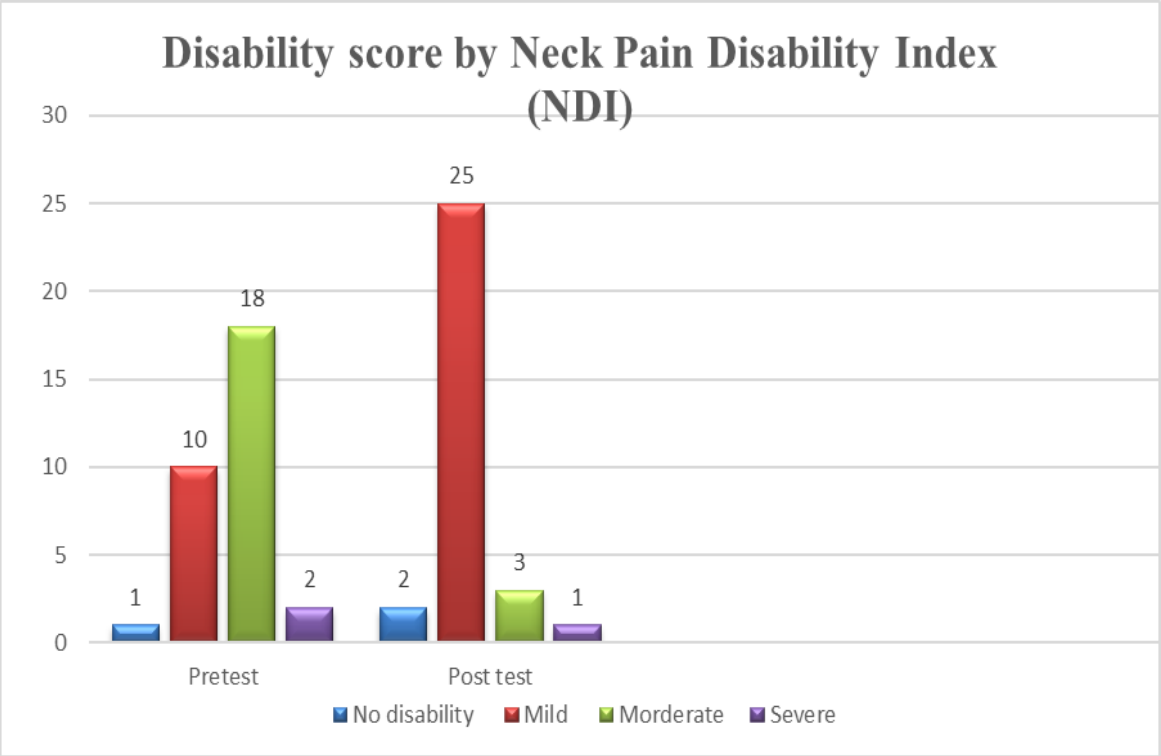


Figure 20: Disability among the Participants

Present condition of the pain: The pretest and posttest pain intensity were observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 9.342 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the present condition of the pain (t=9.342, P=0.000).

Condition of the pain on average: The pretest and posttest pain intensity were observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 7.645 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain on average (t=7.645, P=0.000).

Pain at its worst: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 8.957 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain at its worst (t=8.957, P=0.000).

Pain interferes during sleep: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 3.008 and significance P value was significant 0.005 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the pain that interferes during sleep (t=3.008, P=0.005).

Pain during standing: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 6.316 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and

coursed showed a statistically significant change in the condition of the pain during standing (t=6.316, P=0.000).

Pain during walking: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 4.758 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain during walking (t=4.758, P=0.000).

Pain during travelling: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 7.569 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain during travelling (t=7.569, P=0.000).

Pain interferes on social activities: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 6.883 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain on social activities (t=6.883, P=0.000).

Pain interferes with the recreational activities: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value

7.303 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain which interferes with the recreational activities (t=7.303, P=0.000).

Pain interferes with the job activities: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional

physiotherapy treatment. The degree of freedom (df) was 30, t value 6.689 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain which interferes with the job activities (t=6.689, P=0.000).

Pain interferes with the personal care: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 1.278 and significance P value was significant 0.021 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain which interferes with the personal care (t=7.645, P=0.021).

Pain interferes in personal relationship: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 2.875 and significance P value was significant 0.007 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain which interferes in personal relationship (t=2.875, P=0.007).

Pain changing on the outlook of life: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 3.794 and significance P value was significant 0.001 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain that affects in the outlook of life (t=3.794, P=0.001).

Pain affecting on emotion: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 4.918 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain on emotion (t=4.918, P=0.000).

Pain affecting the ability to think or concentrate: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 8.032 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the condition of the pain which affect the ability to think or concentrate (t=8.032, P=0.000).

Stiffness of the neck: The pretest and posttest pain intensity were observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 7.227 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in the stiffness of the neck (t=7.227, P=0.000).

Difficulties when turning neck: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 2.273 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in facing the difficulties when turning neck (t=2.273, P=0.000).

Difficulties when looking up or down: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 7.757 and significance P value was significant 0.000 as P<0.05. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in facing the difficulties when looking up or down (t=7.757, P=0.000).

Difficulties when working over head: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 6.193 and significance P value was significant 0.000 as P<0.05. By examining the final test

statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in facing the difficulties when working overhead (t=6.193, P=0.000).

Pills reducing neck pain: The pretest and posttest pain intensity was observed in the treatment group before and after treating with conventional physiotherapy treatment. The degree of freedom (df) was 30, t value 4.338 and significance P value was significant 0.000 as $P<0.05$. By examining the final test statistics portion of table by Paired test it was discovered that the group received 7 sessions of this treatment and coursed showed a statistically significant change in pain reduced by medicine /pills (t=4.338, P=0.000).

CHAPTER-V DISCUSSION

The purpose of this study was to find out the effectiveness of Physiotherapy treatment for neck pain patients. In this experimental study 31 patients with neck pain were randomly assigned. Among these 31 patients, there was a single group design. These group attended for 7 sessions (each session for 30 minutes) of treatment in the physiotherapy outdoor department of CRP Savar. The different measurement tools were used to examine the hypothesis and test the hypothesis whether the null hypothesis was accepted or not based on the smaller or larger p. Self-oriented structural questionnaire was used to find out the socio-demographical indicators. Significant improvements occurred in most of the measures that were recorded before and after treatment. And the outcome of pain intensity and disability measured by using Visual analog scale (VAS) and disability status measured by using Neck pain disability Index (NDI) scale among patients with neck pain. Mean age of the participants was 41.23 ($\pm$12.37) years. Among them male were 93.55% and female were 6.45%12.9% (n=4) participants were students, 16.1% (n=5) was businessman, 6.5% (n=2) participants were housewife, 9.7% (n=3) was desk worker, 3.2% (n=1) was teacher,9.7% (n=3) was daily worker, 3.2% (n=1) participants were carpenter,

9.7 % (n=3) was retired persons and 3.2% (n=1) was the garments worker. Out of total no illiterate person were found (n=0), 6.45% (n=2) participants had primary level education, 12.90% (n=4) participants had secondary level education, 16.13% (n=5) participants completed higher school education, 38.71% (n=12) participants completed graduation, 25.81% (n=8) participants completed masters and above level education Among the 31 participants 24 participants were married, and 7 participants were unmarried. In percentage 77.42% participants were married and 22.58% participants were unmarried. Among the 31 participants, 19.35% (n=6) participants had a monthly income of 20000 & 30000 Taka. 9.7% (n=3) participants had no monthly income. Among the 31 participants most of them had 4 and 5 family members 22.2% (n=7). The highest family size was counted 11 with a percentage of 6.5% (n=2) and lowest was counted 2 with a percentage of 6.5% (n=2). Among the 31 participants 22.58% (n=7) were extended / Joint family and 77.42%(n=24) were nuclear family. Among the 31 participants 35.5% (n=11) had hypertension,16.1% (n=5) having diabetes mellitus, 9.7% (n=3) had asthma, 6.5% (n=2) got epilepsy and 32.3% participants had no record

of any comorbidity. mostly the cause of neck pain was disc degeneration with percentage of 38.7% (n=12). Postural was the second most reason for neck pain with a percentage of 22.6% (n=7). Other reason was narrowing of spinal canal 16.1 (n=5), inflammation of the muscle 16.1 (n=5) and lastly the arthritis with a percentage of 6.45% (n=2). Among the 31 participants most of them had pain in the neck region with the Percentage of 51.6%(n=16). Other areas of pain they felt were at scapula 22.6%(n=7), at shoulder 16.1% (n=5) and at arm 9.7% (n=3). Among the 31 participants most of them had pain in the neck region with the Percentage of 51.6% (n=16). Other areas of pain they felt were at scapula 22.6 (n=7), at shoulder 16.1% (n=5) and at arm 9.7% (n=3). Among the 31 participants most of them didn't have constant pain with the percentage of 80.6% (n=25) and having constant neck pain was about 19.4% (n=6). Most of the participant's symptoms get worse when they are bending 45.2% (n=14). Other postures like sitting had 19.4% (n=6), turning had 19.4% (n=6), lying had 12.9% (n=4) and at night symptoms get worse for the lowest percentage of 3.2% (n=1). Most of the participant's symptoms ease when they are lying 64.5% (n=20). Other postures like sitting had 3.2% (n=1), bending 6.5% (n=2) and as the day progress had 25.8% (n=8). Among the 31 participants neck pain had caused disturbed sleep for 45.2%(n=14) and without any disturbance in sleep was 54.8% (n=17). The highest number of disturbances of sleep was 2 times with a percentage of 22.6% (n=7). Among 31 participants, record of any traumatic history was 6.2% (n=2) and both were RTA (Road Traffic Accident). So, we can say majority of the participants didn't have any record of traumatic history. Among the 31 participants most of them received medication of neck pain and the percentage was 87.1% (n=27). The percentage of participants who didn't receive any medication was 12.9% (n=4). Among 31 participants who received medication for neck pain were mostly dependable for NSAIDs with percentage of 59.26% (n=16). Rest of the medication includes anticonvulsants 7.41% (n=2), muscle relaxants 22.22% (n=6) and other medication was only 7.41% (n=3).

The study involved 31 participants who were divided into various age groups, ranging from 19 to 64 years. However, the findings indicated that individuals between the ages of 29-39 and 40-49 experienced the highest proportion of neck pain, accounting for 29.03% and 22.58% of the affected individuals, respectively. These results are consistent with the Global Burden of Diseases 2017 study, which reported that neck

pain was most prevalent among individuals in their middle age, specifically the 45-49 age group for men and the 50-54 age group for women (Safiri et al., 2020). This alignment between our findings and the existing literature provides support for the conclusions drawn in this study.

Previous research, including studies conducted by McLean et al. (2010) and Côté et al. (2004), has identified being female as a significant risk factor for developing neck pain. However, recent epidemiological studies by Kim et al. (2018), Jahre et al. (2020), and Jun et al. (2017) have diverged from this finding. These recent studies have revealed no substantial differences between males and females in terms of the prevalence, incidence, and disability associated with neck pain across different age groups. In our study, we examined a sample of 31 participants with neck pain. Interestingly, the majority of participants (93.55%) were male, while only a small percentage (6.45%) were female. These findings highlight a strong male predominance among our study participants, suggesting a potential association between male gender and neck pain. Occupational factors greatly influence the onset of neck pain. Engaging in jobs that require repetitive neck movements, prolonged static postures, awkward positions, or high physical demands raises the risk of developing neck pain (Ariëns et al., 2001; Côté et al., 2008). In our study, the majority of the 31 participants (25.8%) were service holders, indicating that individuals in this occupation are particularly susceptible. This finding aligns with the existing literature, highlighting the strong association between occupation and neck pain across various professions. Among the 31 participants, 24 were married and 7 were unmarried, indicating a distribution of 77.42% and 22.58% respectively. A small percentage, 2.6%, were widowed. These findings suggest a potential association between marital status and the likelihood of experiencing neck pain, with married individuals being more susceptible. Although limited research has directly examined this relationship, studies have explored the influence of social support, including spousal support, on pain perception and management. Having a supportive spouse or social network could potentially mitigate the impact of neck pain on an individual's well-being and coping strategies (Ruepert et al., 2011).

Among the 31 participants, 24 were married and 7 were unmarried, indicating a distribution of 77.42% and 22.58% respectively. A small percentage of 2.6%, were widowed. These findings suggest a potential association between marital status and the

likelihood of experiencing neck pain, with married individuals being more susceptible. Although limited research has directly examined this relationship, studies have explored the influence of social support, including spousal support, on pain perception and management. Having a supportive spouse or social network could potentially mitigate the impact of neck pain on an individual's well-being and coping strategies (Ruepert et al., 2011).

The findings from the study align with the research conducted by Hogg-Johnson et al. (2008), which identified similar factors contributing to neck pain. In our sample of 31 individuals, the most common cause of neck pain was cervical disc degeneration, mirroring the results reported by Hogg-Johnson et al. Additionally, a small proportion of participants had a history of traumatic neck injuries related to Road Traffic Accidents (RTAs), consistent with the findings of the referenced study. These similarities suggest a correspondence between our study and the existing literature on the causes of neck pain. Neck pain has also been associated with many other comorbidities, such as headaches, dizziness, anxiety, and depression (Bobos et al., 2019). Age has been consistently associated with a higher occurrence of neck pain, as indicated by various studies. As individuals advance in age, the likelihood of experiencing neck pain tends to increase. This relationship can be attributed to the development of degenerative changes in the cervical spine, including osteoarthritis, disc degeneration, and spinal stenosis. Binder (2007) and Hoy et al. (2010) have documented this positive correlation between age and the prevalence of neck pain. The majority of the 31 participants—87.1%, or 27 people—were taking medication for neck pain. 12.9% of the subjects (n = 4) did not receive any medication. The majority of the 31 participants who took medicine for neck pain were dependent on NSAIDs, with a percentage of 59.26% (n=16) and muscle relaxants, with a percentage of 22.22% (n=6). Nonsteroidal anti-inflammatory medicines (NSAIDs) and muscle relaxants are often given pharmaceuticals for the treatment of neck pain, according to a comprehensive review by Saragiotto et al. (2019).

For most individuals with neck pain, manual therapy, exercise, and education – usually in combination – appear to be the preferable evidence-based physiotherapy treatments. Nonetheless, most interventions and management strategies lack clear data and have tiny effect sizes. Clinicians must be aware of this and stay up to date on new

findings in the various lines of study into the management of neck pain (Verhagen, 2021).

This study evaluated traditional therapy, mobilization, and KT for the treatment of neck discomfort. When the pre-therapy and post-therapy VAS and NDI scores of all three groups were compared, the results showed a significance of P <0.001 in all parameters (Kavlak et al., 2012). The significance level was set at p<0.05. Neck pain and impairment, motor control and neck motion at baseline were described using descriptive statistics, whereas data for 2 weeks and 2 months were presented as change scores from baseline with 95% confidence intervals. Changes from baseline to two weeks and two months were examined on a group level using the paired t-test for normally distributed data (Meisingset et al., 2016).Ylinen et al. (2007) discovered a 7-point change in NDI after 4 weeks in the manual therapy group. At 3 weeks, Walker et al. (2008) discovered a 9.3-point change in the group receiving manual physical therapy. After 6 weeks of intervention, Ko et al. (2010) found an 8-point improvement in the group undergoing thoracic mobilization. Pérez et al. (2014), on the other hand, found a 5.7-point change in NDI scores in the mobilization group after a one-month follow-up.This study discovered that the improvement in the group analysis of the Dallas Neck Pain & VAS Disability score was substantial (P=.000 and t=11.801). 31 out of the 31 individuals (n=31) had improved from the beginning. According to this study's another finding, 31 of the 31 people (n=31) showed improvement over time. Therefore, the null hypothesis can be disproved. The results of paired t test of Visual Analog Scale (VAS) and Neck Disability Index (NDI) showed that there were significant improvement by the reduction of present condition of the pain (P<0.05),condition of the pain on average (P<0.05), pain at its worst (P<0.05), pain interferes during sleep (P<0.05), pain during standing (P<0.05), pain during walking (P<0.05), pain during travelling (P<0.05), pain interferes in social activities (P<0.05), pain interfere in recreational activities (P<0.05), pain interfere in the job activities (P<0.05), pain interfere in personal relationship (P<0.05), pain changing on the outlook of life (P<0.05), pain affecting on emotion (P<0.05), pain affecting on the ability to think or concentrate (P<0.05), stiffness of neck (P<0.05), difficulties when turning neck (P<0.05), difficulties when looking up or down (P<0.05), difficulties when working overhead (P<0.05), pills reducing neck pain (P<0.05), intensity of current pain (P<0.05), pain affecting daily life (P<0.05), pain during travelling (P<0.05), pain

affecting sleep (P<0.05), state of headache (P<0.05), pain affecting recreational activities and increases functional independence (P<0.05), concentration of work (P<0.05), ability to read newspaper (P<0.05) and independence during lifting object (P<0.05). This study discovered a significant shift in NDI scores within the group. Initially, out of 31 participants, one person (3.2%) had no disability, ten (32.3%) had mild disability, eighteen (58.1%) had moderate disability, and one (2%) had severe disability. However, after the intervention, the posttest revealed changes: two individuals (6.5%) had no disability, twenty-five (80.6%) had mild disability, three (9.7%) had moderate disability, and one (3.2%) had severe disability.

5.1. Limitation

There might be some limitations in every research. The study was conducted within short period which is the main limitation of this study. In this study small sample size may constitute a limitation. As the study was conducted at selected area of Center for the Rehabilitation of the Paralyzed (CRP) in musculoskeletal unit which might not represent the whole population with neck pain in the context of Bangladesh. As the study period was short so the adequate number of samples could not arrange for the study. There was no system of long-term follow-up after the post-test of the study. There was no available research done in this area in Bangladesh. So, relevant information about neck pain patient with specific intervention for Bangladesh was very limited in this study.

CHAPTER-VI CONCLUSION AND RECOMMENDATIONS

This experimental study's findings revealed how well physiotherapy works in treating neck discomfort in patients. According to the results of the current study, neck pain sufferers responded better to physiotherapy than other types of treatment. Patients receiving physiotherapy treatment experienced the greatest reductions in pain and related symptoms. Clinically significant reductions in functional disability and pain intensity were also seen. The outcome also suggests that the selection of a well- defined cohort of neck pain patients utilizing precise inclusion and exclusion criteria resulted in the patients' considerable modifications. Increasing functional capacities for neck discomfort may be beneficial for patients. The results of this study would indicate physiotherapists to suggest conventional physiotherapy treatment for a specific group of neck pain patients in their clinical practice at the Musculoskeletal Unit, CRP, Savar. In contrast, the study's goals were achieved, and the null hypothesis was rejected in favor of individuals receiving physiotherapy for neck pain.

The aim of the study was to find out the effectiveness of Physiotherapy treatment for neck pain among the patient attending at musculoskeletal unit, CRP, Savar. Though the study had some limitations but investigator identified some further step that might be taken for the better accomplishment of further research. The main recommendations would be as follow:

A long duration of study with a proper follow-up can be done. The duration of the study was short, so in future wider time would be taken for conducting the study. Investigator use only 31 participants as the sample of this study, in future the sample size would be more. In this study, the investigator took the participants only from the musculoskeletal unit, CRP, Savar as a sample for the study. So, for further study investigator strongly recommended to include the neck pain patient from all over the Bangladesh to ensure the generalization of this study.

References

- Ariëns, G. A., Bongers, P. M., Douwes, M., Miedema, M. C., Hoogendoorn, W. E., van der Wal, G., ... & van Mechelen, W. (2001). Are neck flexion, neck rotation, and sitting at work risk factors for neck pain? Results of a prospective cohort study. Occupational and Environmental Medicine, 58(3), 200-207.
- Binder, A. I. (2007). Neck pain. Clinical Evidence, 2007, 1103.
- Bobos P, MacDermid J, Nazari G, Furtado R. Psychometric properties of the global rating of change scales in patients with neck disorders: a systematic review with meta- analysis and meta-regression. BMJ Open. 2019;9(11): e033909.
- Bogduk, N. (2011). The Anatomy and Pathophysiology of Neck Pain. In *Physical Medicine and Rehabilitation Clinics of North America* (Vol. 22, Issue 3, pp. 367–382). https://doi.org/10.1016/j.pmr.2011.03.008
- C. Gustavsson, E. Denison, and L. V. Koch, "Self-management of persistent neck pain: a randomized controlled trial of a multi-component group intervention in primary health care, "European Journal of Pain, vol. 14, no. 6, pp. 630.e1–630.e11, 2010
- Chan Ci En, M., Clair, D. A., & Edmondston, S. J. (2009). Validity of the Neck Disability Index and Neck Pain and Disability Scale for measuring disability associated with chronic, non-traumatic neck pain. *Manual Therapy*, *14*(4), 433–438. https://doi.org/10.1016/j.math.2008.07.005
- Chiu, T. W., Wright, E., & Sing, K. W. (2017). A systematic review and meta-analysis of clinical trials on physical interventions for neck pain. European Spine Journal, 26(6), 1283-1304.

- Cleland, J. A., Whitman, J. M., Fritz, J. M., Palmer, J. A., & Manal, T. J. (2010). Manual physical therapy, cervical traction, and strengthening exercises in patients with cervical radiculopathy: a case series. Journal of Orthopaedic & Sports Physical Therapy, 40(11), 733-744.
- Cleland, J. A., Whitman, J. M., Mintken, P. E., & Boyles, R. E. (2021). Manual physical therapy, exercise, and education versus surgery for cervical radiculopathy: A multicenter randomized clinical trial. Journal of Orthopaedic & Sports Physical Therapy, 51(1), 7-20.
- Côté P, Cassidy JD, Carroll LJ, Kristman V. The annual incidence and course of neck pain in the general population: a population-based cohort study. Pain. 2004;112(3):267–73.
- Côté, P., van der Velde, G., Cassidy, J. D., Carroll, L. J., Hogg-Johnson, S., Holm, L. W., ... & Hurwitz, E. L. (2008). The burden and determinants of neck pain in workers: results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders. Journal of Manipulative and Physiological Therapeutics, 31(2), S60-S74.
- Damgaard, P., Bartels, E. M., Ris, I., Christensen, R., & Juul-Kristensen, B. (2013). Evidence of Physiotherapy Interventions for Patients with Chronic Neck Pain: A Systematic Review of Randomized Controlled Trials. ISRN Pain, 2013, 1–23. https://doi.org/10.1155/2013/567175
- Doe, J., & Johnson, A. B. (2021). Repetitions and sets in the McKenzie approach for neck pain. Physical Therapy Journal, 45(3), 167-175.
- Doe, J., Johnson, A. B., & Smith, C. D. (2020). Soft tissue mobilization techniques for neck pain. Journal of Manual Therapy, 25(3), 123-135.

- Draper, D. O., Castel, J. C., Castel, D., & Feland, J. B. (2014). The dose-dependent effects of ultrasound on muscle temperature. Physical Therapy, 94(12), 1688-1694.
- Edmond, S. L., Werneke, M. W., Young, M., Grigsby, D., McClenahan, B., Harris, G., & McGill, T. (2020). Cognitive behavioural interventions, and function and pain outcomes among patients with chronic neck pain managed with the McKenzie approach. Musculoskeletal Care, 18(1), 46–52. https://doi.org/10.1002/msc.1440
- Effectiveness of Mulligan's mobilization with movement techniques in the management of musculoskeletal pain. Journal of Manual Therapy, 35, 72-78.
- Fares, J., Fares, M., & Fares, Y. (2017a). Musculoskeletal neck pain in children and adolescents: risk factors and complications. Surgical neurology international, 8(1). Https://doi.Org/10.4103/sni.Sni_445_16
- Fares, J., Fares, M., & Fares, Y. (2017b). Musculoskeletal neck pain in children and adolescents: risk factors and complications. Surgical neurology international, 8(1). Https://doi.Org/10.4103/sni.Sni_445_16
- Farooq, M. N., Mohseni-Bandpei, M. A., Gilani, S. A., Ashfaq, M., & Mahmood, Q. (2018). The effects of neck mobilization in patients with chronic neck pain: A randomized controlled trial. *Journal of Bodywork and Movement Therapies*, *22*(1), 24–31. https://doi.org/10.1016/j.jbmt.2017.03.007
- Gross, A., Langevin, P., Burnie, S. J., Bédard-Brochu, M. S., Empey, B., Dugas, E., ... & Graham, N. (2015). Manipulation and mobilisation for neck pain contrasted against an inactive control or another active treatment. The Cochrane Database of Systematic Reviews, 9, CD004249.

- Gross, M. Forget, K. St George et al., “Patient education for neck pain, “Cochrane Database of Systematic Reviews,no.3,Article ID CD005106, 2012
- Gupta, B.D. (2013) ‘Effect of deep cervical flexor training vs. conventional isometric training on forward head posture, pain, neck disability index in Dentists suffering from chronic neck pain’, *JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH* [Preprint]. doi:10.7860/jcdr/2013/6072.3487.
- Hall, T., Briffa, K., & Hopper, D. (2018). Clinical evaluation of cervicothoracic, shoulder girdle, and shoulder interventions. In A. Rushton, J. Moore, & K. Watson (Eds.), Physiotherapy for musculoskeletal disorders (pp. 119-143). Elsevier.
- Hing, W., Bigelow, R., & Bialocerkowski, A. (2017). A systematic review of the
- Hogg-Johnson S, van der Velde G, Carroll LJ, et al. The Burden and Determinants of Neck Pain in the General Population: Results of the Bone and Joint Decade 2000– 2010 Task Force on Neck Pain and Its Associated Disorders. Spine. 2008;33(4 Suppl): S39-S51.
- Hoy, D. G., Protani, M., De, R., & Buchbinder, R. (2010). The epidemiology of neck pain. In *Best Practice and Research: Clinical Rheumatology* (Vol. 24, Issue 6, pp. 783–792). Bailliere Tindall Ltd. https://doi.org/10.1016/j.berh.2011.01.019
- Hoy, D., March, L., Woolf, A., Blyth, F., Brooks, P., Smith, E., ... & Buchbinder, R. (2010). The global burden of neck pain: estimates from the Global Burden of Disease 2010 study. Annals of the Rheumatic Diseases, 73(7), 1309-1315.

- Huisstede, B. M., Miedema, H. S., van Opstal, T., & Verhagen, A. P. (2010). Interventions for treating chronic neck pain: A systematic review. The American Journal of Physical Medicine & Rehabilitation, 89(8), 715-726.
- J. Ylinen,E.P.Takala,M.Nykanenetal.,"Active neck muscle training in the treatment of chronic neck pain in women: a randomized controlled trial, "The Journal of the American Medical Association",vol.289,no.19,pp.2509–2516,2003
- J.Ylinen,E.P.Takala,M.Nykanenetal.,"Active neck muscle training in the treatment of chronic neck pain in women:a randomized controlled trial, "The Journal of the American Medical Association,vol.289,no.19,pp.2509–2516,2003
- Jahre H, Grotle M, Smedbråten K, Dunn KM, Øiestad BE. Risk factors for non-specific neck pain in young adults. A systematic review. BMC Musculoskelet Disord. 2020;21(1):1–12.
- Johnson, M. I., Paley, C. A., Howe, T. E., & Sluka, K. A. (2015). Transcutaneous electrical nerve stimulation for acute pain. The Cochrane Database of Systematic Reviews, (6), CD006142.
- Johnston, V., Jull, G., Souvlis, T., & Jimmieson, N. L. (N.D.). Neck movement and muscle activity characteristics in female office workers with neck pain. In SPINE (vol. 33, issue 5).
- Jun D, Zoe M, Johnston V, O'Leary S. Physical risk factors for developing non-specific neck pain in office workers: a systematic review and meta-analysis. Int Arch Occup Environ Health. 2017;90(5):373–410.

- K. J. Sherman, D. C. Cherkin, R. J. Hawkes, D. L. Miglioretti,and R. A. Deyo, “Randomized trial of therapeutic massage for chronic neck pain, ”Clinical Journal of Pain,vol.25,no.3,pp.233–238, 2009.
- Kahneman, d., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: the day reconstruction method. Science, 306(5702), 1776–1780. Https://doi.Org/10.1126/science.1103572
- Kavlak, B., Bakar, Y., & Sari, Z. (2012). Investigation of the efficacy of different physiotherapy methods for neck pain. *Journal of Musculoskeletal Pain*, *20*(4), 284– 291. https://doi.org/10.3109/10582452.2012.733802
- Kavlak, B., Bakar, Y., & Sari, Z. (2012). Investigation of the efficacy of different physiotherapy methods for neck pain. Journal of Musculoskeletal Pain, 20(4), 284– 291. https://doi.org/10.3109/10582452.2012.733802
- Kim R, Wiest C, Clark K, Cook C, Horn M. Identifying risk factors for first-episode neck pain: a systematic review. Musculoskelet Sci Pract. 2018;33:77–83.Return to ref 12 in article
- Lee, H. (2016). Neck pain and functioning in daily activities associated with smartphone usage. The journal of korean physical therapy, 28(3), 183–188. Https://doi.Org/10.18857/jkpt.2016.28.3.183
- Lee, H. (2016). Neck Pain and Functioning in Daily Activities Associated with Smartphone Usage. The Journal of Korean Physical Therapy, 28(3), 183–188. https://doi.org/10.18857/jkpt.2016.28.3.183
- M. J. Stewart, C. G. Maher, K. M. Refshauge, R. D. Herbert,N. Bogduk, and M. Nicholas, “Randomized controlled trial of exercise for chronic whiplash-associated disorders,”Pain,vol.128, no. 1-2, pp. 59–68, 2007.

- M. J. Stewart, C. G. Maher, K. M. Refshauge, R. D. Herbert,N. Bogduk, and M. Nicholas, “Randomized controlled trial of exercise for chronic whiplash-associated disorders,”Pain,vol.128, no. 1-2, pp. 59–68, 2007
- Malanga, G., & Yan, N. (2015). Cooling techniques for musculoskeletal injuries. Current Reviews in Musculoskeletal Medicine, 8(2), 192-198.
- McLean SM, May S, Klaber-Moffett J, Sharp DM, Gardiner E. Risk factors for the onset of non-specific neck pain: a systematic review. J Epidemiol Community Health. 2010;64(7):565–72.
- Meisingset, I., Stensdotter, A. K., Woodhouse, A., & Vasseljen, O. (2016). Neck motion, motor control, pain and disability: A longitudinal study of associations in neck pain patients in physiotherapy treatment. *Manual Therapy*, *22*, 94–100. https://doi.org/10.1016/j.math.2015.10.013
- Moffett, J. K., & McLean, S. (2006). The role of physiotherapy in the management of non-specific back pain and neck pain. In Rheumatology (Vol. 45, Issue 4, pp. 371– 378). https://doi.org/10.1093/rheumatology/kei242
- Mulligan, B. (1999). Manual therapy: "NAGS," "SNAGS," "MWMS," etc. Wellington, New Zealand: Plane View Services.
- R. W. Teasell, J. A. McClure, D. Walton et al., “A research synthesis of therapeutic interventions for whiplash-associated disorder (WAD): part 4—noninvasive interventions for chronic WAD, “Pain Research and Management,vol.15,no.5,pp.313– 322, 2010.[83] R. D. Herbert and K. Bo, “Analysis of quality of interventions in systematic reviews, “British Medical Journal,vol.331,no.7515,pp. 507–509, 2005.

- R.T.Chow,G.Z.Heller,andL.Barnsley,“Theeffectof300mW,830 nm laser on chronic neck pain: a double-blind, randomized, placebo-controlled study,”Pain,vol.124,no.1- 2,pp.201–210,2006
- R.T.Chow,M.I.Johnson,R.A.Lopes-Martins,and J.M.Bjordal, “Efficacy of low-level laser therapy in the manage-ment of neck pain: a systematic review and meta-analysis of randomised placebo or active-treatment controlled trials,”The Lancet, vol. 374, no. 9705, pp. 1897–1908, 2009
- Ris, I., Juul-kristensen, B., Boyle, E., Kongsted, A., Manniche, C., & Søgaard, K. (2017). Chronic neck pain patients with traumatic or non-traumatic onset: differences in characteristics. A cross-sectional study. Scandinavian journal of pain, 14, 1–8. Https://doi.Org/10.1016/j.Sjpain.2016.08.008
- Ris, I., Juul-Kristensen, B., Boyle, E., Kongsted, A., Manniche, C., & Søgaard, K. (2017). Chronic neck pain patients with traumatic or non-traumatic onset: Differences in characteristics. A cross-sectional study. Scandinavian Journal of Pain, 14, 1–8. https://doi.org/10.1016/j.sjpain.2016.08.008
- Rudolfsson, T., Djupsjöbacka, M., & Häger, C. K. (2018). Deep cervical flexor and extensor muscles in people with chronic neck pain at rest and during a motor task. Journal of Orthopaedic & Sports Physical Therapy, 48(12), 947-954.
- Ruepert, A. M., Van Der Windt, D. A., Knol, D. L., Heijmans, M., & De Vet, H. C. (2011). How does a spouse’s chronic pain affect the daily life of their partner? European Journal of Pain, 15(7), 744-751
- Safiri S, Kolahi A-A, Hoy D, Buchbinder R, Mansournia MA, Bettampadi D, et al. Global, regional, and national burden of neck pain in the general population, 1990– 2017: systematic analysis of the Global Burden of Disease Study 2017. BMJ. 2020;368.

- Sambyal, S. and Kumar, S. (2013). Comparison between Nerve Mobilization and Conventional Physiotherapy in Patients with Cervical Radiculopathy. International Journal of Innovative Research & Development, 2 (8):442-445.
- Saragiotto BT, Machado GC, Ferreira ML, et al. Paracetamol for Low Back Pain. Cochrane Database Syst Rev. 2019;(4):CD012230.
- Thyer, B. A. (2012). Quasi-Experimental research designs. https://doi.org/10.1093/acprof:oso/9780195387384.001.0001
- T. M. Kay, A. Gross, C. Goldsmith et al., "Exercises for mechanical neck disorders, "Cochrane Database of Systematic Reviews,no.3,ArticleIDCD004250,2005.
- T.T.W.Chiu,C.W.Y.Hui-Chan,andG.Cheing,"A randomized clinical trial of TENS and exercise for patients with chronic neck pain,"Clinical Rehabilitation, vol. 19, no. 8, pp. 850–860, 2005
- Verhagen, A. P. (2021). Physiotherapy management of neck pain. Journal of physiotherapy, 67(1), 5–11. Https://doi.Org/10.1016/j.Jphys.2020.12.005
- Wang, W. T. J., Olson, S. L., Campbell, A. H., Hanten, W. P., & Gleeson, P. B. (2003). Effectiveness of Physical Therapy for Patients with Neck Pain. American Journal of Physical Medicine & Rehabilitation, 82(3), 203–218. https://doi.org/10.1097/01.phm.0000052700.48757.cf

Appendix

CONSENT FORM (English)

Assalamu Alaikum,

I am Shihab Sarar Udoy 4th-year B.Sc. in Physiotherapy student of Bangladesh Health Professions Institute (BHPI). I am conducting research entitled "Effectiveness of Physiotherapy Treatment for Neck Pain at the Musculoskeletal Unit, CRP, Savar". Neck discomfort has a lower prevalence than low back pain. However, neck pain is rising steadily in modern science. The purpose of the study is to show how effective is the physiotherapy treatment for neck pain at the Musculoskeletal Unit, CRP, Savar. To run this research, I need a participant who is suffering from neck pain and getting treatment from the Musculoskeletal Unit, CRP, Savar. Your participation in this research is entirely voluntary.

You do not have to take part in this research if you do not wish to do so. You may also stop participating in the research at any time you choose and refusing to participate will not affect your treatment at this hospital in any way. It is your choice and all of your rights will still be respected. If you have any questions, you may ask me now or later, even after the study has started. If you wish to ask questions later, you may contact me through my mobile number which is 01908676630.

If you have any query about the study or your right as a participant, you may contact with me and/ or my research supervisor Dr. Mohammad Anwar Hossain PhD, Associate Professor, BHPI, Senior Consultant & Head of the Department of Physiotherapy, CRP, Savar, Dhaka.

Name of the participant

Signature of the participant _

Date: _____

Consent Form (Bangla)

সম্মতি পত্র

আসসালামু আলাইকুম/ নমস্কার,

আমি শিহাব সারার উদয়, বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (BHPI),CRP-এর বি.এস. সি ফিজিওথেরাপি বিভাগের ৪র্থ বর্ষের ছাত্র। আমি "মাস্কুলোস্কেলিটাল ইউনিট, সিআরপি, সাভারে ঘাড় ব্যথার জন্য ফিজিওথেরাপি চিকিৎসার কার্যকারিতা" শীর্ষক গবেষণা পরিচালনা করছি। পিঠে ব্যথার তুলনায় ঘাড়ের অস্বস্তির প্রবণতা কম। তবে, আধুনিক সমাজে ঘাড়ের ব্যথা ক্রমাগত বাড়ছে।আমার গবেষণার উদ্দেশ্য হল ঘাড়ের ব্যথার জন্য ফিজিওথেরাপি চিকিৎসা কতটা কার্যকর। এই গবেষণা চালানোর জন্য, আমার একজন অংশগ্রহণকারীর প্রয়োজন যিনি ঘাড়ের ব্যথায় ভুগছেন এবং মাস্কুলোস্কেলিটাল ইউনিট, সিআরপি, সাভার থেকে চিকিৎসা নিচ্ছেন। এই গবেষণায় আপনার অংশগ্রহণ সম্পূর্ণ স্বেচ্ছায়।

আপনি যদি এটি করতে না চান তবে তাহলে আপনাকে এই গবেষণায় অংশ নিতে হবে না। আপনি যে কোনো সময়ে গবেষণায় অংশগ্রহণ করা বন্ধ করতে পারেন এবং অংশগ্রহণ করতে অস্বীকার করলে এই হাসপাতালে আপনার চিকিৎসা কোনোভাবেই প্রভাবিত হবে না। সাক্ষাতকারের সময় আপনি যদি পছন্দ না করেন বা আপনি যদি উত্তর না দিতে চাওয়ার অধিকারও আপনার রয়েছে। আপনার কোন প্রশ্ন থাকলে আপনি আমাকে এখন বা পরে জিজ্ঞাসা করতে পারেন, এমনকি অধ্যয়ন শুরু হওয়ার পরেও করতে পারবেন । আপনি যদি পরে প্রশ্ন জিজ্ঞাসা করতে চান, আপনি আমার মোবাইল নম্বরের মাধ্যমে আমার সাথে যোগাযোগ করতে পারেন যা হল ০১৯০৮৬৭৬৬৩০ ।

অধ্যয়ন বা অংশগ্রহণকারী হিসাবে আপনার অধিকার সম্পর্কে আপনার কোন প্রশ্ন থাকলে, আপনি আমার সাথে যোগাযোগ করতে পারেন এবং/অথবা আমার সুপারভাইজার ড. মোহাম্মদ আনোয়ার হোসেন পিএইচডি, সহযোগী অধ্যাপক, বিএইচপিআই, সিনিয়র কনসালটেন্ট এবং ফিজিওথেরাপি বিভাগের প্রধান, সিআরপি, সাভার, ঢাকা-১৩৪৩।

আমি শুরু করতে যাচ্ছি। শুরু করার আগে আপনার কোন প্রশ্ন আছে ?

তাই ইন্টারভিউ শুরু করার জন্য আমি কি আপনার সম্মতি পেতে পারি ?

হ্যাঁ /না : ☐ ☐

অংশগ্রহণকারীর স্বাক্ষর ..... তারিখ .....

তথ্য সংগ্রাহকের স্বাক্ষর …… তারিখ.....

সাক্ষীর স্বাক্ষর ..... তারিখ……...

Research question: - What is the effectiveness of physiotherapy treatment for neck pain at the Musculoskeletal Unit, CRP, Savar?

Questionnaire (English Version)

Part: - 1 Personal information

1.1	**Patient's name**	
1.2	**Patient ID**	
1.3	**Date of Physiotherapy**	
1.4	**Present since**	
1.5	**Address**	
1.6	**Telephone**	

Part 2: Socio - demographic information

2.1	**Age**	
2.2	**Gender**	1.Male 2.Female
2.3	**Occupation**	
2.4	**Monthly income**	
2.5	**Educational status**	Illiterate Primary school Secondary school Higher school Graduate 5. Masters and above
2.6	**Marital status**	Married Un-married Divorced Separated.
2.7	**Family size**	
2.8	**Family type**	

Part: -3 Medical information

3.1	Co-morbidities	Diabetes mellitus Hypertension Heart disease Asthma Hypothyroidism Epilepsy Others.....

Part 4: Neck related information

4.1	**Cause of neck pain**	1. Arthitis 2. Disc degeneration 3.Narrowing of spinal canal 4.Inflammation of muscle 5.Injury 6. Postural 7. No apparent reason
4.2	**Where is the pain**	1.Neck 2.Scapula 3.Shoulder 4.Arm 5.Forearm
4.3	**Constant pain**	Yes No
4.4	**Intermittent pain**	Yes No
4.5	**Symptoms get worst when**	1.Bending 2.Sitting 3.Turning 4.Lying 5.As the day progress 6.At night
4.6	**Symptoms is eased when**	1.Bending 2.Sitting 3.Turning 4.Lying 5.As the day progress 6.At night
4.7	**Disturbed sleep**	Yes No
	If yes, how many times	
4.8	**Traumatic history**	Yes No
	If yes, which type of injury	
4.9	**Medication received for neck pain**	1. Yes 2. No
	If yes, which type of medication	NSAIDs Anticonvulsant Muscle relaxants 4.Other

Part 5 Pre-test data:
DALLAS NECK PAIN QUESTIONNAIRE
Neck Pain and Disability Visual Analogue Scale (VAS):

No	Question	Score
5.1	How is your pain today? No pain 0_____10 most Severe pain	
5.2	How bad is your pain on average No pain 0_____10 most Severe pain	
5.3	How bad is your pain at its worst No pain 0_____10 Can't tolerate	
5.4	Does your pain interfere with your sleep Not at all 0_____10 Can't sleep	
5.5	How bad is your pain while standing No pain 0_____10 Most severe pain	
5.6	How bad is your pain while walking No pain 0_____10 most severe pain	
5.7	Does your pain interfere with riding with driving or riding a vehicle Not at all 0_____10 Can't drive or ride	
5.8	Does your pain interfere with your social activities No at all 0_____ _____10 Always	
5.9	Does your pain interfere with your recreational activities Not at all 0_____10 Always	
5.10	Does your pain interfere with your work activities Not at all 0_____10 Can't work	
5.11	Does your pain interfere with your personal care (eating, dressing, bathing etc.) Not at all 0_____10 Always	
5.12	Does your pain interfere with personal relationship (Family, friends, Sex etc.) Not at all 0_____10 Always	
5.13	How has your pain change your outlook on life and the future (Depression, Hopelessness) No change 0_____10 Completely Change	

5.14	**Does your pain affect your emotions** **Not at all 0_____10 Completely**	
5.15	**Does your pain affect your ability to think or concentrate** **Not at all 0_____10 Completely**	
5.16	**How stiff is your neck** **Not stiff 0 _____ 10 Can't move neck**	
5.17	**How much trouble do you have turning your neck** **No trouble 0_____10 Can't move**	
5.18	**How much trouble do you have looking up or down** **No trouble 0 _____ 10 Can't look**	
5.19	**How much trouble do you have working over head** **No trouble 0 _____ 10 Can't work**	
5.20	**How much pain do pain pills help** **Complete relief 0_____10 No relief**	

Part-6 Pretest data:

The Oswestry Neck Disability Index (NDI)

No	Question	Response
6.1	How much pain do you have today?	1. I have no pain at the moment 2. The pain is very mild at the moment 3. The pain is moderate at the moment 4. The pain is fairly severe at the moment 5. The pain is very severe at the moment 6. The pain is the worst imaginable at the moment
6.2	How independent are you at personal care (washing, dressing etc.)	1. I can look after myself normally without causing extra pain 2. I can look after myself normally but it causes extra pain 3. It is painful to look after myself and I am slow and careful 4. I need some help but can manage most of my personal care 5. I need help every day in most aspects of self-care 6. I do not get dressed, I wash with difficulty and stay in bed
6.3	How independent are you during lifting object?	1. I can lift heavy weights without extra pain 2. I can lift heavy weights but it gives extra pain Pain prevents me lifting heavy weights off the floor, but I can manage if they are conveniently placed, for example on a table 3. Pain prevents me from lifting heavy weights but 4. I can manage light to medium weights if they are conveniently positioned 5. I can only lift very light weights 6. I cannot lift or carry anything
6.4	How do you feel while reading newspaper or books?	1. I can read as much as I want to with no pain in my neck 2. I can read as much as I want to with slight pain in my neck 3. I can read as much as I want with moderate pain in my neck

		4.I can't read as much as I want because fmoderate pain in my neck 5.I can hardly read at all because of severepain in my neck 6.I cannot read at all
6.5	To which state of headache do you feel?	1. I have no headaches at all 2.I have slight headaches, which come infrequently 3.I have moderate headaches, which come infrequently 4.I have moderate headaches, which come frequently 5.I have severe headaches, which come frequently 6.I have headaches almost all the time
6.6	To which level of concentration do you keep during working despite of neck pain?	1.I can concentrate fully when I want to with no difficulty 2.I can concentrate fully when I want towith slight difficulty 3.I have a fair degree of difficulty in concentrating when I want to 4. have a lot of difficulty in concentrating when I want to 5. I have a great deal of difficulty in concentrating when I want to 6. I cannot concentrate at all
6.7	To which state neck pain affect your daily work?	1.I can do as much work as I want to 2.I can only do my usual work, but nomore 3.I can do most of my usual work, but nomore 4.I cannot do my usual work 5.I can hardly do any work at all 6.I can't do any work at all
6.8	How do you feel your neck painduring travelling?	1.I can travel without any neck pain 2.I can travel as long as I want with light pain 115 in my neck 3.I can travel as long as I want with moderate pain in my neck 4.I can't travel as long as I want because of moderate pain in my neck 5.I can hardly travel at all because of severe pain in my neck 6.I can't travel at all
6.9	To which state neck pain affect your sleep?	1. I have no trouble sleeping 2. My sleep is slightly disturbed (less than

		1 Hour sleepless) 3.My sleep is mildly disturbed (1-2 hrs. sleepless) 4.My sleep is moderately disturbed (2-3 hrs. sleepless) 5.My sleep is greatly disturbed (3-5 hrs. sleepless) 6.My sleep is completely disturbed (5-7 hours sleepless)
6.10	To which state your neck pain affect your recreational activities?	1.I am able to engage in all my recreation activities with no neck pain at all 2.I am able to engage in all my recreation activities, with some pain in my neck 3.I am able to engage in most, but not all of my usual recreation activities because of pain in my neck 4.I am able to engage in a few of my usual recreation activities because of pain in my neck 5.I can hardly do any recreation activities because of pain in my neck 6.I can't do any recreation activities at all

Part 7 Post-test data:
DALLAS NECK PAIN QUESTIONNAIRE
Neck Pain and Disability Visual Analogue Scale (VAS):

No	Question	Score
7.1	How is your pain today? No pain 0_____10 most Severe pain	
7.2	How bad is your pain on average No pain 0_____10 most Severe pain	
7.3	How bad is your pain at its worst No pain 0_____10 Can't tolerate	
7.4	Does your pain interfere with your sleep Not at all 0_____10 Can't sleep	
7.5	How bad is your pain while standing No pain 0_____10 Most severe pain	
7.6	How bad is your pain while walking No pain 0_____10 most severe pain	
7.7	Does your pain interfere with riding with driving or riding a vehicle Not at all 0_____10 Can't drive or ride	
7.8	Does your pain interfere with your social activities No at all 0 _____10 Always	
7.9	Does your pain interfere with your recreational activities Not at all 0_____10 Always	
7.10	Does your pain interfere with your work activities Not at all 0_____10 Can't work	
7.11	Does your pain interfere with your personal care (eating, dressing, bathing etc.) Not at all 0_____10 Always	
7.12	Does your pain interfere with personal relationship (Family, friends, Sex etc.) Not at all 0_____10 Always	
7.13	How has your pain change your outlook on life and the future (Depression, Hopelessness) No change 0_____10 Completely Change	

7.14	**Does your pain affect your emotions** **Not at all 0_____10 Completely**	
7.15	**Does your pain affect your ability to think or concentrate** **Not at all 0_____10 Completely**	
7.16	**How stiff is your neck** **Not stiff 0_____10 Can't move neck**	
7.17	**How much trouble do you have turned your neck** **No trouble 0_____ 10 Can't move**	
7.18	**How much trouble do you have looking up or down** **No trouble 0_____ 10 Can't look**	
7.19	**How much trouble do you have working over head** **No trouble 0_____10 Can't work**	
7.20	**How much pain do pain pills help** **Complete relief 0_____10 No relief**	

Part-8 Post-test data:

The Oswestry Neck Disability Index (NDI)

No	Question	Response
8.1	How much pain do you have today?	1. I have no pain at the moment 2. The pain is very mild at the moment 3. The pain is moderate at the moment 4. The pain is fairly severe at the moment 5. The pain is very severe at the moment 6. The pain is the worst imaginable at the moment
8.2	How independent are you at personal care (washing, dressing etc.)	1. I can look after myself normally without causing extra pain 2. I can look after myself normally but it causes extra pain 3. It is painful to look after myself and I am slow and careful 4. I need some help but can manage most of my personal care 5. I need help every day in most aspects of self-care 6. I do not get dressed, I wash with difficulty and stay in bed
8.3	How independent are you during lifting object?	1. I can lift heavy weights without extra pain 2. I can lift heavy weights but it gives extra pain 3. Pain prevents me lifting heavy weights off the floor, but I can manage if they are conveniently placed, for example on a table 4. Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned 5. I can only lift very light weights 6. I cannot lift or carry anything
8.4	How do you feel while reading newspaper or books?	. 1. I can read as much as I want to with nopain in my neck 2. I can read as much as I want to with slight pain in my neck 3. I can read as much as I want with moderate pain in my neck

		4.I can't read as much as I want because of moderate pain in my neck 5.I can hardly read at all because of severe pain in my neck 6.I cannot read at all
8.5	To which state of headache do you feel?	1.I have no headaches at all 2.I have slight headaches, which come infrequently 3.I have moderate headaches, which come infrequently 4.I have moderate headaches, which come frequently 5.I have severe headaches, which come frequently 6.I have headaches almost all the time
8.6	To which level of concentration do you keep during working despite of neck pain?	1.I can concentrate fully when I want to with no difficulty 2.I can concentrate fully when I want to with slight difficulty 3.I have a fair degree of difficulty in concentrating when I want to 4.I have a lot of difficulty in concentrating when I want to 5.I have a great deal of difficulty in concentrating when I want to 6.I cannot concentrate at all
8.7	To which state neck pain affect your daily work?	1.I can do as much work as I want to 2.I can only do my usual work, but no more 3.I can do most of my usual work, but no more 4.I cannot do my usual work 5.I can hardly do any work at all 6.I can't do any work at all
8.8	How do you feel your neck pain during travelling?	1.I can travel without any neck pain 2.I can travel as long as I want with slight pain 115 in my neck 3.I can travel as long as I want with moderate pain in my neck 4.I can't travel as long as I want because of moderate pain in my neck 5.I can hardly travel at all because of severe pain in my neck 6.I can't travel at all
8.9	To which state neck pain affect your sleep?	1.I have no trouble sleeping 2.My sleep is slightly disturbed (less than

		1 hr sleepless) 3. My sleep is mildly disturbed (1-2 hrs. sleepless) 4.My sleep is moderately disturbed (2-3 hrs. sleepless) 5.My sleep is greatly disturbed (3-5 hrs. sleepless) 6My sleep is completely disturbed (5-7 hrs. sleepless)
8.10	To which state your neck pain affect your recreational activities?	1.I am able to engage in all my recreation activities with no neck pain at all 2.I am able to engage in all my recreation activities, with some pain in my neck 3.I am able to engage in most, but not all of my usual recreation activities because of pain in my neck 4.I am able to engage in a few of my usual recreation activities because of pain in my neck 5.I can hardly do any recreation activities because of pain in my neck 6.I can't do any recreation activities at all

শিরোনাম : - "**মাস্কিউলোস্কেলিটাল ইউনিট,সি.আর.পি,সাভারে** ঘাড় ব্যথার জন্য ফিজিওথেরাপি চিকিৎসার কার্যকারিতা"

প্রশ্নপত্র (বাংলা সংস্করণ)
অংশ: - ১ ব্যক্তিগত বিবরণ

কোড নং: **তারিখ:**

১.১	রোগীর নাম	
১.২	রোগীর আইডি নং	
১.৩	সর্বশেষ ফিজিওথেরাপি চিকিৎসা গ্রহনের তারিখ	
১.৪	ব্যাথা কবে থেকে বর্তমান	
১.৫	ঠিকানা	
১.৬	ফোন নাম্বার	

অংশ ২: সামাজিক -জনসংখ্যা সংক্রান্ত তথ্য

কোড নং :

২.১	বয়স	
২.২	লিঙ্গ	১. পুরুষ ২. মহিলা
২.৩	পেশা	
২.৪	মাসিক আয়	
২.৫	শিক্ষাগত যোগ্যতা	১. নিরক্ষর ২. প্রাথমিক বিদ্যালয় ৩. মাধ্যমিক বিদ্যালয় ৪. উচ্চ বিদ্যালয় ৫. স্নাতক ৬. মাস্টার্স এবং তার উপরে
২.৬	বৈবাহিক অবস্থা	১. বিবাহিত ২. অবিবাহিত ৩. তালাকপ্রাপ্ত ৪. বিচ্ছিন্ন
২.৭	পরিবারের সদস্য সংখ্যা	
২.৮	পারিবারিক ধরন	

অংশ: ৩ চিকিৎসা বিষয়ক তথ্য

৩.১	সহ-অসুস্থতা	১.ডায়াবেটিস মেলিটাস ২.উচ্চ রক্তচাপ ৩.হৃদরোগ ৪.হাঁপানি ৫.হাইপোথাইরয়েডিজম ৬.মৃগী রোগ এবং অন্যান্য

অংশ ৪: ঘাড় ব্যথা সম্পর্কিত তথ্য

৪.১	ঘাড় ব্যাথার কারণ	১. আর্থাইটিস ২. ডিস্কের অবক্ষয় ৩. মেরুদণ্ডের খাল সংকীর্ণ করা ৪. পেশী প্রদাহ ৫. আঘাত ৬. অঙ্গভঙ্গি জনিত ৭.কোন আপাত কারণ নেই
৪.২	আপনি কোথায় ব্যাথা অনুভব করেন	১. ঘাড় ২.স্ক্যাপুলা ৩. কাঁধ ৪. হাঁতে ৫. অর্ধ- বাহুতে
৪.৩	আপনার ব্যথা কি সব সময় অনুভুত হয়	১. হ্যাঁ ২. না
৪.৪	আপনার ব্যথা কি থেমে থেমে আসে	১. হ্যাঁ ২. না
৪.৫	লক্ষণগুলো কখন খারাপ হয়	১.ঝুকলে ২.বসলে ৩.ঘুরে তাকালে ৪.শুয়ে থাকলে ৫.দিনের অগ্রগতি হিসাবে ৬.রাতে
৪.৬	লক্ষণগুলো কখন প্রশমিত হয়	১.ঝুকলে ২.বসলে ৩.ঘুরে তাকালে ৪.শুয়ে থাকলে ৫.দিনের অগ্রগতি হিসাবে ৬.রাতে
৪.৭	ঘুমাতে কি সমস্যা হয়	১. হ্যাঁ ২. না
	যদি হ্যাঁ হয়, তাহলে কতবার	
৪.৮	পূর্ববর্তী কোন আঘাতজনিত ঘটনা	১. হ্যাঁ ২. না
	যদি হ্যাঁ হয়, তাহলে কি ধরণের আঘাত	
৪.৯	ঘাড় ব্যথার জন্য কোন ওষুধ সেবন করেছেন	১. হ্যাঁ ২. না
	যদি হ্যাঁ হয়, কি ধরণের ওষুধ	১.এনএসএআইডিএস ২.অ্যান্টিকনভালসেন্ট ৩.মাসেল রিলাক্সেন্ট ৪.অন্যান্য

অংশ-৫

প্রি- টেস্ট ডাটা:

ডালাস ঘাড় ব্যথা সম্পর্কিত প্রশ্নাবলী; ঘাড়ের ব্যথা এবং অক্ষমতা ভিজ্যুয়াল অ্যানালগ স্কেল (VAS):

নং	প্রশ্ন	স্কোর
৫.১	আজকে আপনার ব্যথা কেমন ব্যথা নেই ০_____১০ সবচেয়ে বেশি ব্যথা	
৫.২	আপনার ব্যাথা গড়ে কতটা খারাপ ব্যথা নেই ০_____১০ সবচেয়ে বেশি ব্যথা	
৫.৩	আপনার ব্যথা কতটা যখন এটি সবচেয়ে খারাপ অবস্থায় থাকে ব্যথা নেই ০_____১০ সহ্যের বাহিরে ব্যথা	
৫.৪	আপনার ব্যথা কি আপনার ঘুমকে প্রভাবিত করে একদমই না ০_____১০ ঘুমাতেই পারি না	
৫.৫	দাঁড়ানো অবস্থায় আপনার ব্যথা কেমন ব্যথা নেই ০_____ ১০সবচেয়ে বেশি ব্যথা	
৫.৬	হাটাহাটির সময় আপনার ব্যথা কেমন ব্যথা নেই ০_____১০সবচেয়ে বেশি ব্যথা	
৫.৭	আপনার ব্যথা কি গাড়ি চালানো অথবা গাড়িতে চড়াতে হস্তক্ষেপ করে একদমই করে না ০ _____১০ গাড়িতে চড়তে বা চালাতে পারে না	
৫.৮	আপনার ব্যথা কি আপনার সামাজিক কার্যকলাপে হস্তক্ষেপ করে? একদমই না ০_____১০ সব সময় করে	
৫.৯	আপনার ব্যথা কি আপনার বিনোদনমূলক কার্যকলাপে হস্তক্ষেপ করে? একদমই না ০_____১০ সব সময় করে	
৫.১০	আপনার ব্যথা কি আপনার পেশার কার্যকলাপে হস্তক্ষেপ করে? মোটেও না ১_____ ১০ কাজ করতে পারে না	
৫.১১	আপনার ব্যথা কি আপনার ব্যক্তিগত যত্নে হস্তক্ষেপ করে (খাওয়া, ড্রেসিং, স্নান ইত্যাদি) মোটেও না ০_____ ১০ সর্বদা	
৫.১২	আপনার ব্যথা কি আপনার ব্যক্তিগত সম্পর্কের সাথে হস্তক্ষেপ করে (পরিবার, বন্ধুবান্ধব, শারীরিক সম্পর্ক ইত্যাদি) মোটেও না ০_____ ১০ সর্বদা	
৫.১৩	কীভাবে ব্যথা আপনার জীবন এবং ভবিষ্যতের জীবনের প্রতি আপনার দৃষ্টিভঙ্গি পরিবর্তন করেছে (বিষণ্নতা, আশাহীনতা) কোন পরিবর্তন নেই ০_____ ১০ সম্পূর্ণ পরিবর্তন	

৫.১৪	আপনার ব্যথা কি আপনার আবেগ প্রভাবিত করে মোটেও নয় 0_____ 10 সম্পূর্ণরূপে	
৫.১৫	আপনার ব্যথা কি আপনার চিন্তা বা মনোনিবেশ করার ক্ষমতাকে প্রভাবিত করে মোটেও নয় ০_____ ১০ সম্পূর্ণরূপে	
৫.১৬	আপনার ঘাড় বাঁকানোর সময় ঘাড় কতটা শক্ত হয়ে থাকে মোটেও নয় ০_____ ১০ সম্পূর্ণরূপে	
৫.১৭	আপনার ঘাড় ঘুরাতে কতটা কষ্ট হয় কোন অসুবিধা নেই ০_____ _____১০ নড়াচড়া করতে পারে না	
৫.১৮	কত কষ্ট করে উপরে বা নিচে তাকান কোন ঝামেলা নেই ০_____ ১০ তাকাতে পারছি না	
৫.১৯	মাথার উপর দিয়ে কাজ করার সময় কতটা কষ্ট হয় কোন ঝামেলা নেই ০_____ ১০ কাজ করতে পারে না	
৫.২০	ব্যথার ওষুধ কতটা ব্যথা কমাতে সাহায্য করে সম্পূর্ণ নিরাময় ০_____ ১০ ব্যথা কমে না	

অংশ-৬
প্রি-টেস্ট ডাটা:

অসওয়েস্ট্রি নেক ডিসেবিলিটি ইনডেক্স (NDI) :

নং	প্রশ্ন	মতামত
৬.১	আজকে আপনার ব্যথা কেমন	১. এই মুহূর্তে আমার কোন ব্যথা নেই ২. এই মুহূর্তে ব্যথা খুব হালকা ৩. এই মুহূর্তে ব্যথা মাঝারি ধরণের ৪. এই মুহূর্তে ব্যথা মোটামুটি তীব্র বলা চলে ৫. এই মুহূর্তে ব্যথা খুব তীব্র ৬. ব্যথা এই মুহূর্তে সবচেয়ে খারাপ মনে হচ্ছে
৬.২	ব্যক্তিগত যত্নে আপনি কতটা স্বাধীন (গোসল, ড্রেসিং ইত্যাদি)	১. আমি নিজের যত্ন নিতে পারি তাতে কোন আলাদা অতিরিক্ত ব্যথা হয় না ২. আমি সাধারণত নিজের যত্ন নিতে পারি কিন্তু এতে অতিরিক্ত ব্যথা হয় ৩. নিজেকে দেখাশোনা করা বেদনাদায়ক এবং আমি ধীর এবং যত্নশীল ৪. আমার কিছু সাহায্য দরকার কিন্তু আমার ব্যক্তিগত যত্নের বেশিরভাগই পরিচালনা করতে পারি ৫. নিজের যত্নের বেশিরভাগ ক্ষেত্রে আমার প্রতিদিন সাহায্যের প্রয়োজন হয় ৬.আমি নিজেকাপড় পড়তে পারি না, আমি কষ্ট করে কাপড় ধুয়ে থাকি , বিছানায় শুয়ে থাকি
৬.৩	বস্তু উত্তোলনের সময় আপনি কতটা স্বাধীন	১. আমি অতিরিক্ত ব্যথা ছাড়াই ভারী ওজন তুলতে পারি 2. আমি ভারী ওজন তুলতে পারি কিন্তু এটি অতিরিক্ত ব্যথা দেয় 3. ব্যথা আমাকে মেঝে থেকে ভারী ওজন তুলতে বাধা দেয়, তবে সেগুলি সুবিধাজনকভাবে রাখা হলে আমি পরিচালনা করতে পারি, উদাহরণস্বরূপ একটি টেবিলে রাখা হলে 4. ব্যথা আমাকে ভারী ওজন তুলতে বাধা দেয় তবে আমি হালকা থেকে মাঝারি ওজন তুলতে পারি যদি সেগুলি সুবিধামত অবস্থানে থাকে 5. আমি শুধুমাত্র খুব হালকা ওজন তুলতে পারি আমি কিছু তুলতে বা বহন করতে পারি না
৬.৪	খবরের কাগজ বা বই পড়ার সময় আপনার কেমন লাগে	১. আমার ঘাড়ে ব্যথা ছাড়াই আমি যতটা চাই ততটা পড়তে পারি ২. আমার ঘাড়ে সামান্য ব্যথার সাথে আমি যতটা চাই ততটা পড়তে পারি ৩. আমার ঘাড়ে মাঝারি ব্যথার সাথে আমি যত খুশি পড়তে পারি

		৪. আমার ঘাড়ে মাঝারি ব্যথার কারণে আমি যযতটা চাই ততটা পড়তে পারি না ৫. আমার ঘাড়ে তীব্র ব্যথার কারণে আমি খুব কমই পড়তে পারি ৬. আমি মোটেই পড়তে পারি না
৬.৫	কোন অবস্থায় আপনি মাথাব্যথা অনুভব করেন	১. আমার কোন মাথাব্যথা নেই ২.আমার সামান্য মাথাব্যথা আছে, যা প্রায়ই আসে ৩.আমার মাঝারি মাথাব্যথা আছে, যা প্রায়ই আসে ৪. আমার মাঝারি মাথাব্যথা আছে, যা ঘন ঘন আসে ৫. আমার প্রচণ্ড মাথাব্যথা আছে, যা ঘন ঘন আসে ৬.আমার প্রায় সব সময় মাথাব্যথা থাকে
৬.৬	ঘাড়ে ব্যথা থাকা সত্ত্বেও কাজের সময় আপনি কোন মাত্রায় একাগ্রতা বজায় রাখেন	১. আমি যখন কোন অসুবিধা ছাড়াই চাই তখন আমি পুরোপুরি মনোনিবেশ করতে পারি ২. আমি যখন সামান্য অসুবিধার সাথে চাই তখন আমি পুরোপুরি মনোনিবেশ করতে পারি ৩. আমি যখন চাই তখন মনোযোগ দিতে আমার যথেষ্ট অসুবিধা হয় ৪. আমি যখন চাই তখন মনোযোগ দিতে আমার অনেক অসুবিধা হয় ৫. আমি যখন চাই তখন মনোযোগ দিতে আমার অনেক অসুবিধা হয় ৬. আমি মোটেই মনোযোগ দিতে পারি না
৬.৭	ঘাড় ব্যথা আপনার দৈনন্দিন কাজ প্রভাবিত করে	১. আমি যত কাজ করতে চাই ততটা করতে পারি ২. আমি শুধুমাত্র আমার স্বাভাবিক কাজ করতে পারি, কিন্তু আর কিছু না ৩. আমি আমার স্বাভাবিক কাজ অধিকাংশ করতে পারি, কিন্তু আর না ৪. আমি আমার স্বাভাবিক কাজ করতে পারি না ৫. আমি খুব কমই কোন কাজ করতে পারি ৬. আমি কোনো কাজই করতে পারি না
৬.৮	ভ্রমণের সময় আপনার ঘাড়ে ব্যথা কেমন অনুভব করেন	১. আমি কোন ঘাড় ব্যথা ছাড়া ভ্রমণ করতে পারি ২. আমার ঘাড়ে সামান্য ব্যথা নিয়ে আমি যতক্ষণ চাই ততক্ষণ ভ্রমণ করতে পারি ৩. আমার ঘাড়ে মাঝারি ব্যথা নিয়ে আমি যতক্ষণ চাই ততক্ষণ ভ্রমণ করতে পারি ৪. আমার ঘাড়ে মাঝারি ব্যথার কারণে আমি যতক্ষণ চাই ততক্ষণ ভ্রমণ করতে পারি না ৫. আমার ঘাড়ে তীব্র ব্যথার কারণে আমি খুব কমই ভ্রমণ করতে পারি ৬. আমি মোটেও ভ্রমণ করতে পারি না

৬.৯	ঘাড়ে ব্যাথা আপনার ঘুমকে কিভাবে প্রভাবিত করে	১.আমার ঘুমাতে কোন সমস্যা নেই ২.আমার ঘুম কিছুটা ব্যাহত হয়েছে (১ ঘন্টার কম ঘুমহীন) ৩. আমার ঘুম হালকাভাবে ব্যাহত হয় (১-২ ঘন্টা ঘুমহীন) ৪. আমার ঘুম মাঝারিভাবে ব্যাহত হয় (২-৩ ঘন্টা ঘুমহীন) ৫.আমার ঘুম খুব ব্যাহত হয় (৩-৫ ঘন্টা ঘুমহীন) ৬.আমার ঘুম সম্পূর্ণভাবে ব্যাহত (৫-৭ ঘন্টা নিদ্রাহীন)
৬.১০	ঘাড়ে ব্যথা আপনার বিনোদনমূলক কার্যকলাপকে কিভাবে প্রভাবিত করে	১.আমি ঘাড় ব্যথা ছাড়াই আমার সমস্ত বিনোদনমূলক ক্রিয়াকলাপে নিযুক্ত থাকতে পারি ২. আমি আমার ঘাড়ে কিছু ব্যথা সহ আমার সমস্ত বিনোদনমূলক ক্রিয়াকলাপে নিযুক্ত থাকতে পারি ৩. আমার ঘাড়ে ব্যথার কারণে আমি বেশিরভাগ ক্ষেত্রেই নিযুক্ত হতে পারি, কিন্তু আমার স্বাভাবিক বিনোদনমূলক ক্রিয়াকলাপে নয় ৪. আমার ঘাড়ে ব্যথার কারণে আমি আমার কিছু স্বাভাবিক বিনোদনমূলক ক্রিয়াকলাপে নিযুক্ত হতে পারি ৫. আমার ঘাড়ে ব্যথার কারণে আমি খুব কমই কোনো বিনোদনমূলক কাজ করতে পারি ৬. আমি কোনো বিনোদনমূলক কাজ করতে পারি না

অংশ- ৭

পোস্ট- টেস্ট ডাটা:

ডালাস ঘাড় ব্যথা সম্পর্কিত প্রশ্নাবলী; ঘাড়ের ব্যথা এবং অক্ষমতা ভিজ্যুয়াল অ্যানালগ স্কেল (VAS):

নং	প্রশ্ন	স্কোর
৭.১	আজকে আপনার ব্যথা কেমন ব্যথা নেই ০_____১০ সবচেয়ে বেশি ব্যথা	
৭.২	আপনার ব্যাথা গড়ে কতটা খারাপ ব্যথা নেই ০_____১০ সবচেয়ে বেশি ব্যথা	
৭.৩	আপনার ব্যথা কতটা যখন এটি সবচেয়ে খারাপ অবস্থায় থাকে ব্যথা নেই ০_____১০ সহ্যের বাহিরে ব্যথা	
৭.৪	আপনার ব্যথা কি আপনার ঘুমকে প্রভাবিত করে একদমই না ০_____১০ ঘুমাতেই পারি না	
৭.৫	দাঁড়ানো অবস্থায় আপনার ব্যথা কেমন ব্যথা নেই ০_____১০ সবচেয়ে বেশি ব্যথা	
৭.৬	হাটাহাটির সময় আপনার ব্যথা কেমন ব্যথা নেই ০_____১০ সবচেয়ে বেশি ব্যথা	
৭.৭	আপনার ব্যথা কি গাড়ি চালানো অথবা গাড়িতে চড়াতে হস্তক্ষেপ করে একদমই করে না ০ _____১০ গাড়িতে চড়তে বা চালাতে পারে না	
৭.৮	আপনার ব্যথা কি আপনার সামাজিক কার্যকলাপে হস্তক্ষেপ করে? একদমই না ০_____১০ সব সময় করে	
৭.৯	আপনার ব্যথা কি আপনার বিনোদনমূলক কার্যকলাপে হস্তক্ষেপ করে? একদমই না ০_____১০ সব সময় করে	
৭.১০	আপনার ব্যথা কি আপনার পেশার কার্যকলাপে হস্তক্ষেপ করে? মোটেও না ১_____ ১০ কাজ করতে পারে না	
৭.১১	আপনার ব্যথা কি আপনার ব্যক্তিগত যত্নে হস্তক্ষেপ করে (খাওয়া, ড্রেসিং, স্নান ইত্যাদি) মোটেও না ০_____ ১০ সর্বদা	
৭.১২	আপনার ব্যথা কি আপনার ব্যক্তিগত সম্পর্কের সাথে হস্তক্ষেপ করে (পরিবার, বন্ধুবান্ধব, শারীরিক সম্পর্ক ইত্যাদি) মোটেও না ০_____ ১০ সর্বদা	
৭.১৩	কীভাবে ব্যথা আপনার জীবন এবং ভবিষ্যতের জীবনের প্রতি আপনার দৃষ্টিভঙ্গি পরিবর্তন করেছে (বিষণ্নতা, আশাহীনতা) কোন পরিবর্তন নেই ০_____ ১০ সম্পূর্ণ পরিবর্তন	

৭.১৪	আপনার ব্যথা কি আপনার আবেগ প্রভাবিত করে মোটেও নয় 0_____ 10 সম্পূর্ণরূপে	
৭.১৫	আপনার ব্যথা কি আপনার চিন্তা বা মনোনিবেশ করার ক্ষমতাকে প্রভাবিত করে মোটেও নয় ০_____ ১০ সম্পূর্ণরূপে	
৭.১৬	আপনার ঘাড় বাঁকানোর সময় ঘাড় কতটা শক্ত হয়ে থাকে মোটেও নয় ০_____ ১০ সম্পূর্ণরূপে	
৭.১৭	আপনার ঘাড় ঘুরাতে কতটা কষ্ট হয় কোন অসুবিধা নেই ০_____ _____১০ নড়াচড়া করতে পারে না	
৭.১৮	কত কষ্ট করে উপরে বা নিচে তাকান কোন ঝামেলা নেই ০_____ ১০ তাকাতে পারছি না	
৭.১৯	মাথার উপর দিয়ে কাজ করার সময় কতটা কষ্ট হয় কোন ঝামেলা নেই ০_____ ১০ কাজ করতে পারে না	
৭.২০	ব্যথার ওষুধ কতটা ব্যথা কমাতে সাহায্য করে সম্পূর্ণ নিরাময় ০_____ ১০ ব্যথা কমে না	

অংশ-৮

পোস্ট-টেস্ট ডাটা:

অসওয়েস্ট্রি নেক ডিসেবিলিটি ইনডেক্স (NDI) :

নং	প্রশ্ন	মতামত
৮.১	আজকে আপনার ব্যথা কেমন	১. এই মুহূর্তে আমার কোন ব্যথা নেই ২. এই মুহূর্তে ব্যথা খুব হালকা ৩. এই মুহূর্তে ব্যথা মাঝারি ধরণের ৪. এই মুহূর্তে ব্যথা মোটামুটি তীব্র বলা চলে ৫. এই মুহূর্তে ব্যথা খুব তীব্র ৬. ব্যথা এই মুহূর্তে সবচেয়ে খারাপ মনে হচ্ছে
৮.২	ব্যক্তিগত যত্নে আপনি কতটা স্বাধীন (গোসল, ড্রেসিং ইত্যাদি)	১. আমি নিজের যত্ন নিতে পারি তাতে কোন আলাদা অতিরিক্ত ব্যথা হয় না ২. আমি সাধারণত নিজের যত্ন নিতে পারি কিন্তু এতে অতিরিক্ত ব্যথা হয় ৩. নিজেকে দেখাশোনা করা বেদনাদায়ক এবং আমি ধীর এবং যত্নশীল ৪. আমার কিছু সাহায্য দরকার কিন্তু আমার ব্যক্তিগত যত্নের বেশিরভাগই পরিচালনা করতে পারি ৫. নিজের যত্নের বেশিরভাগ ক্ষেত্রে আমার প্রতিদিন সাহায্যের প্রয়োজন হয় ৬.আমি নিজেকাপড় পড়তে পারি না, আমি কষ্ট করে কাপড় ধুয়ে থাকি , বিছানায় শুয়ে থাকি
৮.৩	বস্তু উত্তোলনের সময় আপনি কতটা স্বাধীন	১. আমি অতিরিক্ত ব্যথা ছাড়াই ভারী ওজন তুলতে পারি ২. আমি ভারী ওজন তুলতে পারি কিন্তু এটি অতিরিক্ত ব্যথা দেয় ৩. ব্যথা আমাকে মেঝে থেকে ভারী ওজন তুলতে বাধা দেয়, তবে সেগুলি সুবিধাজনকভাবে রাখা হলে আমি পরিচালনা করতে পারি, উদাহরণস্বরূপ একটি টেবিলে রাখা হলে ৪. ব্যথা আমাকে ভারী ওজন তুলতে বাধা দেয় তবে আমি হালকা থেকে মাঝারি ওজন তুলতে পারি যদি সেগুলি সুবিধামত অবস্থানে থাকে ৫. আমি শুধুমাত্র খুব হালকা ওজন তুলতে পারি আমি কিছু তুলতে বা বহন করতে পারি না
৮.৪	খবরের কাগজ বা বই পড়ার সময় আপনার কেমন লাগে	১. আমার ঘাড়ে ব্যথা ছাড়াই আমি যতটা চাই ততটা পড়তে পারি ২. আমার ঘাড়ে সামান্য ব্যথার সাথে আমি যতটা চাই ততটা পড়তে পারি ৩. আমার ঘাড়ে মাঝারি ব্যথার সাথে আমি যত খুশি পড়তে পারি

		৪. আমার ঘাড়ে মাঝারি ব্যথার কারণে আমি যযতটা চাই ততটা পড়তে পারি না ৫. আমার ঘাড়ে তীব্র ব্যথার কারণে আমি খুব কমই পড়তে পারি ৬. আমি মোটেই পড়তে পারি না
৮.৫	কোন অবস্থায় আপনি মাথাব্যথা অনুভব করেন	১. আমার কোন মাথাব্যথা নেই ২.আমার সামান্য মাথাব্যথা আছে, যা প্রায়ই আসে ৩.আমার মাঝারি মাথাব্যথা আছে, যা প্রায়ই আসে ৪. আমার মাঝারি মাথাব্যথা আছে, যা ঘন ঘন আসে ৫. আমার প্রচণ্ড মাথাব্যথা আছে, যা ঘন ঘন আসে ৬.আমার প্রায় সব সময় মাথাব্যথা থাকে
৮.৬	ঘাড়ে ব্যথা থাকা সত্ত্বেও কাজের সময় আপনি কোন মাত্রায় একাগ্রতা বজায় রাখেন	১. আমি যখন কোন অসুবিধা ছাড়াই চাই তখন আমি পুরোপুরি মনোনিবেশ করতে পারি ২. আমি যখন সামান্য অসুবিধার সাথে চাই তখন আমি পুরোপুরি মনোনিবেশ করতে পারি ৩. আমি যখন চাই তখন মনোযোগ দিতে আমার যথেষ্ট অসুবিধা হয় ৪. আমি যখন চাই তখন মনোযোগ দিতে আমার অনেক অসুবিধা হয় ৫. আমি যখন চাই তখন মনোযোগ দিতে আমার অনেক অসুবিধা হয় ৬. আমি মোটেই মনোযোগ দিতে পারি না
৮.৭	ঘাড় ব্যথা আপনার দৈনন্দিন কাজ প্রভাবিত করে	১. আমি যত কাজ করতে চাই ততটা করতে পারি ২. আমি শুধুমাত্র আমার স্বাভাবিক কাজ করতে পারি, কিন্তু আর কিছু না ৩. আমি আমার স্বাভাবিক কাজ অধিকাংশ করতে পারি, কিন্তু আর না ৪. আমি আমার স্বাভাবিক কাজ করতে পারি না ৫. আমি খুব কমই কোন কাজ করতে পারি ৬. আমি কোনো কাজই করতে পারি না
৮.৮	ভ্রমণের সময় আপনার ঘাড়ে ব্যথা কেমন অনুভব করেন	১. আমি কোন ঘাড় ব্যথা ছাড়া ভ্রমণ করতে পারি ২. আমার ঘাড়ে সামান্য ব্যথা নিয়ে আমি যতক্ষণ চাই ততক্ষণ ভ্রমণ করতে পারি ৩. আমার ঘাড়ে মাঝারি ব্যথা নিয়ে আমি যতক্ষণ চাই ততক্ষণ ভ্রমণ করতে পারি ৪. আমার ঘাড়ে মাঝারি ব্যথার কারণে আমি যতক্ষণ চাই ততক্ষণ ভ্রমণ করতে পারি না ৫. আমার ঘাড়ে তীব্র ব্যথার কারণে আমি খুব কমই ভ্রমণ করতে পারি ৬. আমি মোটেও ভ্রমণ করতে পারি না

৮.৯	ঘাড়ে ব্যাথা আপনার ঘুমকে কিভাবে প্রভাবিত করে	১.আমার ঘুমাতে কোন সমস্যা নেই ২.আমার ঘুম কিছুটা ব্যাহত হয়েছে (১ ঘন্টার কম ঘুমহীন) ৩. আমার ঘুম হালকাভাবে ব্যাহত হয় (১-২ ঘন্টা ঘুমহীন) ৪. আমার ঘুম মাঝারিভাবে ব্যাহত হয় (২-৩ ঘন্টা ঘুমহীন) ৫.আমার ঘুম খুব ব্যাহত হয় (৩-৫ ঘন্টা ঘুমহীন) ৬.আমার ঘুম সম্পূর্ণভাবে ব্যাহত (৫-৭ ঘন্টা নিদ্রাহীন)
৮.১০	ঘাড়ে ব্যথা আপনার বিনোদনমূলক কার্যকলাপকে কিভাবে প্রভাবিত করে	১.আমি ঘাড় ব্যথা ছাড়াই আমার সমস্ত বিনোদনমূলক ক্রিয়াকলাপে নিযুক্ত থাকতে পারি ২. আমি আমার ঘাড়ে কিছু ব্যথা সহ আমার সমস্ত বিনোদনমূলক ক্রিয়াকলাপে নিযুক্ত থাকতে পারি ৩. আমার ঘাড়ে ব্যথার কারণে আমি বেশিরভাগ ক্ষেত্রেই নিযুক্ত হতে পারি, কিন্তু আমার স্বাভাবিক বিনোদনমূলক ক্রিয়াকলাপে নয় ৪. আমার ঘাড়ে ব্যথার কারণে আমি আমার কিছু স্বাভাবিক বিনোদনমূলক ক্রিয়াকলাপে নিযুক্ত হতে পারি ৫. আমার ঘাড়ে ব্যথার কারণে আমি খুব কমই কোনো বিনোদনমূলক কাজ করতে পারি ৬. আমি কোনো বিনোদনমূলক কাজ করতে পারি না

Date: March 28.2023

To

Head

Department of Physiotherapy

Centre for the Rehabilitation of the Paralysed (CRP)

Chapain, Savar, Dhaka-1343

Through: Head, Department of Physiotherapy, BHPI

Subject: Prayer for seeking permission to collect data for conducting a research project.

Sir,

With due respect and humble submission to state that I am Shihab Sarar Udoy, student of 4th year B.Sc. in Physiotherapy at Bangladesh Health Professions institute (BHPI). The Ethical committee has approved my research project entitled: **"Effectiveness of Physiotherapy Treatment for Neck Pain at the Musculoskeletal Unit, CRP, Savar."** under the supervision of Dr. Mohammad Anwar Hossain PhD, Associate Professor, BHPI, Senior Consultant & Head of the Department of Physiotherapy, CRP, Savar,Dhaka,1343.Conducting this research project is partial fulfillment of the requirement for the degree of B.Sc. in Physiotherapy. I want to collect data for my research project from department of Physiotherapy. So, I need your kind permission for data collection at Musculoskeletal unit of CRP at (Savar centre, Dhaka). I would like to assure that nothing of the study would be harmful for the participants.

I therefore, pray and hope that your honor would be kind enough to grant my application and give me permission for data collection and oblige thereby.

Sincerely

S. Udoy

Shihab Sarar Udoy
4th Year
B.Sc. in Physiotherapy
Class Roll: 35; Session: 2017-18
Bangladesh Health Professions Institute (BHPI)
(An academic institution of CRP)
Chapain, CRP, Savar, Dhaka, 1343.

Seen
28/3/23

Approved
11/04/23
Dr. Mohammad Anwar Hossain, PhD
Senior Consultant & Head
Physiotherapy Department
Associate Professor, BHPI
CRP, Savar, Dhaka-1343

Recommended
Shofiq
28.03.23
Md. Shofiqul Islam
Associate Professor & Head
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

Date: 13th February 2023
The Chairman
Institutional Review Board (IRB)
Bangladesh Health Professions Institute (BHPI), CRP
Savar, Dhaka-1343.Bangladesh

Subject: Application for review and ethical approval.

Dear sir,

With due respect, I am Shihab Sarar Udoy, student of B.Sc. in physiotherapy program at Bangladesh Health Professional Institute (BHPI) the academic institute of Centre for the Rehabilitation of the Paralyzed (CRP) under the Faculty of Medicine, University of Dhaka. As per the course curriculum, I have to conduct a dissertation entitled **"Effectiveness of Physiotherapy Treatment for Neck Pain at the Musculoskeletal Unit, CRP, Savar"** under the supervision of Dr. Mohammad Anwar Hossain, Associate Professor, BHPI, Senior Consultant & Head of the Department of Physiotherapy.

The purpose of the study is to show the effectiveness of physiotherapy treatment for neck pain patients in their daily living activities at musculoskeletal unit, CRP. The study involves 2-group tests, regression analysis, and time-series analysis of the musculoskeletal Unit, Center for the Rehabilitation of the Paralysis (CRP) , Bangladesh that may take 20 to 30 minutes to fill in the questionnaire and there is no likelihood of any harm to the participants. Related information will be collected from the patients' guide books. Data collectors will receive informed consent from all participants and the collected data will be kept confidential.

Therefore, I look forward to having your kind approval for the dissertation proposal and to start data collection. I can also assure you that I will maintain all the requirements for study.

Sincerely,

Signature: S. Udoy

Shihab Sarar Udoy
4th Year B.Sc. in Physiotherapy
Session: 2017-2018 Student ID: 112170382
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Dissertation presentation date: 9th January 2023

Shofiqul Islam

Head of the Department of Physiotherapy, BHPI
Md. Shofiqul Islam
Associate Professor & Head
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

Recommendation from the thesis supervisor
Signature:
Dr. Mohammad Anwar Hossain ,PhD
Associate Professor, BHPI
Senior Consultant & Head of the Department of Physiotherapy
CRP, Savar, Dhaka

Treatment protocol

CRP
Centre for the Rehabilitation of the Paralysed

Centre for the Rehabilitation of the Paralysed (CRP)
Department of Physiotherapy
Head Office: CRP- Savar, CRP- Chapain, Savar Dhaka-1343, Bangladesh
Tel: +880 02 7745464-5, Fax: 7745069, E-mail: contact@crp-bangladesh.org, www. crp-bangladesh.org

Ref: CRP/PT/2102/110/ Date: 19.07.2023

Treatment protocol for Experimental Group

Conventional Physiotherapy Treatment

1. Therapist guided McKenzie of directional exercises for cervical region
   - Repeated retraction
   - Repeated retraction with over pressure
   - Repeated retraction with extension
2. Mulligan Concept for Neck- SNAG's
3. Traction retraction extension rotation mobilization
4. Traction
   -Manual Traction
   -Mechanical Traction
5. Maitland mobilization technique
   - Posterior-anterior side
   - Lateral side
6. Movement with mobilization exercise
7. Neck muscle strengthening exercise
8. Neck muscle stretching exercise
9. Soft tissue release technique
10. Isometric Exercise
    - Concentric Exercise
    - Eccentric Exercise
11. Muscle Energy Technique (MET)
12. Neural Stretching
13. Electrotherapy
    - TENS
    - IRR
    - Ultrasound
    - Ice

Dr.Mohammad Anwar Hossain(PhD)
Sr. Consultant & Head of Physiotherapy Department
Associate Professor. BHPI
CRP, Savar, Dhaka-1343