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EFFECTIVENESS OF MOBILIZATION ON SHOULDER PAIN AMONG THE PATIENTS WITH HEMIPLEGIA

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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 MOBILIZATION ON SHOULDER PAIN AMONG THE PATIENTS WITH HEMIPLEGIA

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DECLERATION

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

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Acronyms

ADL Activities of Daily Living

AROM Active Range of Motion

CVA Cardiovascular Attack

HSP Hemiplegic Shoulder Pain

ROM Range of Motion

SD Standard Deviation

SCMST Saic College of Medical Science and Technology

WHO World Health Organization

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Abstract

Purpose: The purpose of the study was to explore the effectiveness of shoulder mobilization with conventional physiotherapy compare to only conventional physiotherapy for Hemiplegic shoulder pain patients. **Objectives**: To evaluate the effect of pain after introducing shoulder Mobilization for Hemiplegic shoulder pain, to measure the severity of pain by using Visual Analogue Scale (VAS), to measure the ROM by using Goniometer, to explore the socio-demography of the participants. **Methodology:** twenty-two patients with Hemiplegic shoulder pain were randomly selected from SCMST, BSMMU, Unique Pain and Paralysis Centre and Pain, Physio For You Physiotherapy and Rehabilitation Centre at ashulia and Paralysis Physiotherapy Centre at Manikganj and then 11 patients with Hemiplegic shoulder pain were randomly assigned to shoulder mobilization with conventional physiotherapy group and 11 patients to the only conventional physiotherapy group for this randomize control trial study. Visual Analogue Scale was used to measure pain intensity, Grade of the shoulder muscle power measure the shoulder muscle power and Goniometer to measure ROM. Paired "t" test was used to compare the result in shoulder muscle power and Pain was analyzed by Calculating mean difference between two groups and paired "t" test. **Results:** By using a Paired t test on the data the results were found to be significant in case of pain intensity (P=0.003) and highly significant in case of Grade of shoulder muscle power (P=0.000). **Conclusion:** This experimental study shows that shoulder mobilization with conventional physiotherapy is more effective than conventional physiotherapy alone for patients with Hemiplegic shoulder pain.

Key words: Hemiplegic shoulder pain, Shoulder mobilization, Conventional physiotherapy.

CHAPTER-I INTRODUCTION

1.1 Background

Stroke is defined by the World Health Organization (WHO) as a rapidly developing syndrome with clinical signs of focal or global disturbance of cerebral function, more than lasting 24 hours leading to death with no apparent cause other than vascular origin (Wolfe., 2000). Another stroke, also known as a cerebrovascular accident (CVA), it is the rapid loss of brain functions due to disturbance in the blood supply to the brain. This can be due to ischemia (lack of blood flow) caused by blockage (thrombosis, arterial, embolism), or a hemorrhage (leakage of blood) (Sims and Muyderman., 2010)

As a result of CVA, of the brain cannot function of the affected area, which might result in an inability to move one side of the body on one or more limbs, inability to understand or formulate speech, or an inability to see one side of the visual field and the recovery of a patient with hemiplegia represents a great challenge, not only due to the complexity of the lost functions, but also the high incidence of shoulder pain, resulting in a negative impact during the rehabilitation process (AlAmoudi et al., 2015)

Hemiplegic shoulder pain is very common and troublesome complication after stroke. It has been reported that prevalence of shoulder pain varies from 21% to 72% in stroke patients and the Shoulder pain of various causes could delay rehabilitation and could decrease the functional performance of activities of daily living (ADLs) and instrumental activities of daily living. For example, hemiplegic patients with shoulder pain need help to eat, dress, drive, and do laundry (Dromerick et al., 2008)

Hemiplegic shoulder pain (HSP) of the primary cause is not fully understand According to involvement of anatomical structures, the causes of hemiplegic shoulder pain (HSP) may be because of; rotator cuff tear, over-stretching of ligaments and muscles, (like supraspinatus and deltoid), spasticity, muscle trigger points, sub acromial bursitis, tendinitis of long head of biceps tendon, adhesive capsulitis, Impingement syndromes, reflex sympathetic dystrophy, brachial plexopathy and central pain syndromes (MD et al., 2002)

The beginning of hemiplegia can compromise the stability of the shoulder complex and the normal biomechanical principles, due to the development of abnormal movement patterns and the loss of motor control; secondarily, there can be soft tissue alterations and misalignment of the glenohumeral joint. The occurrence of hemiplegic shoulder pain can be related to several factors: subluxation of the scapulohumeral joint, shoulder capsulitis, impingement syndrome, complex regional pain syndrome, bicipital tendonitis, brachial plexus neuropathy, spasticity, paralyzed upper limb around range of motion (ROM), ROM limitation , soft tissue lesions, central pain (Klotz et al, 2006)

Hemiplegic shoulder pain of clinical management usually consists of oral analgesics, intra-articular injection of corticosteroids, physical modalities, and therapeutic exercise. Nonetheless, the most effective treatment protocol has seldom been discussed, most likely because of the uncertainty and variability of the real cause of the shoulder pain. Therefore, defining the etiology of shoulder pain in patients with hemiplegia is meaningful and worthwhile (Lo el al, 2003)

Primarily used are Grades I and II of Maitland mobilization techniques for treating joints limited by pain. The oscillations may have an inhibitory effect on the perception of painful stimuli by repetitively stimulating mechanoreceptors that block nociceptive pathways at the spinal cord or brain stem levels. These no stretch motions help move synovial fluid to improve nutrition to the cartilage whereas primarily used are Grades III and IV as stretching man oeuvres. Mobilization technique for treatment of appropriate selection can only take place after a thorough assessment and examination. (Kumar et al, 2012)

1.2 Justification

The aim of the study was to find out the effectiveness of shoulder mobilization of the hemiplegic shoulder pain patients. Most of the patient complain in shoulder pain after stroke developing country mostly seen, there is increasing the number of stroke patient day by day, in different areas, there are so many complications may start after stroke, Shoulder pain is one of the major and serious complications of hemiplegic patients. In Bangladesh, there are many Stroke patients, but maximum of Stroke patient suffers more from shoulder pain. Unfortunately, there have no specific treatment plan for Hemiplegic shoulder pain. For that maximum patient suffers for long days. For shoulder pain conventional treatment that we have those are not beneficiary for Hemiplegic shoulder pain patient. So, we need to find out which treatment are more effective for those patients. That's why we should research more and more. In the field of research in physiotherapy encoded research on effectiveness of shoulder mobilization of the hemiplegic shoulder pain patients.

The purpose of this study is to compare the effectiveness of shoulder mobilization exercise with conventional physiotherapy and conventional physiotherapy alone for the patient with Hemiplegic shoulder pain. So, in this study "Effectiveness of shoulder mobilization on hemiplegic shoulder pain patients" will give the evidence for effectiveness of shoulder mobilization exercise for patient with hemiplegic shoulder pain. However, research helps to improve the knowledge of health professionals, as well as develops the profession. The results of the study may help to guide physiotherapists to give evidence-based treatment in patient with hemiplegic shoulder pain, which will be beneficial for both the patient with hemiplegic shoulder pain and for developing the field of physiotherapy profession.

1.3 Alternative hypothesis

Alternative hypothesis

Shoulder mobilization along with the conventional Physiotherapy is more effective than only conventional Physiotherapy for the treatment of hemiplegia (hemiplegic shoulder pain) ($H_A > H_O$).

Ha: $\mu 1 - \mu 2 \neq o$, $\mu 1 < \mu 2$

1.4 Null-Hypothesis

Shoulder mobilization along with the conventional Physiotherapy is not more effective than the conventional Physiotherapy alone for the treatment of hemiplegia (hemiplegic shoulder pain). ($H_O \neq H_A$).

Ho: $\mu 1 - \mu 2 = 0$ or $\mu 1 \geq \mu 2$;

Where,

Ho= Null hypothesis
Ha= Alternative hypothesis
$\mu 1$= Mean difference in initial assessment
$\mu 2$= Mean difference in final assessment

1.5 Aim

The aim of this study is to find out the Effectiveness of shoulder mobilization in Combination with Conventional Physiotherapy for hemiplegia (hemiplegic shoulder pain) patients.

1.6 Objectives

General objective:

To explore the effectiveness of shoulder pain among the patients with hemiplegia

Specific objectives:

To explore the Socio-demographic information of the participants

To find out the effect of shoulder mobilization for the hemiplegic shoulder pain

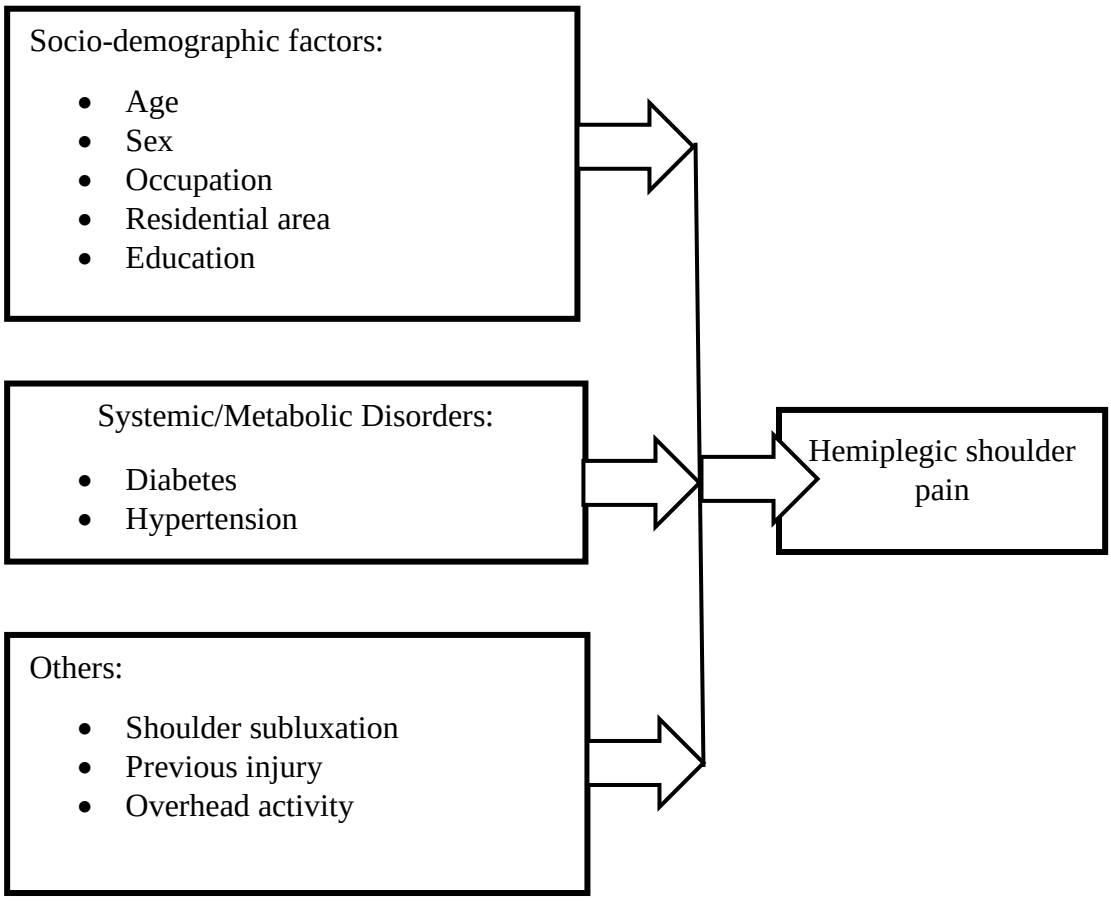
To clarify the onset and behavior of hemiplegic Shoulder pain after stroke.

To identify the nature of pain on hemiplegic shoulder pain

To focus the functional activities restricted by this pain on hemiplegic shoulder pain

1.7 Conceptual Framework

Independent Variables **Dependent variable**



1.8 Operational definition

Stroke

Stroke is a clinical syndrome consisting of rapidly developing clinical signs of focal disturbance of cerebral lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin.

Ischemic stroke

This type of stroke occurs as a result of an obstruction within a blood vessel supplying blood to the brain. It accounts for 87 percent of all stroke cases.

Hemorrhagic Stroke

A hemorrhagic stroke occurs when a blood vessel that carries oxygen and nutrients to the brain burst and spills blood into the brain. When this happens, a portion of the brain becomes deprived of oxygen and will stop functioning.

Hemiplegia / Hemiplegic

It is a condition where the total paralysis of the arm, leg, and trunk on the opposite side of the body. Hemiplegia is more severe than hemiparesis, wherein one half of the body has less marked weakness. The most common cause of hemiplegia is damage to the corticospinal tracts in one hemisphere of the brain due to obstruction or rupture of a cerebral artery or to brain tumor.

Shoulder Pain

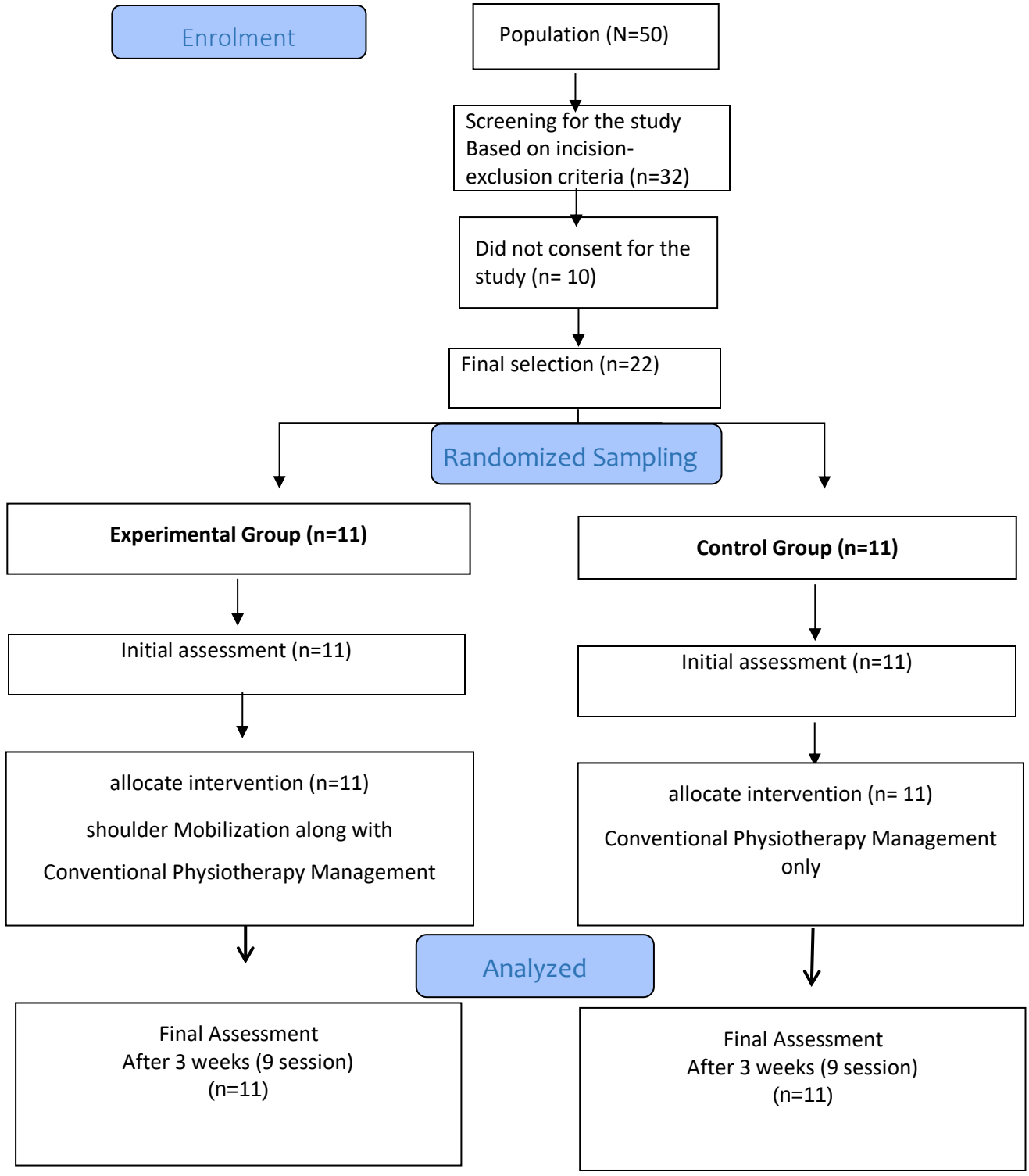
Shoulder pain includes any pain that arises in or around shoulder and may originate in the joint itself, or from any of the many surrounding muscles, ligaments or tendons. Shoulder pain usually worsens with activities or movement of arm or shoulder.

Mobilization

Passive movements that are applied at varying speeds and amplitudes to joints, muscles or nerves with the aim to restore motion, function and reduce pain.

1.9 Flow chart

Flow-chart of the phases of Randomized Controlled Trial



CHAPTER-II: LITERATURE REVIEW

Hossain described that, Stroke is defined by WHO as a clinical syndrome consisting of rapidly developing clinical signs of focal (at times global) disturbance of cerebral function lasting for more than 24 hours or leading to death, with no apparent cause other than that of vascular origin. The incidence of stroke increases with age and affect many people in their golden years. In developed countries it is third most common cause of death. The age adjusted annual death rate from stroke is 116 per 100000 populations in the USA and some 200 per 100000 in UK. From stroke there is no adequate data on incidence and mortality in Bangladesh. Among stroke, while hemorrhages constitute a larger percentage in Asia, ischemic infraction constitutes 85% to 90% and 15% to 10% is caused by intracranial hemorrhages in the western world (Chen el al., 2014)

Ward said that, after a stroke shoulder pain is the most common problem. It often appears during the first days and its prevalence is variable in up to 70% of patients. It is an indicator of the severity of the stroke and 75% of patients complain of pain sometime in the first 12 months after a stroke. Sometimes the mechanisms of pain development are not clear, but since the union of the upper limb to the trunk is muscular rather than directly skeletal, it is likely that any interruption of muscular action causes biomechanical problems throughout the body. shoulder, which can cause pain. Hemiplegic shoulder pain is associated with reduced grip and shrug, abnormal muscle tone, but most importantly, lack of sensory attention and loss. Patients with this problem lose movement around the shoulder and, in the context of hypertonia, a typical posture of adduction and internal rotation of the arm is observed (Ward., 2006).

Stroke is one of the main causes of serious long-term disability that can affect areas of cognitive, psychosocial and physical functioning. Depression is also common after a stroke and can also impose already vulnerable neurocognitive functions. Physically, hemiplegia after stroke can lead to unilateral weakness of the upper limb, reduced active range of motion and arm function and, as a result, a loss of autonomy in the exercise of activities of daily living (Rabin et al., 2012)

Good shoulder function is a prerequisite for effective hand function, as well as for performing multiple tasks involving mobility, ambulation and activities of daily living (ADL). A common sequela of stroke is hemiplegic shoulder pain, which can decrease

functional recovery and after lead to disability. Hemiplegic shoulder pain can begin as early as 2 weeks post stroke but typically occurs within 2-3 months post stroke that Poduri report (Gould et al., 2019)

Stroke is divided into two broad categories, ischemic stroke and hemorrhagic stroke. Ischemia, which described the loss of blood supply to the brain and brain cells, is deprived of glucose, oxygen, and nutrients. A hemorrhagic stroke is defined when an artery of the brain explodes, blood circulates in the surrounding tissue and not only changes the blood supply, but also the delicate chemical balance necessary for the functioning of the neurons. In most studies, ischemic strokes were the most common and accounted for between 50% and 85% of all strokes in the world, due to sudden occlusion of the arteries that feed the brain, whether due to thrombi at the occlusion site or formed in another part of the circulation. subarachnoid haemorrhage - bleeding from one of the cerebral arteries to the brain tissue or haemorrhage arterial and intracerebral bleeding into the space between the meninges (Singh et al., 2012)

The term "stroke" is used as a synonym for stroke. Shoulder pain is a common complication after a stroke and has a significant impact on the patient's rehabilitation. (Ikai T, 1998) The most common forms of chronic post-stroke pain are shoulder pain, CPSP, painful spasticity and tension-type headaches. Shoulder pain is reported in 30-40% of patients with stroke and has been associated with sensory and motor deficits and a limited range of passive movement (Wolfe., 2000)

The recovery of a patient after a stroke depends on the extent of brain damage and the development of complications. The development of a painful shoulder is one of the serious complications that can hinder the patient's complete rehabilitation program, as well as mobility training and personal care activities. A painful shoulder can limit the patient's mobility function. In fact, when a patient protects his arm, he limits active and passive movements. This limits the patient's activities, such as rolling in his bed, transferring, putting on a shirt or blouse and bending down to reach the feet and putting on shoes and socks. The appearance of painful shoulders in hemiplegic patients can be quite high. Only one survey found that the incidence should reach 70% (Kumar et al., 2010)

The shoulder complex consists of four distinct joints, which provides incredible mobility in all planes of motion, but at the expense of stability. The glenohumeral joint (GHJ) is based on the integrity of the muscular and capsuloligamentous structures rather than on bone conformation for stability. An injury or paralysis of the muscles around the shoulder complex can cause subluxation of growth hormone, which can cause shoulder pain (Paci et al., 2005)

Spasmodic shoulder and pain are common in hemiplegic patients, whose shoulder pain is a major problem for these patients, which interrupts physical therapy, sleep and daily activities. It usually occurs due to local causes, such as algoneuritis dystrophy, also called shoulder-hand syndrome, capsulitis, glenohumeral subluxation, and also spasticity due to prolonged muscle contracture and possible tendinopathies (Yelnik et al., 2007)

Spasticity is defined as an increase in muscle tone related to the speed associated with a reflex of hyperactive stretching. This symptom is part of the upper motor neuron syndrome. Under normal circumstances, muscle balance is maintained between different muscle pairs (agonists - antagonists). After a stroke, muscle balance can be altered as muscle groups affected by spasticity become dominant. This produces a typical posture that reflects a jerky muscle pattern. The flexor tone is dominant in the upper extremities, resulting in retraction and depression of the scapula, as well as internal rotation and adduction of the shoulder (subscapular, pectoralis major, major round and latissimusdorsi). The subscapular and pectoral muscles are the most involved in this process. The subscapularis is one of the internal rotators of the shoulder and also contributes to the abduction and extension of the arm from a flexed position. Subscapular muscle spasticity limits abduction, flexion and external rotation (Murie-Fernández et al., 2012)

Hemiplegic shoulder pain causes limited shoulder movement in stroke patients as they cannot tolerate passive or active shoulder movement. The patient may prefer not to move and even withdraw completely from active rehabilitation. Patients who continue their rehabilitation can keep the shoulder protected and immobile, thus decreasing the effectiveness of any motor recovery technique. Numerous reports have documented the negative effects of HSP on stroke patients, including obstruction of the rehabilitation

process, delayed motor recovery of the upper limbs, decreased functional performance of daily activities, and prolonged stroke. stay in the hospital (Pong YP et al., 2012)

Shoulder pain after a stroke is a common phenomenon after a stroke, with an estimated incidence of between 16% and 84%. It has been shown that shoulder pain negatively affects the outcome of stroke, affects balance, gait, transfers, performing personal care activities and quality of life. and seriously harms the rehabilitation. The occurrence is probably not related to age or sex and may be related to the severity of paresis (Niessen et al., 2008).

Shoulder pain can also reduce the functional performance of activities, as well as the instrumental activities of daily living. The clinical treatment of hemiplegic shoulder pain often includes the administration of oral analgesics, intra-articular corticosteroid injection, the use of physical modalities and physical exercise therapy (Rabin et al., 2012).

In the Wellington region of New Zealand, a study of 76 stroke patients with acute acute admissions assessed the incidence of shoulder pain during the 12 weeks. after the accident Shoulder pain was assessed both at rest and during movement using vertically aligned visual analog scales. 72% of patients experienced pain at some time in the first 12 weeks. The highest incidence (24% at rest and 58% on the move) was observed 10 weeks after the stroke, while the lowest incidence occurred during the first week after the stroke: 12% at rest and 35% on the move (Bender and Kryss., 2001).

In the United Kingdom (UK), a study of 297 patients at risk of stroke was performed and a stroke was diagnosed in 205 cases. The 152 patients included in the study, including 123 patients were evaluated up to 6 months. 52 patients (40%) developed shoulder pain on the same side of their stroke. There was a strong association between pain and abnormal examination of the shoulder joint, ipsilateral sensory abnormalities and weakness of the arm (Gamble et al., 2002)

In Auckland, 1761 people (83%) registered were alive and interviewed one week, 1336 (76%) at one month and 1201 (68%) at six months. The proportion of people who reported a stroke with shoulder pain increased over time from 256 (17%) in a week to 261 (20%) in one month and 284 (23%) in six months. Survivors after one week who reported shoulder pain at a time or more during the six months after a stroke were

529/1349 (39%). People with motor sensory deficit had a higher prevalence of shoulder pain compared to those without motor sensory deficit: 225/1246 (18%) per week, 208/873 (24%) per month and 221/690 (32%) at six months (Ratnasabapathy et al., 2003).

In Sweden, 71 patients (22%) reported shoulder pain within 4 months after the stroke. Of the 61 patients able to rate the visual analog scale, 79% had moderate to severe pain. Shoulder pain has often or constantly restricted daily life by dressing 51% to 31% and 29% to 13% of patients at the age of 4 and 16 months, respectively (Lindgren et al., 2007).

Prevention The ideal treatment of hemiplegic pain in stroke is to prevent it from occurring in the first place. Various strategies have been used in the prophylaxis of hemiplegic shoulder pain. For prophylaxis to be effective, it must begin immediately after the stroke. Once the patient has pain, anxiety and overprotection occur. One of the most important and common complications of stroke is shoulder pain, with a prevalence of 34% to 84%. Regardless of age and sex, it occurs the second week after the stroke. The consequences of shoulder pain for motor rehabilitation and psychological well-being make it an important factor. This article examines the etiological factors and prevention and treatment options. Its objective is to improve the understanding of this disease and promote the potential for prevention and treatment (Vuagnat and Chantraine., 2003)

Therefore, prevention should be an important part of upper limb rehabilitation. After a stroke, as a result of a paralysis, the gravitational pull of the humerus causes the shoulder joint capsule to stretch, resulting in a lower subluxation. Glenohumeral subluxation can also occur as a result of poor sleep posture, lack of support when the patient is in an upright position or tension in the hemiplegic arm when the patient moves from one place to another. other. That is why subluxation is the cause of hemiplegic shoulder pain (Murie-Fernández., 2012)

CHAPTER III: METHODOLOGY

3.1 Study design

This study was prospective, Randomized Controlled Trial (RCT). This design is best for the compare to the effectiveness between the experimental and control group. Shoulder Mobilization and Conventional Physiotherapy was applied to the experimental group and only Conventional Physiotherapy was applied to the control group. The study was a single blind technique where participants were not informed who were experimental and control group.

3.2 Study area

Study area was SAIC College of Medical Science and Technology (SCMST), Bangabandhu Sheikh Mujib Medical University (BSMMU), Unique Pain and Paralysis Centre at Mirpur-11, Physio for you physiotherapy and rehabilitation Centre and Pain and Paralysis Physiotherapy Centre at Manikganj.

3.3 Sampling size:

$$n = \frac{z^2 pq}{d^2}$$

$$= \frac{(1.96)^2 \times 0.25}{0.0025}$$

$$= 384.16$$

Here, n= Sampling size

p= 0.5

q= 1-p

z= 1.96

d= 0.05

After adding 10% then result will be 422

3.4 Study population and sample

The study population was the patients diagnose as stroke. Sample was hemiplegia (hemiplegic shoulder pain) patients

3.5 Inclusion criteria of the study

- Age between 18 to 65 years
- Both male and female selected who have stroke
- Both ischemic and hemorrhagic types of stroke with shoulder pain
- Acute and chronic hemiplegic shoulder pain include
- All age group was selected who have shoulder pain after stroke

3.6 Exclusion criteria of the study

- Age less than 18 and more than 65
- Patient and care giver who are not voluntarily agreed to participate in the study
- Current Tuberculosis patients
- Patient who have history of trauma like as recent fracture in the shoulder joint
- Have other type of neurological disorder except stroke
- Any history of shoulder surgery
- Current history of psychiatric disorders or under psychological treatment

3.7 Data collection method

Social demographic information was collected by asking questionnaire & treatment evaluation was qualified graduate physiotherapist. Bengali Questionnaires was used for easy understanding for the participants.

3.8 Treatment Regimen

Control Group	Experimental Group
Control Group will receive conventional physiotherapy that is: According to primary pitot study in different hospital, rehabilitation centre, private clinic below listed physiotherapy intervention is applied for hemiplegic shoulder pain patients ➢ Myofacial release ➢ Gentle stretching ➢ Neural stretching ➢ Active assisted exercise ➢ Free active movement ➢ Progressive strengthening exercise ➢ Electrotherapeutic modalities- TENS, IRR, UST, SWD and also Home advice.	Experimental Group was received shoulder Mobilization and Conventional physiotherapy treatment. The both group of participants was received physiotherapy intervention at least 3 weeks. The treatment will be given graduate physiotherapist who are 1 years of clinical experience.

3.9 Data collection tools

Record or Data collection form

Consent Form

Structured questionnaire.

NPR Scale

Goniometer

Pen, Papers.

3.10 Data analysis

Data was analyzed by use SPSS version 25.00 to compute the descriptive statistics using pie chart, bar chart, linear line diagram and also percentage and parametric tests was conducted using unpaired t-test.

The researcher calculated the variables mean, mean difference, standard deviations, degree of freedom and significant level to show that experimental group and control group mean difference was significantly different.

3.11 Ethical consideration

- The researcher had taken permission from the research supervisor, Physiotherapy Department
- The study followed WHO guidelines
- All the participant and authority were informed about the purpose of the study, the process of the study and their written consent were obtained
- All the interviews had been taken in a confidential to maximize the participant's comfort and feelings of security
- Informed consent would be taken

3.12 Limitation of the study

The main limitation of this study was shorted duration.

- As a student, this study conducted by my own fund/finance. So, there might have some limitation of financial aspect within this study
- There was less time to carried out this study and thus calculated sample could not take
- This study does not represent whole population within country
- This research is a part of my academic study and I am not expert on statistical analysis. So, there might have poor analytical effect

CHAPTER-IV: RESULTS

Age of the participants

In this table found that age of the participants, the average age of the average age of the experimental group was (55.82 years) with a standard deviation of (10.486 years), while the control group was (50.91 years) with a standard deviation of (10.719 years) and experimental group & control group mean different is 4.19.

Table 2- Age Range

Age	**Experimental group (n=11)**		**Control group (n=11)**	
	Frequency	Percent	Frequency	Percent
<40	1	9.1%	3	27.3%
40-60	7	63.6%	7	63.6%
>60	3	27.3%	1	9.1%
Total	11	100%	11	100%
Mean±SD	55.82±10.486		50.91±10.719	
Mean Different	4.91			

Sex of the participants

In this table found that sex of the participants, the experimental group about 9 males and 2 Females patients, males accounted for 81.8% and females 18.2%, while the control group was 8 males and 3 females patients male accounted for 72.7% and females 27.3%.

Table 3- Gender Distribution

Sex	**Experimental group (n=11)**		**Control group (n=11)**	
	Frequency	Percent	N	%
Male	9	81.8	8	72.7
Female	2	18.2	3	27.3

Living area of the participants

In this figure found that living area of the participants, the experimental group about rural area 45.5% (n=5), urban area 45.5% (n=5) and semi urban area 9.1% (n=1). On other hand control group about rural area 54.5% (n=6), urban area 36.4 (n=4) and semi urban area 9.1% (n=1).

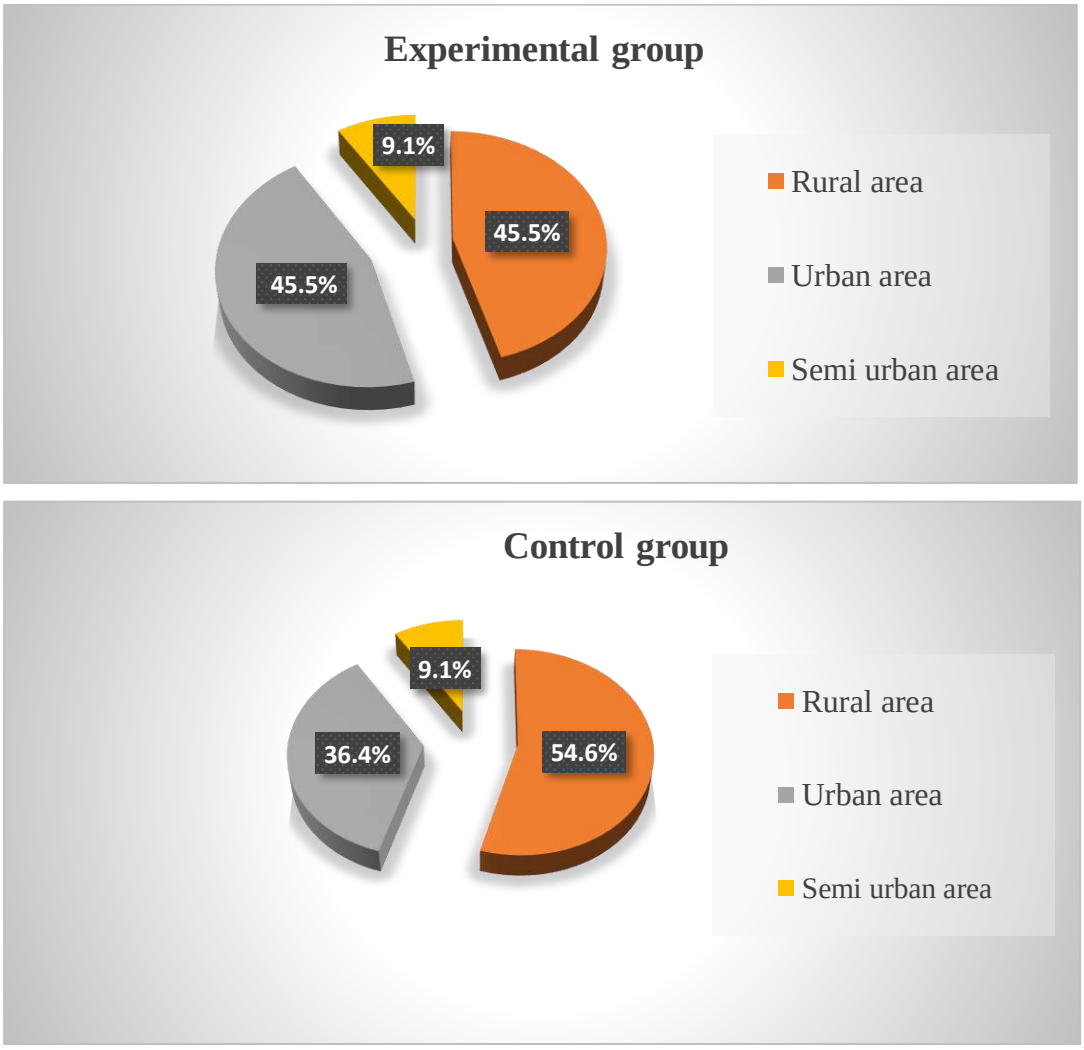


Figure 1- Living area Distribution

Educational status of the participants

In this table found that educational status of the participants, the experimental group about illiterate 18.2% (n=2), JSC 18.2% (n=2), PSC 9.1% (n=1), SSC 27.3% (n=3), HSC 18.2% (n=2) and Masters 9.1% (n=1). Control group about illiterate 18.2% (n=2), JSC 9.1% (n=1), PSC 18.2% (n=2), SSC 36.4% (n=4), HSC 9.1% (n=1) and Masters 9.1% (n=1).

Table 4- Educational status Distribution

Educational status	Experimental group (n=11)		Control group (n=11)	
	Frequency	Percent	Frequency	Percent
Illiterate	2	18.2%	2	18.2%
JSC	2	18.2%	1	9.1%
PSC	1	9.1%	2	18.2%
SSC	3	27.3%	4	36.4%
HSC	2	18.2%	1	9.1%
Masters	1	9.1%	1	9.1%
Total	11	100%	11	100%

Marital status of the participants

In this chart found that marital status of the participants, experimental group married 100% (n=11) and control group married 90.9% (n=10) and unmarried 9.1% (n=1).

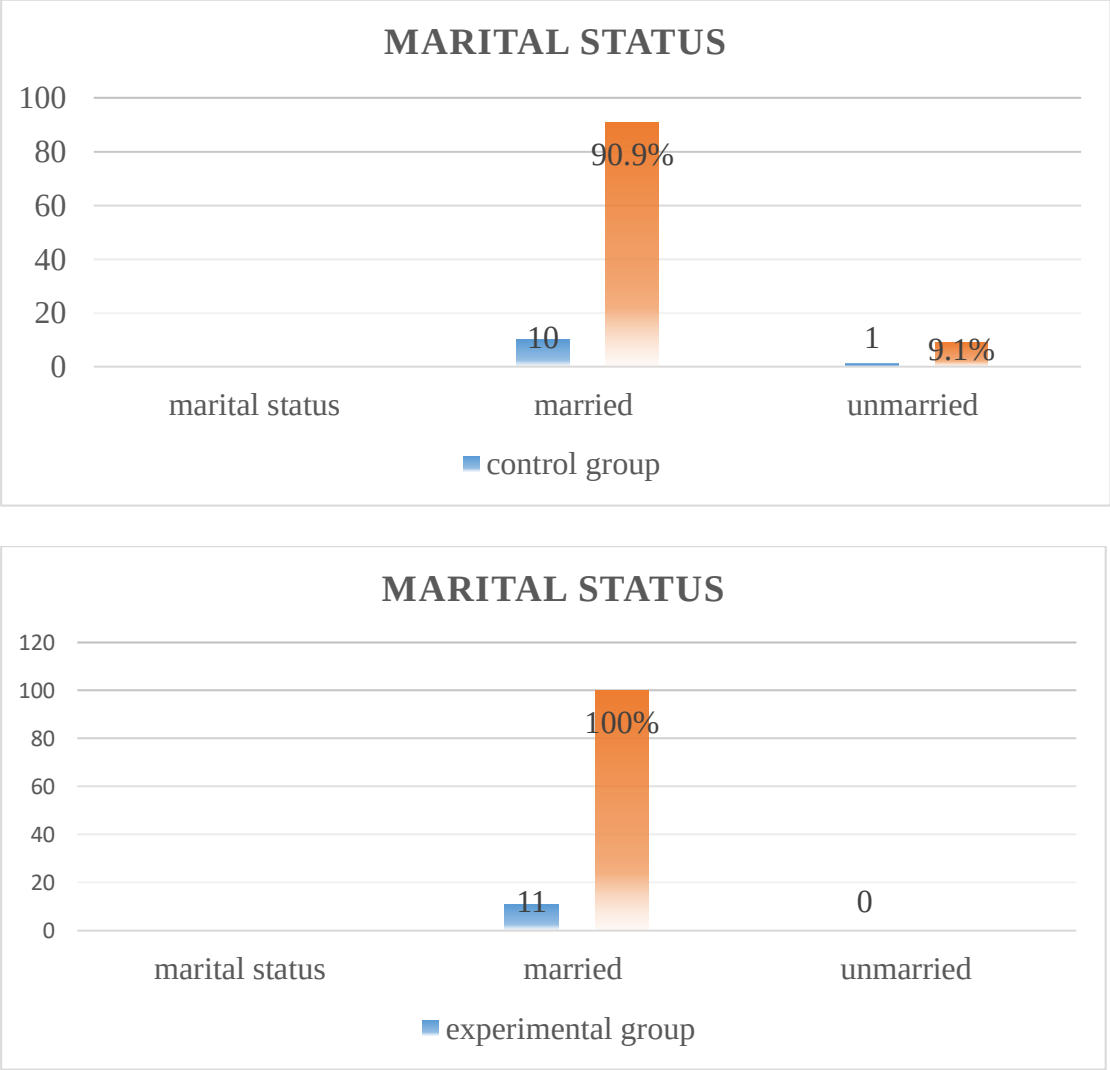


Figure 2- Marital status Distribution

Family type of the participants

In this table found that family type of the participants, the control group about extended family 36.4% (n=4) and nuclear family 63.6% (n=7). Experimental group about extended family 45.5% (n=5) and nuclear family 54.5% (n=6).

Table 5- Family type Distribution

Family type	**Control group (n=11)**		**Experimental group (n=11)**	
	Frequency	Percent	Frequency	Percent
Extended family	4	36.4%	5	45.5%
Nuclear family	7	63.6%	6	54.5%
Total	11	100%	11	100%

Occupation of the participants

In this figure found that occupation of the participants, the control group about farmer 9.1% (n=1), worker 27.3% (n=3), business 18.2% (n=2) and others 45.5%. Experimental group about worker 27.3% (n=3), business 45.5% (n=5) and others 27.2% (n=3).

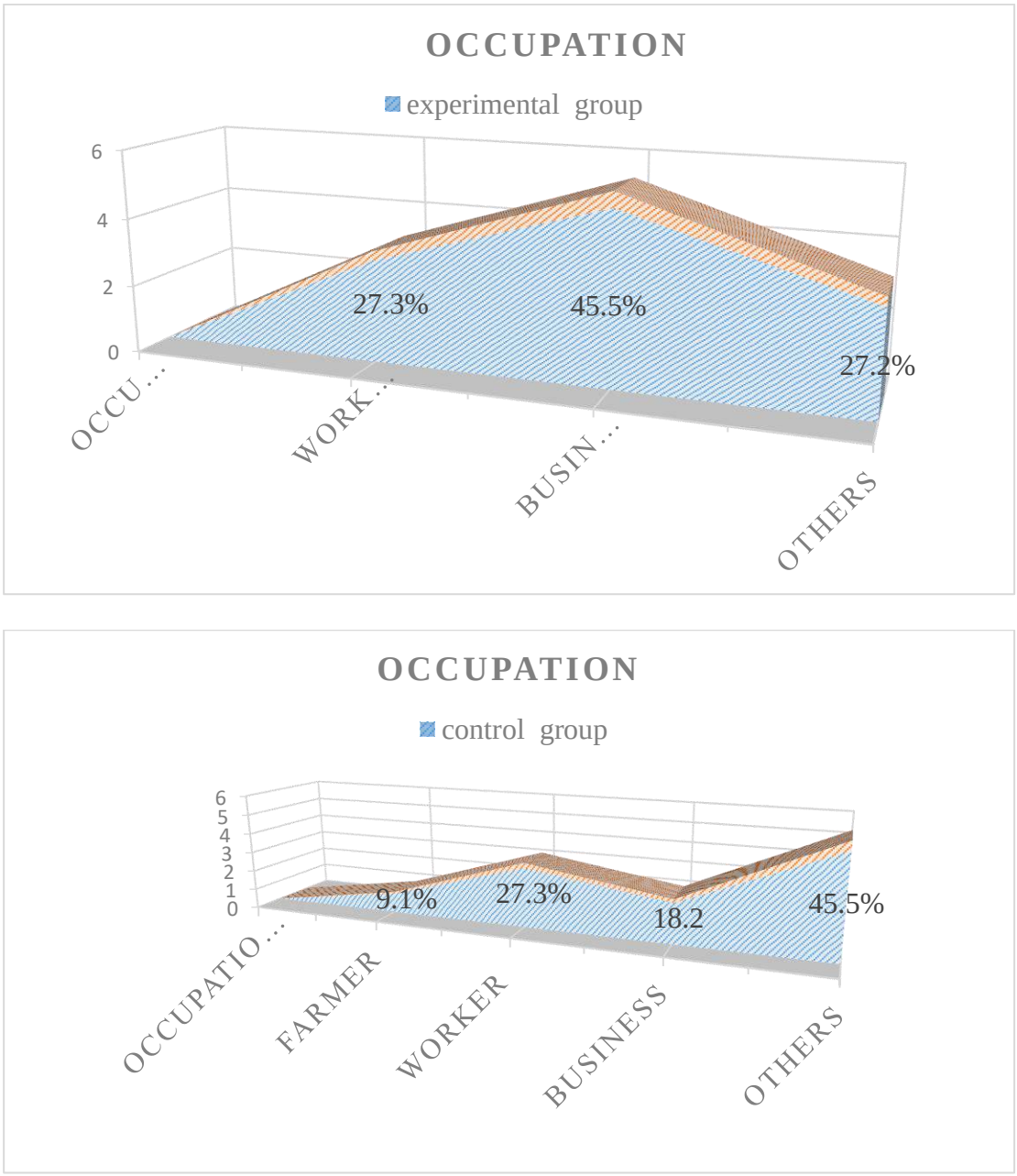


Figure 3- Occupation Distribution

Monthly income of the participants

In this table found that monthly income of the participants, the control group was (27181.82 TK) with a standard deviation of (18148.378 TK), while the average age of the experimental group was (45454.55 TK) with a standard deviation of (21960.709 TK).

Table 6- Monthly income Distribution

Monthly Income	**Control group (n=11)**		**Experimental group (n=11)**	
	Frequency	Percent	Frequency	Percent
<25000	7	63.6%	4	36.4%
25000-50000	3	27.3%	3	27.3%
>50000	1	9.1%	4	36.4%
Total	11	100%	11	100%
Means±SD	27181.82±18148.378		45454.55±21960.709	

Religion of the participants

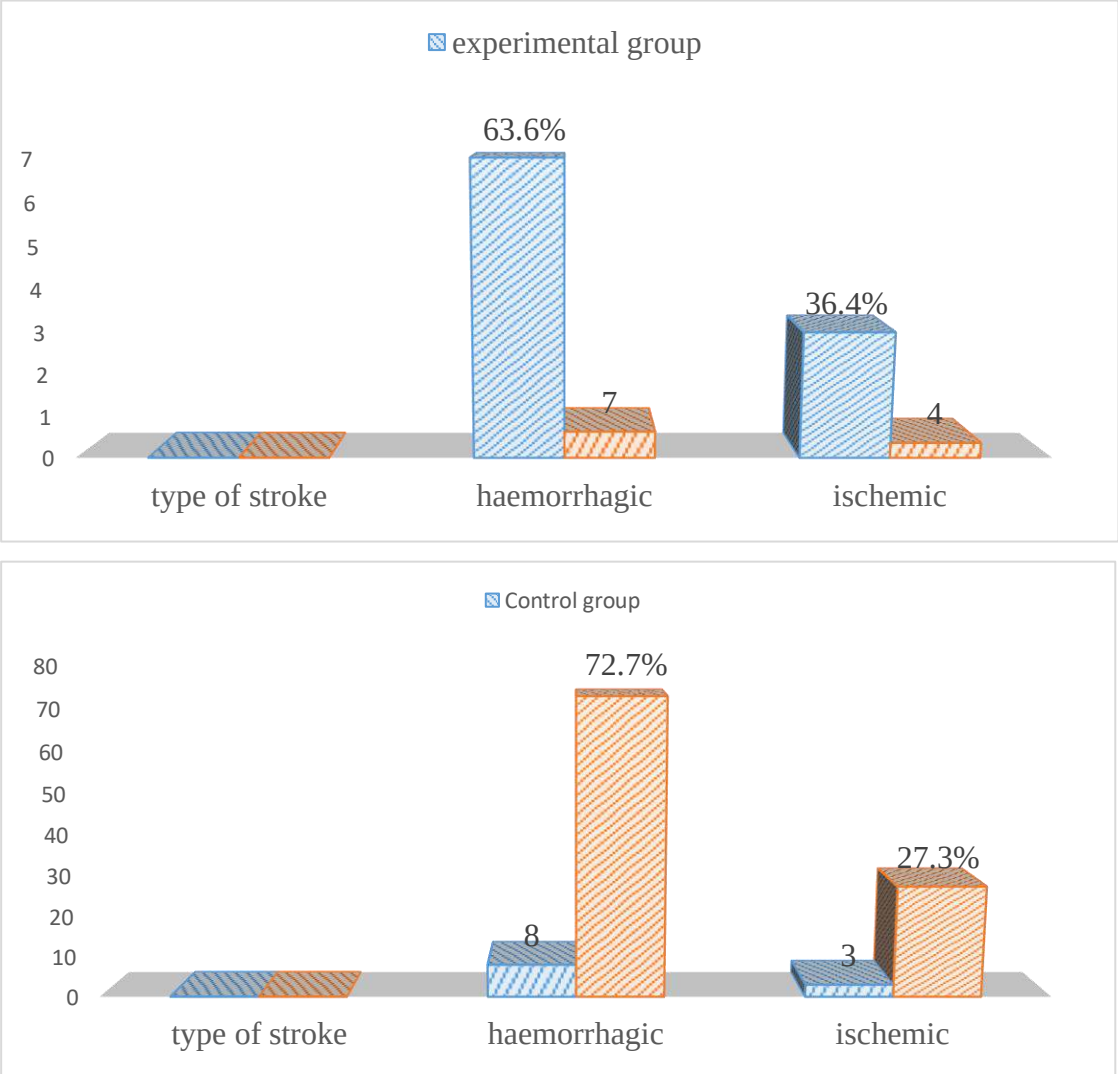
In this chart found that religion of the participants, experimental group about Islam 100% (n=11) and Hindu 0% (n=0). Control group about Islam 81.8% (n=9) and Hindu 18.2% (n=2).

Finger 4- Religion Distribution

Condition related information

The type of stroke of the participants

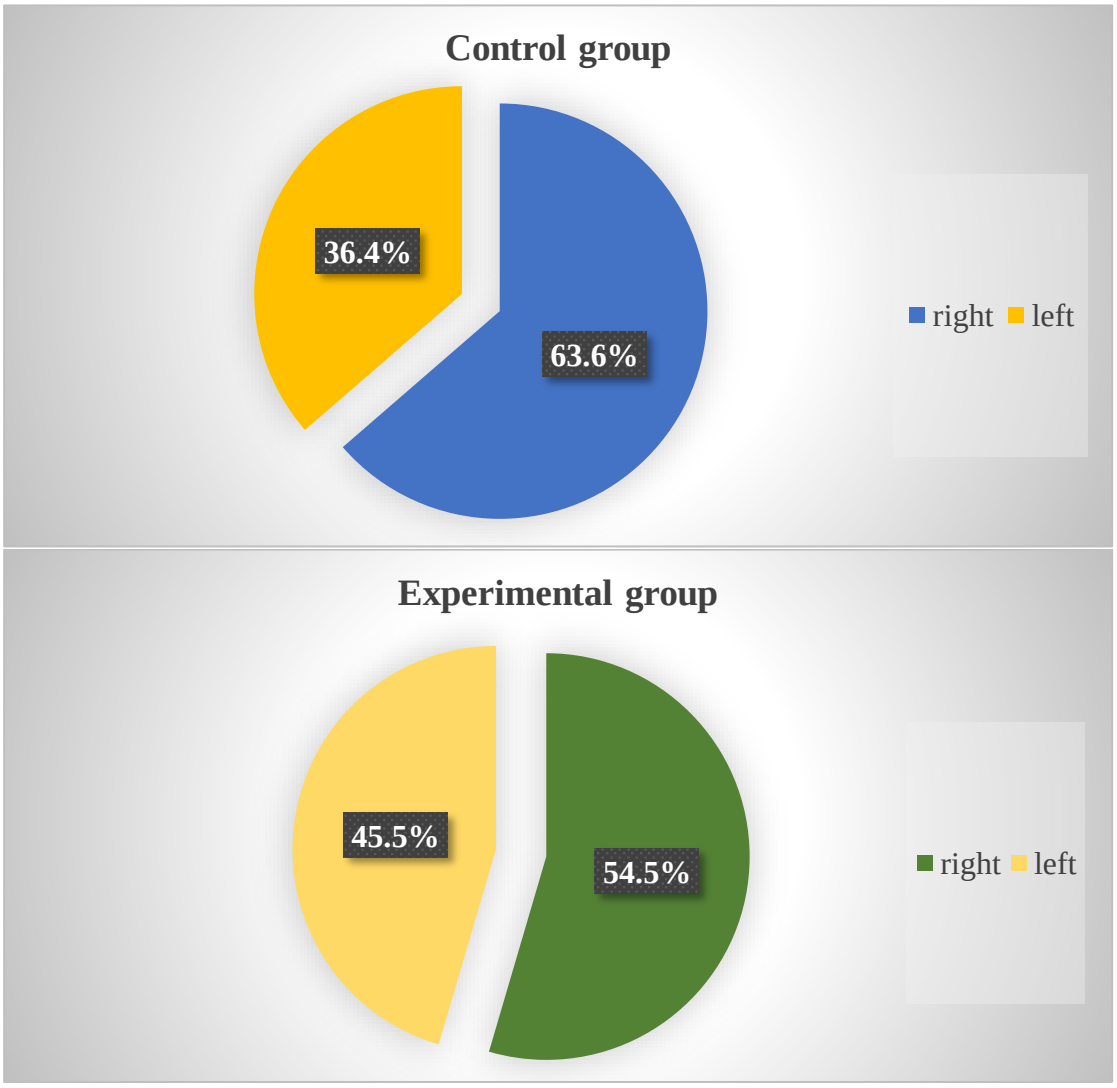
In this chart found that type of stroke of the participants, experimental group about hemorrhagic stroke 63.6% (n=7) and ischemic stroke 36.4% (n=4). Control group about hemorrhagic stroke 72.7% (n=8) and ischemic stroke 27.3% (n=3).



Finger 5- The type of stroke Distribution

The affected side of stroke of the participants

In this chart found that affected side of the participants, experimental group about right side 54.5% (n=6) and left side 45.5 (n=5). Control group about right side 63.6% (n=7) and left side 36.4% (n=4).



Finger 6- The affected side of stroke Distribution

Distribution of the Shoulder Pain start after stroke of the participants

Experimental and control group shoulder pain start after stroke 100% yes.

How many days after stroke the Shoulder Pain start of the participants

In this table found that after stroke shoulder pain start of the participants, Control group about after less than 15 days 45.5%(n=5), after 15-30 days 36.4%(n=4), after 31-45 days 9.1%(n=1), after greater than 60 days 9.1% (n=1) and Means (25.09) & stander Deviation(25.583).

Experimental group about less than 15 days 54.5%(n=6), after 15-30 days 27.3%(n=3), after 46-60 days 18.2%(n=2) and Mean (23.27) & stander Deviation (20.362).

Both groups mean different is 1.82.

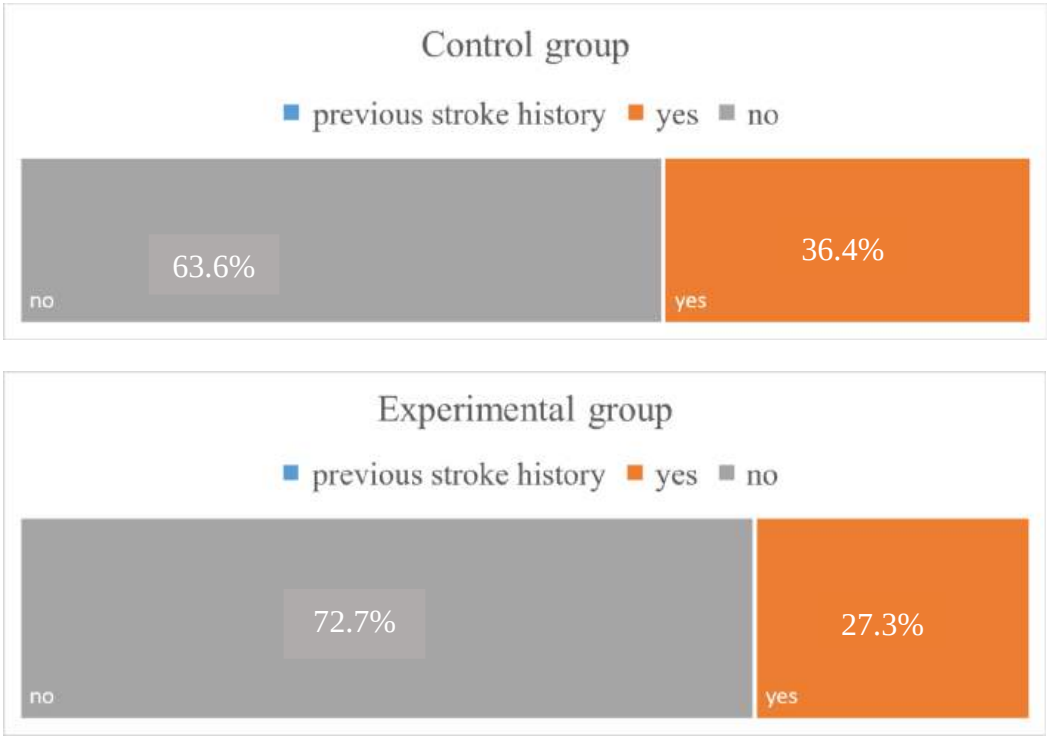
Table 7- How many days after stroke the Shoulder Pain start Distribution

How many days after shoulder pain start	**Control group**		**Experimental group**	
	Frequency	Percent	Frequency	Percent
<15	5	45.5%	6	54.5%
15-30	4	36.4%	3	27.3%
31-45	1	9.1%	0	0.0%
46-60	0	0.0%	2	18.2%
>60	1	9.1%	0	0.0%
Total	11	100%	11	100%
Mean±SD	25.09±25.583		23.27±20.362	
Mean different	1.82			

Any history of previous stroke of the participants

In this chart found that previous stroke history of the participants, Control group about No is 63.6%(n=7) and Yes is 36.4(n=4).

Experimental group about No 72.7%(n=8) and Yes 27.3%(n=3).



Finger 7- Any history of previous stroke Distribution

Past history of trauma at the shoulder joint of the participants

In this table found that past history of the participants, control group about Yes is 9.1%(n=1) and No is 90.9%(n=10). Experimental group about No is 100%(n=11).

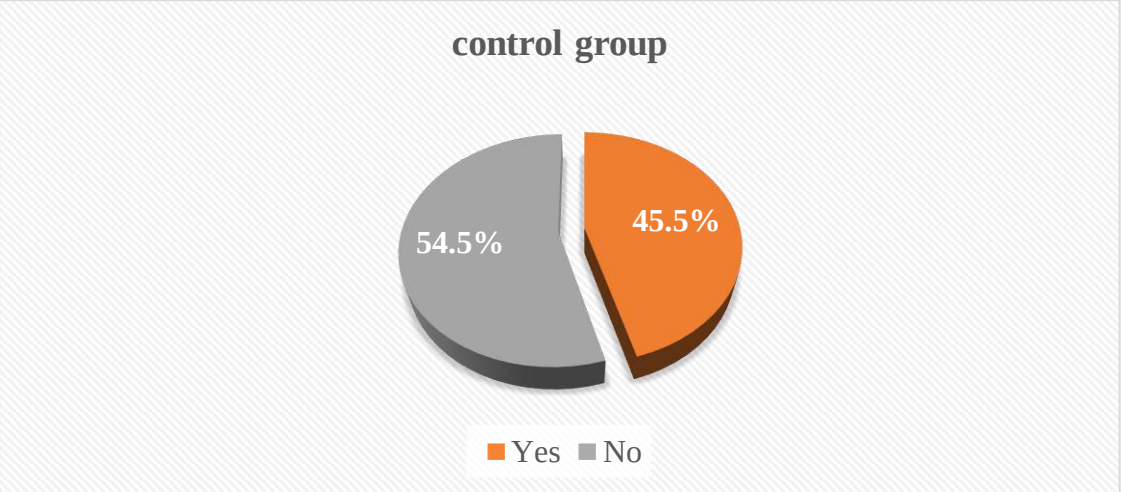
Past history of trauma	Control group		Experimental group	
	Frequency	Percent	Frequency	Percent
Yes	1	9.1%	0	00.0%
No	10	90.9%	11	100%
Total	11	100%	11	100%

Table 15: Past history of trauma at the shoulder joint Distribution

Get any treatment for the shoulder joint after stroke of the participants

In this chart found that get any treatment for the shoulder joint after stroke, control group about Yes is 45.5%(n=5) and No is 54.5%(n=6).

Experimental group Yes is 100%(n=11).



Finger 8- Get any treatment for the shoulder joint after stroke Distribution

What type of intervention taken of the participants (Multiple question)

In this table found that type of intervention taken of the participants, control group medication taken 2 people and physiotherapy taken 5 people and experimental group medication taken 4 people and physiotherapy taken 11 peoples.

Table 9: What type of intervention taken Distribution

Intervention taken	**Control group**	**Experimental group**
Medication	2	4
Physiotherapy	5	11
Others	0	0

Distribution of past medical history of the participants (Multiple question).

In this table found that past medical history of the participants, control group diabetes mellites 5 people, hypertension 8 people and others problem 2 people and experimental group diabetes mellitus 2 people, hypertension 8 people and others problem 2 people.

Table 10- Distribution of past medical history

Past medical history	**Control group (n=11)**	**Experimental group (n=11)**
Diabetes mellitus	5	2
Hypertension	8	7
Others	2	1

Behavior of pain of the participants

In this table found that behavior of pain of the participants, control group about intermittent pain 81.8 % (n=9), constant pain 9.1%(n=10) and not applicable 9.1%(n=1).

Experimental group about intermittent pain 90.9%(n=10) and not applicable 9.1%(n=1).

Table 11- Behavior of pain Distribution

Behavior of pain	**Control group**		**Experimental group**	
	Frequency	Percent	Frequency	Percent
Intermittent	9	81.8%	10	90.9%
Constant	1	9.1%	0	00.0%
Not applicable	1	9.1%	1	9.1%
Total	11	100%	11	100%

The intensity of pain of the participants

In this table found that intensity of pain of the participants, control group about less than 3 54.5% (n=6) and 3-7 45.5% (n=5), 3.00±1.844 that was pretest mean and standard deviation, 3.45±1.214 that was posttest mean and standard deviation, mean different that was -0.45.

experimental group about less than 3 45.5% (n=5), 3-7 45.5% (n=5) and greater than 7 9.1% (n=1), 3.64±2.063 that was pretest mean and standard deviation, 1.55±.934 that was posttest mean and standard deviation, mean different that was 2.09.

Table 12- The intensity of pain Distribution

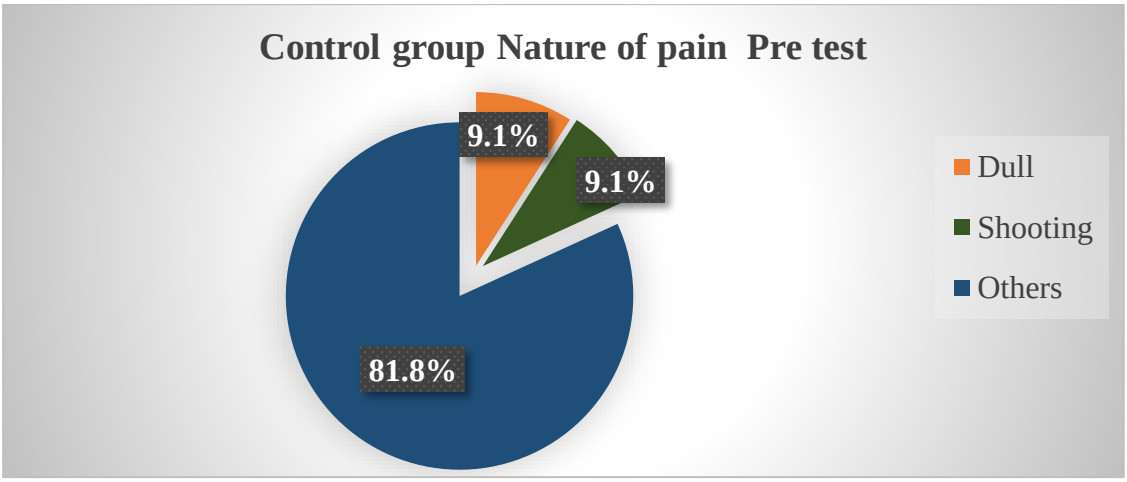
Intensity of pain	**Control group**				**Experimental group**			
	Pre test		**Post test**		**Pre test**		**Post test**	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
<3	6	54.5%	2	18.2%	5	45.5%	9	81.8%
3-7	5	45.5%	9	81.8%	5	45.5%	2	18.2%
>7	0	0.00%	0	0.00%	1	9.1%	0	0.00%
Total	11	100%	11	100%	11	100%	11	100%
Mean±SD	3.00±1.844		3.45±1.214		3.64±2.063		1.55±.934	
Mean different	-0.45				2.09			

Nature of pain of the participants

Control group:

In this chart found that nature of pain of the participants, dull pain 9.1%, shooting pain 9.1% and others pain 81.8%.

Control group posttest nature of pain 100%(n=11) of others pain.

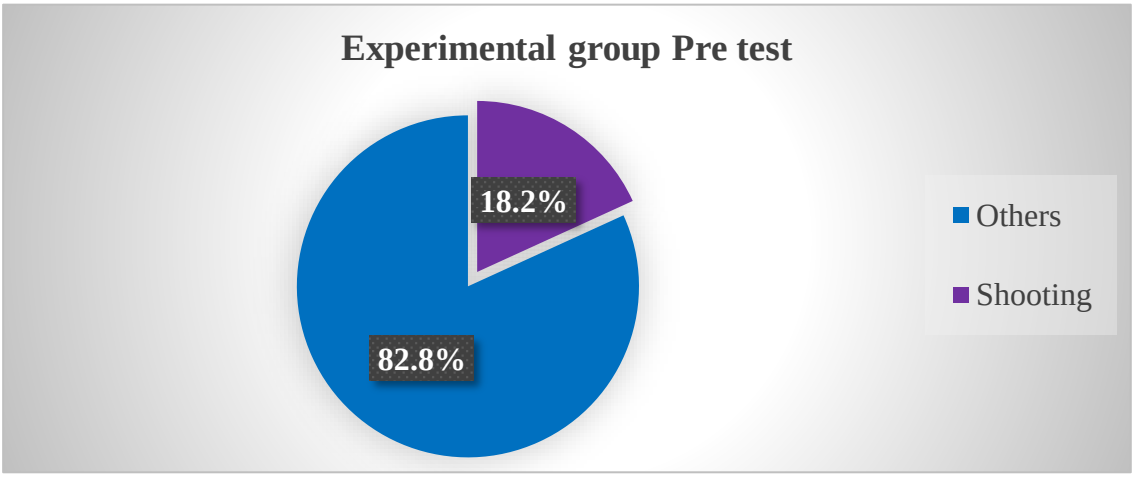


Finger 9- Nature of pain Distribution

Experimental group:

In this chart found that nature of pain of the participants, shooting pain 82.8% and others pain 18.2%

Experimental group posttest is nature of pain 100% of others pain.



Finger 9- Nature of pain Distribution

Oxford muscle grade of shoulder joint of the participants

In this table found that oxford muscle grade of shoulder joint, control group pretest was no contraction 27.3% (n=3), flicker contraction 18.2% (n=2), APOM with gravity eliminated position 45.5% (n=5) and APOM against gravity some resistance 9.1% (n=1) 1.45±1.214 that was mean with standard deviation, posttest was no contraction 27.3% (n=3), flicker contraction 18.2% (n=2), APOM with gravity eliminated position 36.4% (n=4), AROM against gravity 9.1% (n=1) and APOM against gravity some resistance 9.1% (n=1) 1.55±1.293 that was mean with standard deviation, mean different was -0.1, while the experimental group pretest was flicker contraction 18.2% (n=2) and APOM with gravity eliminated position 81.8% (n=9), mean with standard deviation was 1.82±0.405, posttest was flicker contraction 9.1% (n=1), APOM with gravity eliminated position 9.1% (n=1), AROM against gravity 63.6% (n=7) and APOM against gravity some resistance 18.2% (n=2), mean with standard deviation was 1.91±0.831, mean different was -0.9.

Table 13- Oxford muscle grade of shoulder joint Distribution

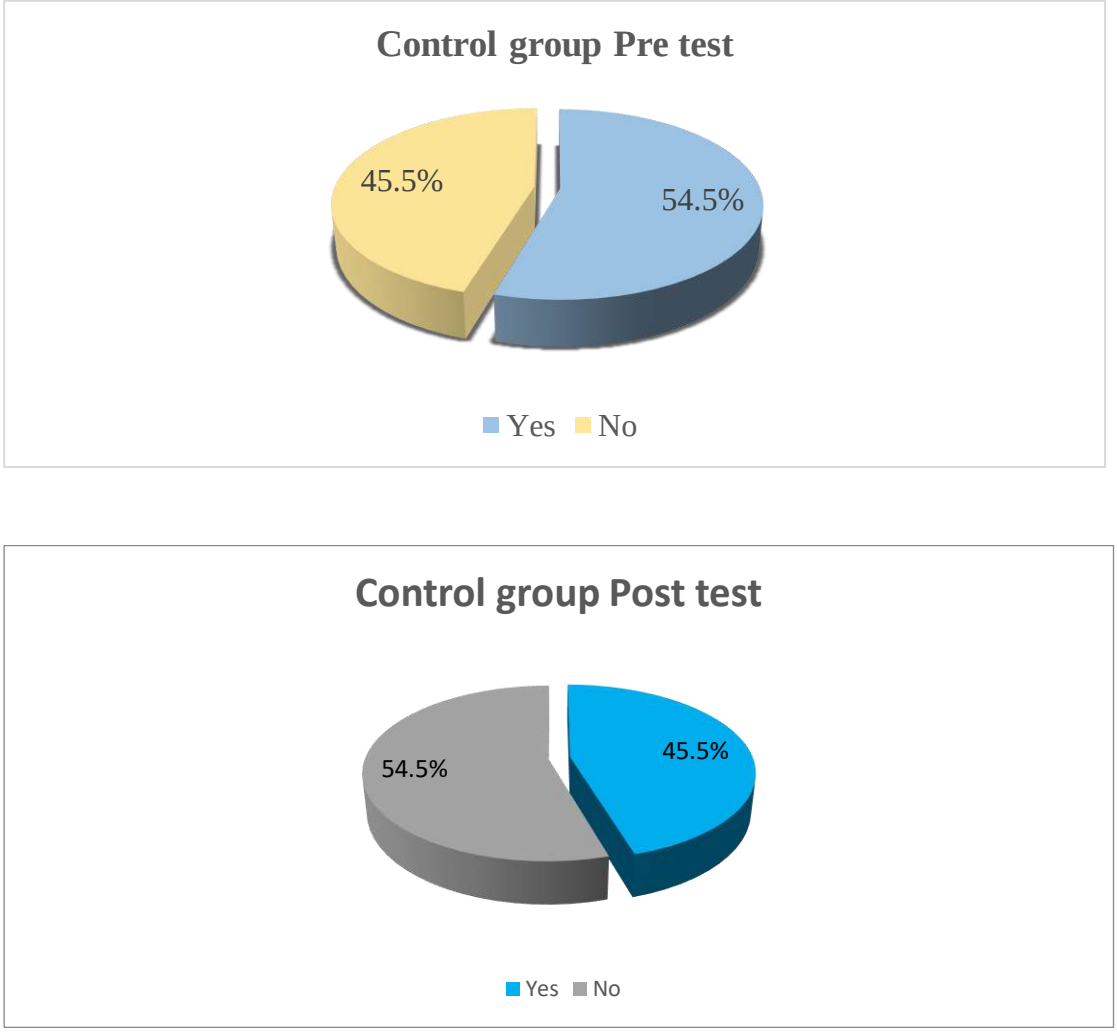
Control group					**Experimental group**			
Oxford muscle Grade of the shoulder joint	Pre test		Post test		Pre test		Post test	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
No contraction	3	27.3%	3	27.3%	0	0.00%	0	0.00%
Flicker contraction	2	18.2%	2	18.2%	2	18.2%	1	9.1%

AROM with gravity eliminated position	5	45.5%	4	36.4%	9	81.8%	1	9.1%
AROM against gravity	0	0.00%	1	9.1%	0	0.00%	7	63.6%
AROM against gravity some resistance	1	9.1%	1	9.1%	0	0.00%	2	18.2%
Total	11	100%	11	100%	11	100%	11	100%
Mean±SD	1.45±1.214		1.55±1.293		1.82±0.405		1.91±0.831	
Mean different	-0.1				-0.09			

Wearing clothes any pain of the participants

Control group:

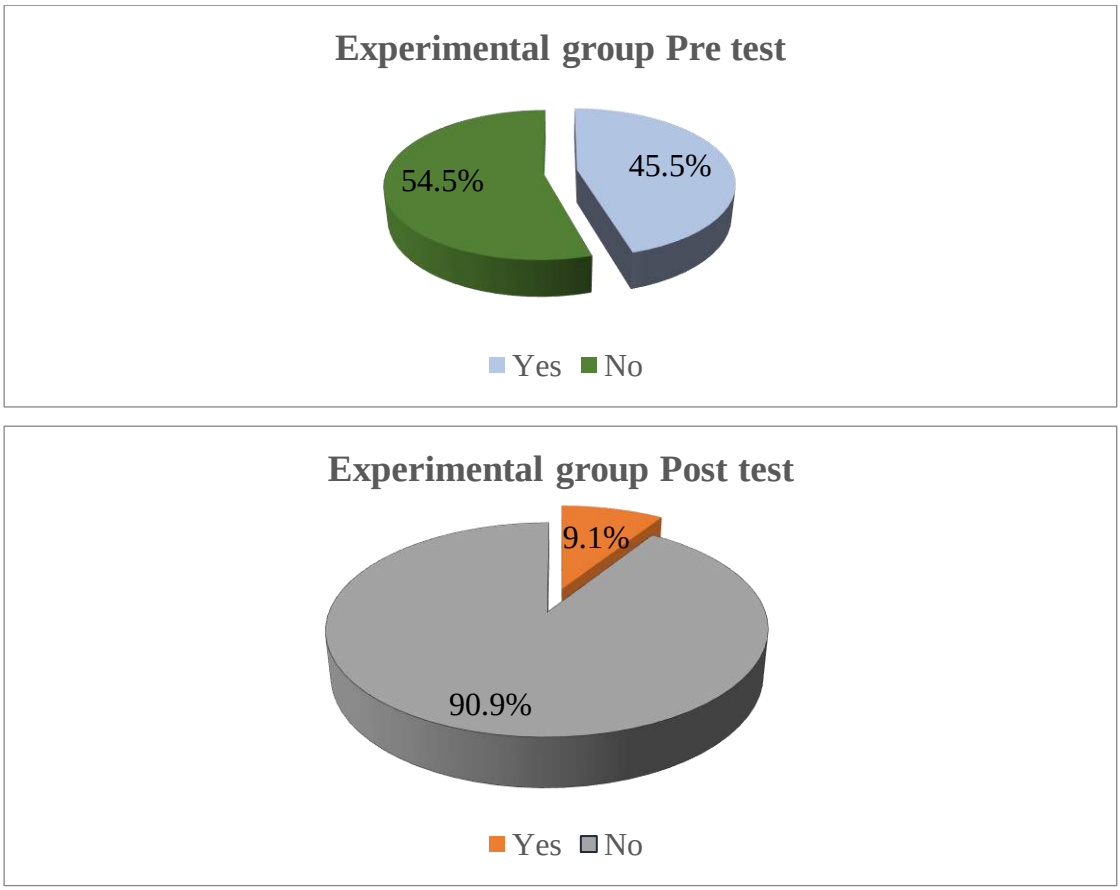
In this chart found that wearing clothes any pain of the participants, control group pretest find that yes was 54.5% (n=6) and no was 45.5% (n=5), posttest find that yes was 45.5% (n=5) and no was 54.5% (n=6).



Finger 10- Wearing clothes any pain Distribution

Experimental groupe:

In this chart found that wearing clothes any pain of the participants, experimental group pretest find that yes was 54.5% (n=6) and no was 45.5% (n=5), posttest find that yes was 9.1% (n=1) and no was 90.9% (n=10).



Finger 10- Wearing clothes any pain Distribution

Any pain at rest of the participants

In this table found that any pain at rest of the participants, control group pretest yes was 18.2% (n=2) and no was 81.8% (n=9), posttest yes was 9.1% (n=1) and no was 90.1% (n=10), while the experimental group pretest yes was 18.2% (n=2) and no was 81.8% (n=9), post no was 100% (n=11).

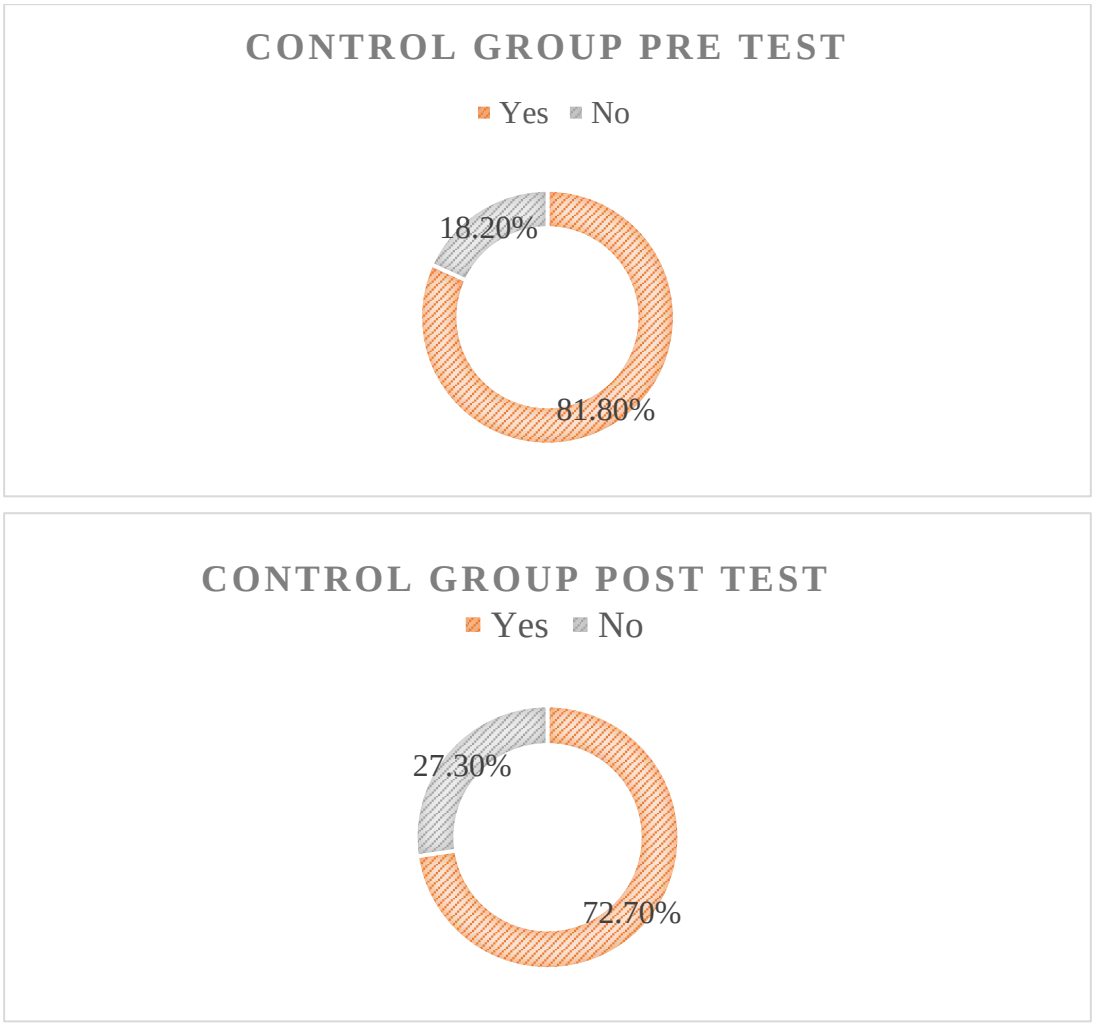
Table 14- Any pain at rest Distribution

Control group (n=11)					**Experimental group (n=11)**			
Any pain at rest	Pre test		Post test		Pre test		Post test	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	2	18.2%	1	9.1%	2	18.2%	0	0.00%
No	9	81.8%	10	90.1%	9	81.8%	11	100%
Total	11	100%	11	100%	11	100%	11	100%

Pain start with movement of the participants

Control group:

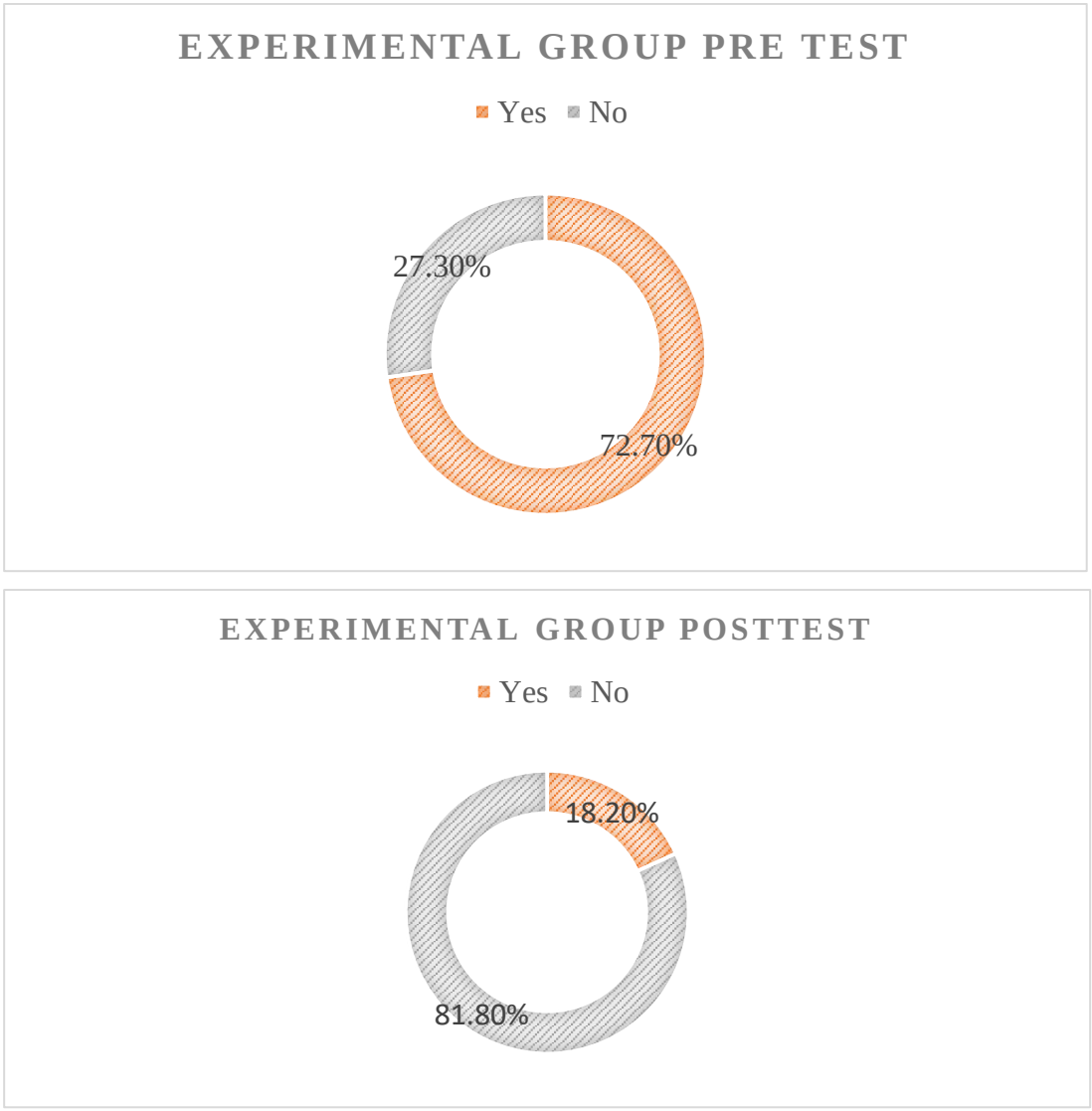
In this chart found that pain start with movement of the participants, control group pretest yes was 81.8% and no was 18.2%, posttest yes 72.7% and no was 27.3%.



Finger 11- Pain start with movement Distribution

Experimental group:

In this chart found that start pain with movement of the participants, experimental group pretest yes was 72.7% and no was 27.3%, posttest yes was 18.2% and no was 81.8%.

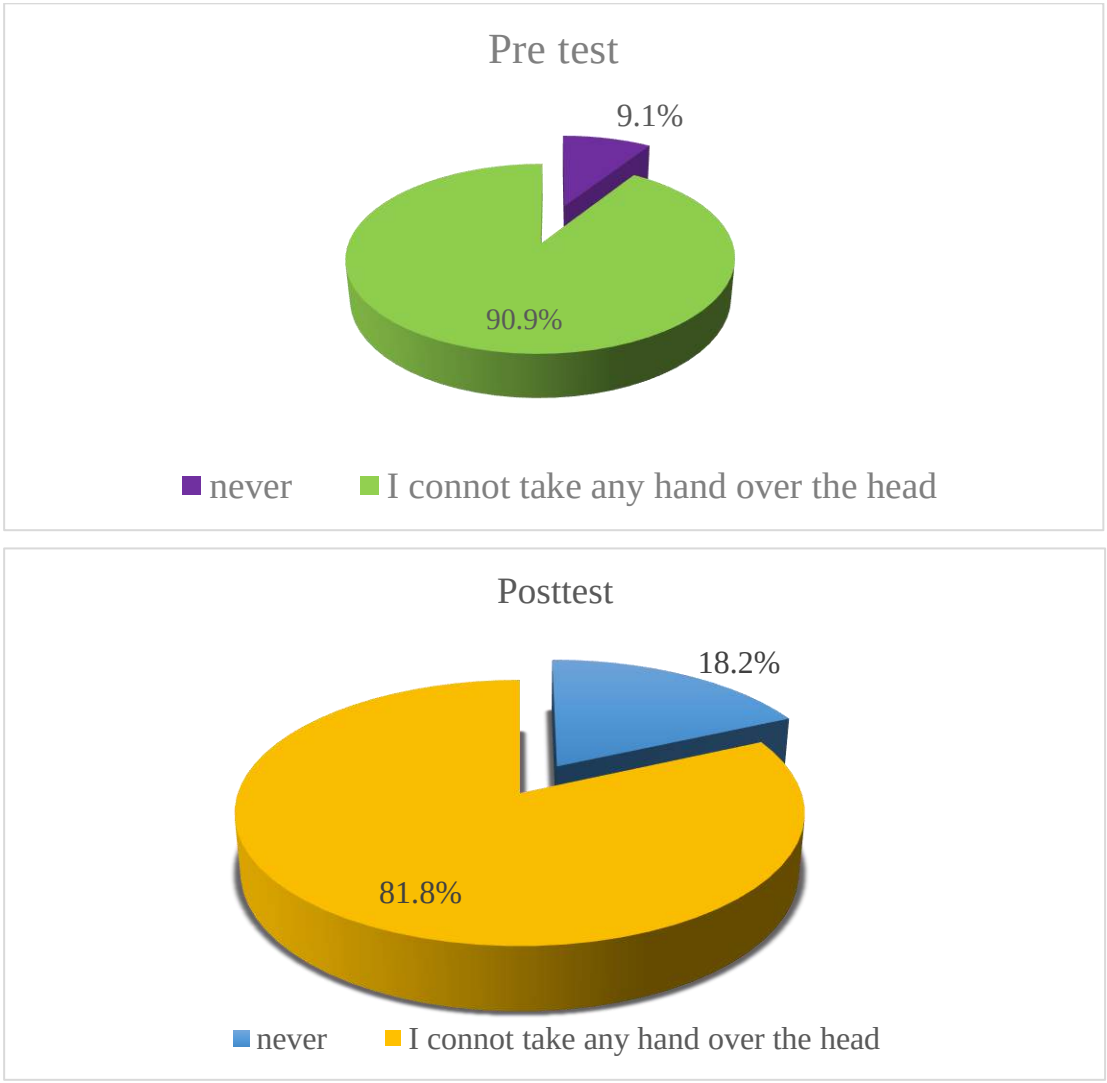


Finger 11- Pain start with movement Distribution

Feel any pain during overhead activity of the participants

Control group:

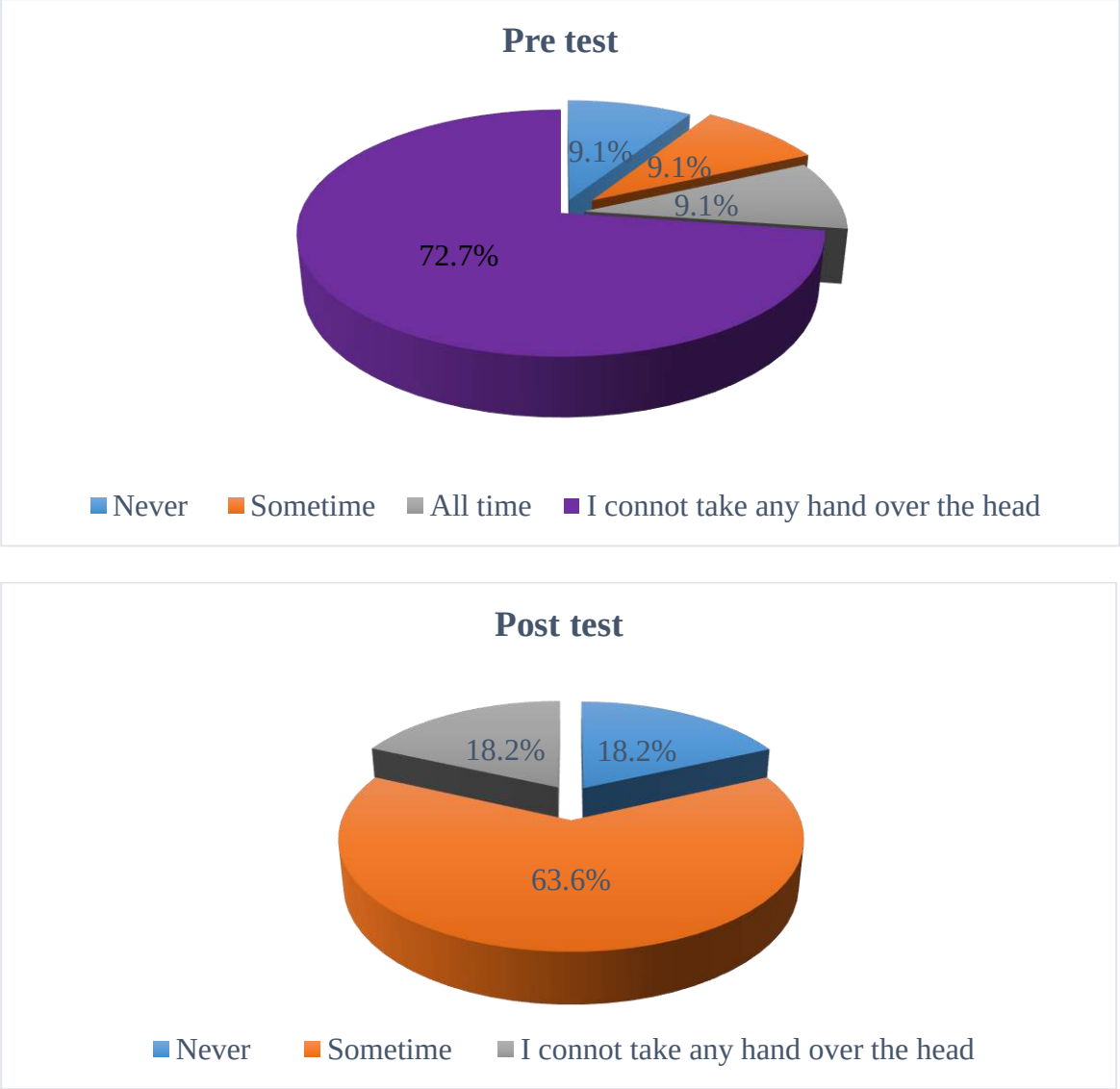
In this chart found that feel any pain during overhead activity of the participants, control group pretest never was 9.1% and I cannot take any hand over the head was 90.9%, posttest never was 18.2% and I cannot take any hand over the head was 81.8%.



Finger 12- Feel any pain during overhead activity Distribution

Experimental group:

In this chart found that feel any pain during overhead activity of the participants, experimental group pretest never was 9.1%,sometime pain was 9.1%, all time pain was 9.1% and I cannot take any hand over the head was 72.7%, posttest never was 18.2%, sometime pain was 63.6% and I cannot take any hand over the head was 18.2%.



Finger 12- Feel any pain during overhead activity Distribution

Table 27: Paired samples “t” test

In this table Experimental intensity of pain pretest mean 3.64 and stander deviation 2.063, posttest mean 1.55 and stander deviation 0.934 mean different 2.09

Experimental oxford muscle grade of shoulder pain pretest mean 1.82 and stander deviation 0.405,

Posttest mean 2.91 and stander deviation 0.831. Mean different -1.09.

Table 15- Paired samples “t” test Distribution

Variable	Mean	Stander Deviation
E pre intensity of pain	3.64	2.063
E post intensity of pain	1.55	.934
Mean different	2.09	
E pretest oxford muscle Grade of shoulder joint	1.82	.405
E posttest oxford muscle Grade of shoulder joint	2.91	.831
Mean different	-1.09	

Paired samples “t” test

In this table showed that p values comparison between the group regarding intensity of pain (NPRS) (P=0.003). Significant value is less than 0.05. So, intensity of pain (NPRS) score that was significant of the study and intensity of pain (NPRS) that mean different was 2.091, standard deviation different was 1.758, “t” value was 3.944, degree of freedom was 10. oxford muscle grade of shoulder joint (P=0.000). Significant value is less than 0.05. So, that oxford muscle grade of the shoulder joint was highly significant. oxford muscle grade of shoulder joint that mean different was -1.091, standard deviation was 0.539, “t” value was -6.708, degree of freedom was 10.

Table 15- Paired samples “t” test Distribution

Variable	**Mean**	**Stander Deviation**	**“t” value**	**df**	**Significant**
E pre intensity of pain of the participant-E post intensity of pain of the participant	2.091	1.758	3.944	10	.003
E pretest oxford muscle Grade of shoulder joint of the participant- E posttest oxford muscle Grade of shoulder joint of the participant	-1.091	0.539	-6.708	10	.000

CHAPTER-V: DISCUSSION

The purpose of the study was to evaluate the effectiveness of shoulder mobilization with conventional physiotherapy compare to only conventional physiotherapy for Hemiplegic shoulder pain.

Age is one of variable in this study. Experimental group of in this study the minimum age of a participant was 31-year, maximum age was 60-year and mean age was 55.82-year and control group of in this study the minimum age of a participant was 35-year, maximum age was 60-year and mean age was 50.91-year. Mean different was 4.91-year. Other study of The myofascial component of the pain in the painful shoulder of the hemiplegic patient in Brazil mean age was 66.2 with SD 10.5 year (Felipe Martins Liporaci, 2019). In Nigeria study that mean age was 62.0 and SD 11.3 year (Bukunmi Michael Idowu, 2017). Showed that experimental group mean age was 57.07 with SD of 2.49 and control group mean age was 58.13 with SD of 1.55 year in Saudi Arabia (AlAmoudi et al., 2015).

In this study, experimental group male participants were 81.8% and female participants were 18.2% and control group male participants were 72.7% and female 27.3%. In Saudi Arabia, study showed that experimental group was male 73% and female 26%, while the control group was male 60% and female 40% (Khaled Othman AlAmoudi, 2015). In Nigeria study that was male 24 and female 21 (Idowu et al., 2017)

In this research, living area of experimental group participants rural area 45.5%, urban area 45.5% and semi urban area 9.1%. Control group participants rural area 54.5%, urban area 36.4% and semi urban area 9.1%.

In this study, Educational status of the participants illiterate 18.2%, JSC 18.2%, PSC 9.1%, SSC 27.3%, HSC 18.2 and Masters 9.1% experimental groups and illiterate 18.2%, JSC 9.1%, PSC 18.2%, SSC 36.4%, HSC 9.1% and Masters 9.1% control groups.

In this study, marital status of the participants married 100% experimental groups and married 90.9% and unmarried 9.1% control groups.

In this research, family type of the participants extended family 45.5% and nuclear 54.5% experimental groups and extended family 36.4% and nuclear family 63.6% control groups.

In this study, occupation of the participants worker 27.3%, business 45.5% and others 27.2% experimental groups and farmer 9.1%, worker 27.3%, business 1.8.2% and others 45.5% control groups.

In this research, type of stroke of the participants haemorrhagic 63.6% and ischemic 36.4% experimental groups and haemorrhagic 72.7% and ischemic 27.3% control groups.

In this study found that right side 54.5% and left side 45.5% experimental groups and right side 63.6% and left side 36.4% control groups affected side of the participants.

In this study, intensity of pain (NPRS) experimental group NPRS pretest mean score was 3.64 and posttest mean score was 1.55, a reduction of mean 2.09. Experimental group P values is 0.003. The significant value is less than 0.05, so experimental group is significant. Control group NPRS pretest mean score was 3.00 and posttest mean score was 3.45. In China, study that the change of NPRS before and after treatment in the treatment group was shown to be 3.40±0.48(n=10) and that in control group was 3.10±0.23(n=10) (Tong Liu, 2019). In Saudi Arabia, study showed that experimental group VAS pretest mean score was 5.20 and posttest mean score 4.60 while control group VAS pretest mean score was 6.33 and posttest mean score was 5.67. (AlAmoudi et al., 2015).

In this research, oxford muscle grade of shoulder joint of the participants experimental groups pretest mean and standard deviation score was 1.82±0.405 and posttest mean and standard deviation score was 1.91±0.831. control groups pretest mean and standard deviation score was 1.45±1.214 and posttest mean and standard deviation score was 1.55±1.293 with P value = .000.

In this study found that, any pain at rest of the participants control groups pretest yes and no was 18.2%±81.8% and posttest yes and no was 9.1%±90.1%. Experimental group pretest yes and no was 18.2%±81.8% and posttest no was 100%.

In this study, pain start with movement of the participants control groups pretest yes and no was 81.8%±18.2% and posttest yes and no was 72.7%±27.3%. Experiment groups pretest yes and no 72.7%±27.3% and posttest yes and 18.2%±81.8%.

In this research, feel any pain during overhead activity of the participants control groups pretest never and I cannot take any hand over the head was 9.1%±90.9% and posttest never and I cannot take any hand over the head was 18.2%±81.8%. Experimental groups pretest never pain, sometimes pain, all time pain and I cannot take any hand over the head was 9.1%, 9.1%, 9.1% and 72.7% and posttest never pain, sometime pain and I cannot take any hand over the head was 18.2%, 63.6% and 82.2%.

CHARTER-IV: CONCLUSION AND RECOMENDATION

6.1 Conclusion

The result of this experimental study has found out the effectiveness of conventional physiotherapy with shoulder mobilization are better treatment than the conventional physiotherapy alone for reducing pain in hemiplegic shoulder patients. Participants in the conventional physiotherapy with shoulder mobilization group showed a greater benefit than those in the only conventional physiotherapy group, which indicate that the conventional physiotherapy with shoulder mobilization can be an effective therapeutic approach for patient with hemiplegic shoulder pain. From this research the researcher wishes to explore the effectiveness of shoulder mobilization along with conventional physiotherapy to reduce the features of patient with hemiplegic shoulder pain, which will be helpful to facilitate their rehabilitation and to enhance functional activities. From this research, researcher also concluded the specific variables and comparison of their improvement rates. This will aid the professionals to decide the specific evidence-based protocol for applying interventions in hemiplegic shoulder pain.

6.2 Recommendation

As a consequence of this research it is recommended to do further study including comparison of the conventional physiotherapy and shoulder mobilization with conventional physiotherapy alone to assess the effectiveness of these intervention.

It is recommended to do further study with a greater number of subjects and with a longer time frame.

It is also recommended to include the functional outcome assessment of patient and to identify the average number of sessions that are needed to be discharged from treatment to validate the treatment technique.

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APPENDIX-1

Consent form

Respondent ID no | | | |

Dear participant.

I am MD Fazley Rabby student of B.Sc. in physiotherapy program in the Department of physiotherapy SAIC Institute of Medical Technology affiliated by University of Dhaka conducting the study entitled "Effectiveness of shoulder mobilization on shoulder pain of hemiplegic patient" as a part my thesis work for the partial fulfillment of Bachelor degree. There is list of question you need to fill up which include socio-demographic, condition related information, pretest and posttest of the hemiplegic patient**.** For spending your time to participate in this self-administered interview which will take around 15-20 minutes. There is list of questionnaires and you need to fill up each answer. The information gained from this questionnaire will be used for academic purpose and will be kept confidential. Your participation in this study is totally voluntarily and you have the right to withdraw from the interview without any clarification at any moment. You can ask any question to the researcher regarding the study to meet up your quarry. Looking forward your kind cooperation.

Declaration of the participant

I have been answered in this survey. The foregoing information has been read to me and that have been answered to my satisfaction. I have noticed that my participation in this study is totally voluntary and I have the right to withdraw from the interview at any clarification. I give my consent voluntarily to be participants in this study.

Signature and Date of Interviewer: ……

Signature and Date of respondent: ……

Signature and Date of witness……...

সম্মতি পত্র

অংশগ্রহণকারী কোড নম্বর:			

প্রিয় অংশগ্রহণকারী,

আমি মো:ফজলে রাব্বি সাইক ইন্সটিটিউট অব মেডিকেল টেকনোলজি (এস আই এম টি) এর বি এস সি ইন ফিজিওথেরাপী বিভাগের চর্তুথ বর্ষের ছাত্র।আমার বি এস সি ইন ফিজিওথেরাপী ডিগ্রী সম্পন্ন করতে গবেষণার অংশ হিসেবে **''হেমিপ্লেজিক রোগের কাধঁ ব্যথার উপর কাধেঁর মবিলাইজেশন এর কার্যকারিতা''** শিরোনামের একটি গবেষণার কাজ করছি। এখানে আপনার রোগের সম্পর্কিত ব্যথা এবং চিকিৎসার পূর্বের এবং পরের অবস্থা সংক্রান্ত বিষয় কিছু প্রশ্ন দেওয়া আছে, যা আপনাকে পূরন এর জন্য আমন্ত্রণ করা হচ্ছে। আপনার নিজের দ্বারা দেওয়ার এই সাক্ষাৎকার দিতে ১৫ থেকে ২০ মিনিট সময় লাগবে। এখানে প্রশ্নাবলীর একটি তালিকা দেওয়া আছে এবং আপনাকে প্রত্যেকটি প্রশ্নের উত্তর দিতে হবে এই গবেষণায় প্রাপ্ত তথ্য শুধুমাত্র শিক্ষা ক্ষেত্রে ব্যবহার করা হবে এবং অংশ গ্রহণকারীর ব্যক্তিগত তথ্য সম্পূর্ণ গোপনীয়তার মধ্যে থাকবে, অন্য কোথাও প্রকাশ করা হবে না। গবেষণা চলাকালীন সময়ে অংশগ্রহণকারী কোন রকম দ্বিধা বা ঝুঁকি ছাড়াই যে কোনো সময় এটাকে বাদ দিতে পারবেন। আপনার একান্ত সহযোগিতা কামনা করছি।

অংশগ্রহণকারীর ঘোষণা

আমাকে এই নিরীক্ষার জন্য আমন্ত্রণ জানানো হয়েছে। আমাকে সম্পূর্ন প্রশ্নগুলো পড়ে বোঝানো হয়েছে এবং আমি কোন ধরনের দ্বিধা ছাড়াই উত্তর দিয়েছি। আমি লক্ষ্য করেছি, এই গবেষণায় আমার অংশগ্রহণ সম্পূর্ণ স্বেচ্ছায় এবং আমি যে কোন সময়ে এটাকে বাদ দিতে পারব, কোনো রকম ঝুঁকি ছাড়াই। আমি এই গবেষণায় অংশ গ্রহণে সম্পূর্ণ সম্মতি জ্ঞাপন করছি।

নিরীক্ষকের স্বাক্ষর এবং তারিখঃ .....

অংশগ্রহণকারী স্বাক্ষর এবং তারিখঃ .....

সাক্ষীর স্বাক্ষর এবং তারিখঃ.....

APPENDIX 2

English questionnaire

Title

Effectiveness of shoulder mobilization on shoulder pain of hemiplegic patient

Part-I: personal details

Cord number: Date:……./……../20…..

Name of participant:……

Address:……

Contact number:

Date of admission on hospital:

Date of occurrence of stroke:

Date of first interview:

Date of interview after physiotherapy:

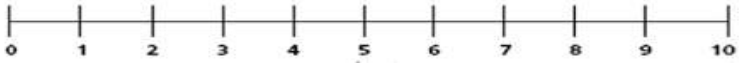
Part-II: Social demographic information

S/N	Question	Response	
1.	Age	…….	
2.	sex	1. Male 2. Female	
3.	Living type	1. Rural area 2. Urban area 3. Semi urban area 4. others	
4.	Educational status	1. illiterate 2. PSC 3. JSC 4. SSC	☐

		5. HSC 6. graduate 7. post graduate 8. masters	
5.	Marital status	1. Married 2. Unmarried 3. Divorced 4. Separated 5. others	
6.	Family type	1. Extended family 2. Nuclear family	
7.	Occupation	1. Doctor 2. Engineers 3. Teacher 4. Farmer 5. Worker 6. Business 7. Student 8. Others	
9.	Monthly income	…….TK	
10.	Religion	1. Islam 2. Hindu 3. Buddhist 4. Christian 5. Other	

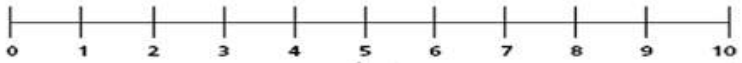
Part-III: condition related information			
1.	What Types of stroke?	1= Hemorrhagic 2= Ischemic 3=TIA	
2.	Affected side of the stroke	1=Right 2=Left	

3.	When did your Shoulder Pain start after stroke?	1. Yes 2. No	
4.	How many days after stroke shoulder pain start?	……..	
5.	Have you any history of previous stroke?	1. Yes 2. No	
6.	Did you have any Past History of trauma at the shoulder joint?	1=Yes 2=No	
7.	Did you get any treatment for Shoulder pain after stroke?	1= Yes 2=No If answer is Yes, please answer 8	
8.	What type of Intervention have you taken?	1=Medication 2=Physiotherapy 3=Other	
9.	Past medical history	1=Diabetes Mellitus 2=Hypertension 3= Other	☐
10.	What is the behavior of your pain?	1=Intermittent 2= Constant 3= Not applicable	☐ ☐

Part IV: Pre Test			
S/N	Question	Response	
1.	Intensity or severity of pain?	**NPRS scale**  Ref: McCaffery, M., Beebe, A., et al. (1989). Pain: Clinical manual for nursing practice, Mosby St. Louis, MO	

2.	What is the Nature of your pain?	i. Sharpe ii. Dull iii. Shooting iv. Burning v. Other	
3.	Active ROM of affected shoulder.	Flexion ……..degree Extension ……...degree Adduction ……degree Abduction ……..degree Medial Rotation ……...degree Lateral Rotation ……..degree	
4.	Passive ROM of affected shoulder	Flexion ……..degree Extension ……...degree Adduction ……degree Abduction ……..degree Medial Rotation ……...degree Lateral Rotation ……..degree	
5.	Which the grade of shoulder muscle power? (graded by oxford muscle grading i. Grade-0: no contraction ii. Grade-i: flicker contraction iii. Grade-ii: AROM with gravity eliminated position iv. Grade-iii : AROM against gravity	Flexion ……..degree Extension ……...degree Adduction ……degree Abduction ……..degree Medial Rotation ……...degree Lateral Rotation ……..degree	

	v. Grade-iv : AROM against gravity some resistance vi. Grade-v: normal movement)		
6.	Functional activity		
	a. When wearing clothes any pain?	1=Yes 2=No	
	b. Have you feel any pain at rest?	1=Yes 2=No	
	c. Have you feel any Pain Start with movement?	1=Yes 2=No	
	d. Do you feel any pain during overhead activity	1=Never 2=Sometime 4=All time 5=I cannot take my hand over the head	

Part IV: Post Test			
S/N	Question	Response	
1.	Onset of pain		
2.	Intensity or severity of pain?	**NPRS scale**  Ref: McCaffery, M., Beebe, A., et al. (1989). Pain: Clinical manual for nursing practice, Mosby St. Louis, MO	
3.	What is the Nature of your pain?	vi. Sharpe vii. Dull	

		viii. Shooting ix. Burning x. Other	
4.	Active ROM of affected shoulder.	Flexion ……. degree Extension ……. degree Adduction ……degree Abduction ……. degree Medial Rotation ……. degree Lateral Rotation ……. degree	
5.	Passive ROM of affected shoulder	Flexion ……..degree Extension ……...degree Adduction ……degree Abduction ……...degree Medial Rotation ……...degree Lateral Rotation ……..degree	
6.	Which the grade of shoulder muscle power (graded by oxford muscle grading i. Grade-0: no contraction ii. Grade-i: flicker contraction iii. Grade-ii: AROM with gravity eliminated position iv. Grade-iii : AROM against gravity v. Grade-iv : AROM against gravity some resistance		

	vi. Grade-v: normal movement)		
7.	Functional activity		
	a. When wearing clothes any pain?	1=Yes 2=No	
	b. Have you feel any pain at rest?	1=Yes 2=No	
	e. Have you feel any Pain Start with movement?	1=Yes 2=No	
	c. Do you feel any pain during overhead activity	1=Never 2=Sometime 4=All time 5=I cannot take my hand over the head	

বাংলা প্রশ্নাবলী

হেমিপ্লেজিক রোগের কাধঁ ব্যথার উপর কাধেঁর মবিলাইজেশন এর কার্যকারিতা

পার্ট ১ : ব্যক্তিগত বিবরণ তারিখ:...../...../....

অংশগ্রাহকের নাম : কোড নাম্বার:

টিকানা:

যোগাযোগের নাম্বার:

হাসপাতালে ভর্তির তারিখ:

স্ট্রোক কবে ঘটেছিল :

প্রথম সাক্ষাৎকারের তারিখ:

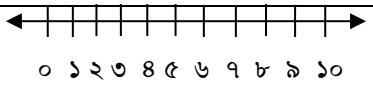
ফিজিওথেরাপির পরের ইন্টারভিউ এর তারিখ:

পার্ট ২ : সামাজিক জনতাত্ত্বিক তথ্য			
সিরিয়াল নং	প্রশ্ন	প্রতিক্রিয়া	
১.	বয়স	.....	
২.	লিঙ্গ	১. পুরুষ ২. মহিলা	
৩.	আবাসিক অবস্থা	১. গ্রাম ২. শহর ৩. সেমি শহর ৪. অন্যান্য	
৪.	শিক্ষাগত যোগ্যতা	১. নিরক্ষর ২. পিএসসি ৩. জেএসসি ৪. এসএসসি ৫. এইচএসসি ৬. স্নাতক ৭. স্নাতকোওর ৮. মাস্টার্স	
৫.	বৈবাহিক অবস্থা	১. বিবাহিত ২. অবিবাহিত ৩. বিবাহন্ধন বিচ্ছেদ ৪. আলাদা	

		৫. অন্যান্য	
৬.	পারিবারিক অবস্থা	১. যৌথ পরিবার ২. একক/অনু পরিবার	
৭.	পেশা	১. ডাক্তার ২. প্রকৌশলী ৩. শিক্ষক ৪. কৃষক ৫. কর্মী ৬. ব্যবসা ৭. ছাত্র ৮. অন্যান্য	
৮.	মাসিক আয়	.....	
৯.	ধর্ম	১. ইসলাম ২. হিন্দু ৩. বৌদ্ধ ৪. খ্রিস্টান ৫. অন্যান্য	

পার্ট ৩ : অবস্থা সম্পর্কিত তথ্য			
১.	স্ট্রোক কি ধরনের?	১. হেমোরেজিক ২. ইসচেমিক ৩. টিএইএ (ট্রানসিয়েন্ট ইসচেমিক এটাক)	
২.	আক্রান্ত পাশ বা কোন পাশ স্ট্রোকের পরে আক্রান্ত হয়েছে?	১. ডান ২. বাম	
৩.	আপনার কাঁধে ব্যথা স্ট্রোক পর থেকে শুরু হয়?	১. হ্যাঁ ২. না	
৪.	স্ট্রোকের কত দিন পর থেকে কাঁধ ব্যথা করছে?	.....	
৫.	পূর্ববর্তী স্ট্রোকের ইতিহাস আছে?	১. হ্যাঁ ২. না	
৬.	আপনার কাঁধে আঘাত এর কোন অতীত ঘটনা আছে?	১. হ্যাঁ ২. না	
৭.	স্ট্রোক পরে কাঁধের ব্যথা জন্য আপনি কোন চিকিৎসা নিয়েছিলেন?	১. হ্যাঁ ২. না	

		যদি উত্তর হ্যাঁ হয়, অনুগ্রহ করে উত্তর ৮নং দিবেন	
৮.	আপনি কি ধরনের চিকিৎসা গ্রহণ করেছেন?	১. ওষুধপ্রয়োগ ২. ফিজিওথেরাপি ৩. অন্যান্য	
৯.	পূর্বের রোগের ইতিহাস	১. ডায়াবেটিস ২. উচ্চ রক্তচাপ ৩. অন্যান্য	
১০.	আপনার ব্যথার ধরণ কেমন?	১. কিছুক্ষন পর পর ২. সব সময় ৩. গ্রহনযোগ্য নয়	

পার্ট ৪: চিকিৎসার পূর্বের			
১.	ব্যথা তীব্রতা		
২.	আপনার ব্যথা প্রকৃতি বা ধরণ কি?	১. তীব্র ২. নিস্তেজ বা তীব্র নয় এমন ৩. গুলির মত ৪. জ্বলন্ত ৫. অন্যান্য	
৩.	আক্রান্ত কাঁধের একটিভ রেঞ্জ অফ মোশন	১=ফ্লেকশন ..... ডিগ্রী ২=এক্সটেনশন ..... ডিগ্রী ৩=এবড্রাকশন..... ডিগ্রী ৪=এডাকশন ..... ডিগ্রী ৫=এক্সট্রর্নাল রোটেশন ..... ডিগ্রী ৬=ইনট্রর্নাল রোটেশন..... ডিগ্রী	
৪.	আক্রান্ত কাঁধের প্যাসিভ রেঞ্জ অফ মোশন	১=ফ্লেকশন ..... ডিগ্রী ২=এক্সটেনশন ..... ডিগ্রী ৩=এবড্রাকশন ..... ডিগ্রী ৪=এডাকশন ..... ডিগ্রী ৫=এক্সট্রর্নাল রোটেশন ..... ডিগ্রী ৬=ইনট্রর্নাল রোটেশন..... ডিগ্রী	
৫.	কাঁধের পেশীর পেশী শক্তির গ্রেড (অক্সফোর্ড মাসল গ্রেডিং)		

	ক. গ্রেড-০: কোনো সংকোচন হবে না খ. গ্রেড-১: অল্প সংকোচন হবে গ. গ্রেড-২: মাধ্যাকর্ষণের দিকে একটিভ রেঞ্জ অফ মোশন করতে পারে না ঘ. গ্রেড-৩: মাধ্যাকর্ষণেন দিকে একটিভ রেঞ্জ অফ মোশন করতে পারে ঙ. গ্রেড-৪: কিছু প্রতিরোধ করলে মাধ্যাকর্ষণ দিকে একটিভ রেঞ্জ অফ মোশন করতে পারে চ. গ্রেড-৫: সাধারণ চলাফেরা		
৬.	কার্যকরী কার্যকলাপ		
	ক. কাপড় পরার সময় কোন ব্যথা হয়?	১. হ্যাঁ ২. না	
	খ. আপনি বিশ্রামের সময় কোন ব্যথা অনুভব করছে?	১. হ্যাঁ ২. না	
	গ. আপনার ব্যথা কি চলাফেরা করলে শুরু হয়?	১. হ্যাঁ ২. না	
	ঘ. আপনার মাথার উপরের কার্যকলাপ সময় কোন ব্যথা অনুভব করেন?	১. হয় না ২. মাঝে মাঝে ৩. সব সময় হয় ৪. মাথার উপরের হাত নিতে পারি না	

পার্ট ৫: চিকিৎসার পরের			
১.	ব্যথা শুরু	.....	
২.	ব্যথা তীব্রতা	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০	
৩.	আপনার ব্যথা প্রকৃতি বা ধরণ কি?	৬. তীব্র ৭. নিস্তেজ বা তীব্র নয় এমন ৮. গুলির মত ৯. জ্বলন্ত ১০. অন্যান্য	
৪.	আক্রান্ত কাঁধের একটিভ রেঞ্জ অফ মোশন	১=ফ্লেকশন ..... ডিগ্রী ২=এক্সটেনশন ..... ডিগ্রী ৩=এবড্রাকশন..... ডিগ্রী	

		৪=এডাকশন ..... ডিগ্রী ৫=এক্সট্রানাল রোটেশন ..... ডিগ্রী ৬=ইনট্রানাল রোটেশন..... ডিগ্রী	
৫.	আক্রান্ত কাঁধের প্যাসিভ রেঞ্জ অফ মোশন	১=ফ্লেকশন ..... ডিগ্রী ২=এক্সটেনশন ..... ডিগ্রী ৩=এবড্রাকশন ..... ডিগ্রী ৪=এডাকশন ..... ডিগ্রী ৫=এক্সট্রানাল রোটেশন ..... ডিগ্রী ৬=ইনট্রানাল রোটেশন..... ডিগ্রী	
৬.	কাঁধের পেশীর পেশী শক্তির গ্রেড (অক্সফোর্ড মাসল গ্রেডিং) ক. গ্রেড-০: কোনো সংকোচন হবে না খ. গ্রেড-১: অল্প সংকোচন হবে গ. গ্রেড-২: মাধ্যাকর্ষণের দিকে একটিভ রেঞ্জ অফ মোশন করতে পারে না ঘ. গ্রেড-৩: মাধ্যাকর্ষণেন দিকে একটিভ রেঞ্জ অফ মোশন করতে পারে ঙ. গ্রেড-৪: কিছু প্রতিরোধ করলে মাধ্যাকর্ষণ দিকে একটিভ রেঞ্জ অফ মোশন করতে পারে চ. গ্রেড-৫: সাধারণ চলাফেরা		
৭.	কার্যকরী কার্যকলাপ		
	ক. কাপড় পরার সময় কোন ব্যথা হয়?	১. হ্যাঁ ২. না	
	খ. আপনি বিশ্রামের সময় কোন ব্যথা অনুভব করছে?	১. হ্যাঁ ২. না	
	গ. আপনার ব্যথা কি চলাফেরা করলে শুরু হয়?	১. হ্যাঁ ২. না	
	ঘ. আপনার মাথার উপরের কার্যকলাপ সময় কোন ব্যথা অনুভব করেন?	১. হয় না ২. মাঝে মাঝে ৩. সব সময় হয় ৪. মাথার উপরের হাত নিতে পারি না	

Functional outcome of the patients							
1.	**Control group**						
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Extension	05	05	0	Extension	50	45	5
Adduction	05	05	0	Adduction	35	30	5
External Rotation	10	05	5	External Rotation	20	20	0
Internal Rotation	15	10	5	Internal Rotation	30	30	0
2.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	0	0	0	Flexion	120	100	20
Abduction	0	0	0	Abduction	125	95	30
Adduction	0	0	0	Adduction	15	10	5
Internal Rotation	0	0	0	Internal Rotation	25	20	5
3.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
			0				**0**
4.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Extension	50	50	0	Extension	55	50	5
Abduction	155	150	5	Abduction	180	175	5
5.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	0	0	0	Flexion	170	160	10
Abduction	0	0	0	Abduction	160	140	20
6.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	120	90	30	Flexion	170	160	10
Extension	20	10	10	Extension	30	30	0
Abduction	120	90	30	Abduction	160	150	10
External Rotation	5	0	5	External Rotation	15	10	5
Internal Rotation	10	0	10	Internal Rotation	20	5	15
7.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Extension	0	0	0	Extension	50	40	10
8.							

AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Abduction	0	0	0	Abduction	180	175	5
9.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	50	20	30	Flexion	150	120	30
Extension	20	10	10	Extension	40	40	0
Abduction	50	20	30	Abduction	140	90	50
External Rotation	15	10	5	External Rotation	25	20	5
Internal Rotation	20	15	5	Internal Rotation	30	25	5
10.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	120	70	50	Flexion	180	140	40
Extension	40	30	10	Extension	50	40	10
Abduction	130	90	40	Abduction	180	140	40
Adduction	20	0	20	Adduction	40	20	20
External Rotation	15	10	5	External Rotation	20	15	5
Internal Rotation	40	30	10	Internal Rotation	45	40	5
11.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	130	90	40	Flexion	180	170	10
Extension	15	5	10	Extension	45	45	0
Abduction	120	80	40	Abduction	180	170	10
Adduction	10	0	10	Adduction	30	20	10
External Rotation	20	15	5	External Rotation	30	30	0
Internal Rotation	25	15	10	Internal Rotation	40	35	5

Experimental Group							
1.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	180	75	105	Flexion	180	180	0
Extension	40	10	30	Extension	40	40	0

Abduction	180	90	90	Abduction	180	175	5
Adduction	35	30	5	Adduction	45	45	0
External Rotation	30	15	15	External Rotation	40	30	10
Internal Rotation	40	20	20	Internal Rotation	50	50	0
2.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	80	60	20	Flexion	180	180	0
Extension	15	10	5	Extension	50	30	20
Abduction	60	50	10	Abduction	180	180	0
Adduction	5	5	0	Adduction	50	40	10
3.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	120	90	30	Flexion	150	100	50
Extension	25	20	5	Extension	35	20	15
Abduction	110	85	25	Abduction	140	100	40
Adduction	5	0	5	Adduction	35	10	15
External Rotation	10	10	0	External Rotation	30	20	10
Internal Rotation	5	0	5	Internal Rotation	15	10	5
4.							
AROM	Post	Pre	Outcome	PROM	Post	Pre	Outcome
Flexion	85	60	25	Flexion	180	180	0
Extension	25	20	5	Extension	40	30	10
Abduction	85	60	25	Abduction	180	180	0
Adduction	10	5	5	Adduction	40	40	0
External Rotation	5	0	5	External Rotation	20	15	5
Internal Rotation	5	0	5	Internal Rotation	30	15	15
5.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	40	10	30	Flexion	180	180	0
Extension	10	5	5	Extension	60	60	0
Abduction	45	15	30	Abduction	180	180	0
Adduction	5	0	5	Adduction	50	50	0
External Rotation	5	0	5	External Rotation	40	30	10
Internal Rotation	10	0	10	Internal Rotation	50	50	0

6.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	0	0	0	Flexion	170	150	20
Extension	0	0	0	Extension	45	40	5
Abduction	0	0	0	Abduction	180	160	20
Adduction	0	0	0	Adduction	35	20	15
External Rotation	0	0	0	External Rotation	50	30	20
Internal Rotation	0	0	0	Internal Rotation	55	35	20
7.							
AROM	Post	Pre	Outcome	PROM	Post	Pre	Outcome
Flexion	60	30	30	Flexion	180	180	0
Extension	20	10	10	Extension	50	45	5
Abduction	50	20	30	Abduction	180	180	0
Adduction	10	0	10	Adduction	40	40	0
External Rotation	15	5	10	External Rotation	45	45	0
Internal Rotation	20	5	15	Internal Rotation	50	50	0
8.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	60	30	30	Flexion	180	180	0
Extension	30	20	10	Extension	50	50	0
Abduction	50	40	10	Abduction	180	170	10
Adduction	15	5	10	Adduction	40	40	0
External Rotation	15	5	10	External Rotation	45	30	15
Internal Rotation	25	10	15	Internal Rotation	50	45	5
9.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	140	110	30	Flexion	180	170	10
Extension	35	25	10	Extension	60	50	10
Abduction	150	125	25	Abduction	180	175	5
Adduction	15	10	5	Adduction	50	45	5
External Rotation	20	10	10	External Rotation	50	40	10
Internal Rotation	45	20	25	Internal Rotation	55	50	5
10.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	140	95	45	Flexion	180	180	0

Extension	25	15	10	Extension	60	60	0
Abduction	145	100	45	Abduction	180	180	0
Adduction	15	10	5	Adduction	40	40	0
Internal Rotation	30	25	5	Internal Rotation	50	40	10
11.							
AROM	**Post**	**Pre**	**Outcome**	**PROM**	**Post**	**Pre**	**Outcome**
Flexion	100	45	55	Flexion	160	110	50
Extension	35	20	15	Extension	40	40	0
Abduction	100	30	70	Abduction	170	120	50
Adduction	20	5	15	Adduction	25	20	5
External Rotation	15	0	15	External Rotation	20	20	0
Internal Rotation	20	0	20	Internal Rotation	30	25	5

SAIC INSTITUTE OF MEDICAL TECHNOLOGY (SIMT)

(A Sister Concern of Saic Educational Society) Reg. S-2711 (124)/2002

Ref : SIMT/Physio/2014-15/08 Date : 18/04/2019

18th April 2019

To

Md.Fazley Rabby

4th Professional B.Sc. in Physiotherapy

SAIC Institute of Medical Technology (SIMT)

Mirpur-13, Dhaka-1216.

Sub: Permission to collect data

Dear Fazley,

Ethical review board (ERB) of SIMT pleased to inform you that your proposal has been reviewed by ERB of SIMT and we are giving permission you to conduct study entitle of "Effectiveness of shoulder mobilization on shoulder pain of hemiplegic patient"and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

18.4.19

Chairman

Ethical Review Board

SAIC Institute of Medical Technology

25.06.19

Dr. Md. Kutub Uddin (PT)

BSC. PT (DU) CRP

Senior Physiotherapist

Physical Medicine & Rehabilitation Unit, Ashulia, Dhaka-1341

18.09.19

Principal

SAIC Institute of Medical Technology

Mirpur-13, Dhaka-1216

Unique Pain & Paralysis Centre

Mirpur-11, Dhaka

Date 09-06-19

Office :

Saic Tower, M-1/6

Mirpur-13, Dhaka-1216.

Mobile : 01936005804

01715067370

বঙ্গবন্ধু শেখ মুজিব মেডিক্যাল বিশ্ববিদ্যালয়
Bangabandhu Sheikh Mujib Medical University
শাহবাগ, ঢাকা-১০০০।

নং-বিএসএমএমইউ/হাসঃ প্রশাঃ/২০১৯/ ২৯১৫ তারিখঃ ১৭/০৬/২০১৯ইং

বরাবর
অধ্যক্ষ
সাইক ইন্সটিটিউট অব মেডিক্যাল টেকনোলজি
মিরপুর-১৩, ঢাকা- ১২১৬, বাংলাদেশ।

বিষয়ঃ থিসিস এর তথ্য-উপাত্ত সংগ্রহের জন্য অনুমতি প্রদান প্রসঙ্গে।

সূত্র নং- এসআইএমটি/ফিজিও/২০১৪-১৫/০৯, তারিখঃ ২২/০৫/২০১৯ইং

জনাব
উপর্যুক্ত বিষয়ের আলোকে জানানো যাচ্ছে যে, আপনার দাখিলকৃত আবেদনপত্র অনুযায়ী বি.এস.সি ৪র্থ বর্ষের ছাত্রী জনাব, মোঃ ফজলে রাব্বি - কে ফিজিক্যাল মেডিসিন এন্ড রিহ্যাবিলিটেশন /নিউরো মেডিসিন বিভাগে/ নিউরো সার্জারি বিভাগ " Effectiveness of shoulder mobilization on shoulder pain of Hemiplegic patients " শীর্ষক এর থিসিসের এর তথ্য-উপাত্ত সংগ্রহের জন্য অনুমতি প্রদান করা হ'ল।

১৭/৬/১৯
(ডাঃ মোঃ খোরশেদ আলম)
উপ-পরিচালক (হাসপাতাল)
বঙ্গবন্ধু শেখ মুজিব মেডিক্যাল বিশ্ববিদ্যালয়
শাহবাগ, ঢাকা।

নং বিএসএমএমইউ/ হাসঃ প্রশাঃ/২০১৯/ ২৯১৫/১(৫) তারিখঃ ১৭/০৬/২০১৯ইং
অনুলিপি সদয় অবগতির জন্য প্রেরণ করা হইলঃ-
১। রেজিস্ট্রার, বিএসএমএমইউ, ঢাকা - ১০০০।
২। প্রক্টর, বিএসএমএমইউ, ঢাকা।
৩। চেয়ারম্যান, নিউরো সার্জারি বিভাগ, বিএসএমএমইউ, ঢাকা।
৪। চেয়ারম্যান, ফিজিক্যাল মেডিসিন এন্ড রিহ্যাবিলিটেশন বিভাগ, বিএসএমএমইউ, ঢাকা।
৫। চেয়ারম্যান, ইন্টারনাল মেডিসিন বিভাগ, বিএসএমএমইউ, ঢাকা।
৬। মাননীয় ভিসি মহোদয়ের একান্ত সচিব, বিএসএমএমইউ, ঢাকা।
৭। প্রো-ভিসি (গবেষণা ও উন্নয়ন/প্রশাঃ/শিক্ষা), ট্রেজারার মহোদয়ের একান্ত/সচিব, বিএসএমএমইউ, ঢাকা।
৮। জনাবা মাহবুবা সাদিয়া মতিন ও প্রিয়াঙ্কা বিশ্বাস বৃষ্টি, সাইক ইন্সটিটিউট অব মেডিক্যাল টেকনোলজি, ঢাকা।
৯। অফিস কপি।

১৭/৬/১৯
(ডাঃ মোঃ খোরশেদ আলম)
উপ-পরিচালক (হাসপাতাল)
বঙ্গবন্ধু শেখ মুজিব মেডিক্যাল বিশ্ববিদ্যালয়
শাহবাগ, ঢাকা।

19 June 2019

To

Chairman

Unique Pain and paralysis center,

Mirpur -11, Dhaka-1216

Subject: **prayer for permission to data collection**

Dear Sir,

With due respect I state that I am a student of final year B.S.C in Physiotherapy at saic institute of medical technology,the topic of my research is "**Effectiveness ofshoulder mobilization on hemiplegic shoulder pain**" for partial fulfillment of Bachelor Degree. To conduct this research, I want to collect data from the hemplegic shoulder, who are taking treatment at unique pain and paralysis center. I would like to assure that anything of my study will not be harmful for the participants.

I therefore, pray and hope that you would be kind enough permit to data collection.Sincerely yours,

Name:**MdFazleyRabby**

4th professional B.SC in physiotherapy

Roll: 023

Session: 2014-15

F/W
+ Centre manager for NTA

19.06.19

Executive Director
Unique Pain & Paralysis Centre

Unique Pain & Paralysis Centre
Date.....
Mirpur-11, Dhaka

Gantt Chart

Activities/Month	Dec 18	Jan 19	Feb 19	March 19	April 19	May 19	Jun 19	July 19	Aug 19	Sep 19	Oct 19	Nov 19
Proposal presentation												
Introduction												
Literature review												
Methodology												
Data collection												
Data analysis												
Result												
1st presentation												
Discussion												
Conclusion & recommendation												
2nd presentation												
Communicate with supervisor												
Final submission												