CHARACTERISTICS OF SHOULDER PAIN AMONG THE STROKE PATIENTS

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

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We the under signed certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

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Declaration

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

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Contents

Acknowledgement

Acronyms

ADL   Activities of Daily Living

BHPI   Bangladesh Heath Professions Institute

CPSP   Central Post Stroke Pain

CRP   Center for the Rehabilitation of the Paralyzed

CVA   Cardio Vascular Accident

HSP   Hemiplegic Shoulder Pain

PT   Physiotherapy

ROM   Range of Motion

SPSS   Statistical Package for the Social Science

NPRS   Numerical Pain Rating Scale

WHO   World Health Organization

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Abstract

Purpose: To identify the characteristics of Shoulder pain among the stroke patients. *Objectives:* To explore the demographic information of the participants; to find out more affected age group; to clarify the onset and behavior of Shoulder pain after stroke; to identify the pain intensity/severity level according to NPR scale; to focus the shoulder pain during movement and to illuminate the shoulder subluxation with pain. *Methodology:* A quantitative cross-sectional study design was chosen to accomplish the objectives of the study. 50 subjects were selected through convenience non random sampling technique from the outpatient's neurology physiotherapy department of CRP. A structural mixed questionnaire was developed through searching of literature. The participants were requested to answer according to the developed format of the question. The answers were entered into SPSS 16 software and analyzed as descriptive statistics. *Results*: The study was conducted on 50 participants of Shoulder pain among the stroke patients. Out of the participant the mean age of the participants was 56.66 (±12.14) years. The most of the participants who had shoulder pain in between 46-55 years of age group among them most of the participants 78% (n=39) were male. More than half of the participants 72% (n=36) came from rural area and 80% (n=40) participants had Ischemic stroke among stroke patients who had shoulder pain. 64% (n=32) participants were onset of shoulder pain in between 2 weeks- 2 months after stroke, 46% (n=23) participants had Shoulder pain by NPR scale in between 5-7 (moderate), 80% (n=40) participants were behavior of shoulder pain is intermitted and 40% (n=20) participants had felt shoulder pain in shoulder Flexion, Abduction and External rotation of shoulder joint. *Conclusion:* The result of the study demonstrates that the characteristics of Shoulder pain among the stroke patients. This result of this study also provided background information about Shoulder pain after stroke that may be useful in prevention and treatment of Shoulder pain.

Key word: Stroke, Shoulder Pain.

CHAPTER-I: INTRODUCTION

1.1 Background

Worldwide, stroke is the second leading cause of death, responsible for at least 4.4 million (9 percent) of total 50.5 million deaths each year (Sudlow & Warlow, 1999). Currently, Stroke is the second leading cause of death in the western world ranking after heart diseases and before cancer and causes 10% of deaths worldwide (Braunwald et al., 2003). According to the World Health Organization, 15 million people suffer stroke worldwide each year (Taylor, 2010). 5 million die and another 5 million are permanently disabled (Engstrom et al., 2001). Stroke is defined by WHO as rapidly developed clinical signs of focal disturbance of cerebral function lasting for more than 24 hours or leading to death without any apparent cause other than vascular origin (Hossain et al., 2011).

A common complication of stroke is hemiplegic shoulder pain that can hamper functional recovery and consequently lead to disability and hemiplegic shoulder pain can begin as early as 2 weeks poststroke but most commonly occurs within 2-3 months poststroke (Gould, 2011). Hemiplegic shoulder pain is often used to describe a collection of complex problems and diagnoses. Because its causes have not been clearly identified, HSP is inherently difficult to define. The onset of hemiplegia can harmfullyaffect the normal mechanics of the shoulder complex through three mechanisms as well as loss of motor control and the development of abnormal movement patterns, secondary changes to surrounding soft tissue and glenohumeral joint subluxation. These changes compromise the stability of the shoulder complex and place individual joints at risk. Any attempts to move the upper limb can result in unproductive movement patterns or damage to surrounding soft tissue (Louise & Kryss, 2001). Lindgren et al. (2006) state thatShoulder pain has been reported to be one of the most common complications after stroke. The incidence varies between 9% and 40% depending on patient group and study design. Many studies have used various terms for shoulder pain, e.g., shoulder pain in hemiplegia, hemiplegic shoulder pain, and post stroke shoulder pain. Sometimes, it is unclear whether only proximal pain in the arm was assessed or if also more distal arm pain was included.

Ward, (2006) also advocate that Shoulder pain is a most common problem after stroke. Its prevalence is variable in up to 70% of patients and it often appears in the first few days. It is an indicator of stroke severity, and 75% of patients complain of pain at some time in the first 12 months following a stroke. Sometimes unclear the mechanisms for the development of pain but, since the attachment of the upper limb to the trunk is muscular rather than directly skeletal, any disruption of muscular action is likely to give biomechanical problems around the shoulder, which can lead to pain. Hemiplegic shoulder pain is associated with a reduced pinch grip and shoulder shrug strength, with abnormal muscle tone, but most importantly, with sensory inattention and sensory loss. Patients with this problem lose movements around the shoulder and, in the context of hypertonia, a typical posture of adduction and internal rotation of the arm is seen.

Walsh (2001) argued that the development of a painful shoulder in the hemiplegic patient is a major and serious problem, because it can limit the patient's ability to reach his or her maximum functional potent. Several etiologies of shoulder pain have been identified, such as immobilization of the upper extremity, trauma to the joint structures, including brachial plexus injuries, and subluxation of the glenohumeral joint. Hemiplegic shoulder pain causes extensive distress and reduced activity and can clearly hinder rehabilitation. The etiology of hemiplegic shoulder pain is probably multi-factorial. The ideal management of hemiplegic stroke pain is prevention. Forprophylaxis to be effective, it must begin immediately after the stroke. Awareness of potential injuries to the shoulder joint reduces the frequency of shoulder pain after stroke. The multidisciplinary team, patients, and careers should be provided with instructions on how to keep away from injuries to the affected limb. This knowledge is essential for the Physiotherapist therapist to evaluate effectively techniques used to treat the patient with hemiplegic shoulder pain. More effective management of this problem will smooth the progress of the patient's ability to reach his or her maximum functional potential.

Lee et al. (2009) also stated that Shoulder subluxation, spasticity, rotator cuff tears, and adhesive capsulitis have been suggested as responsible for shoulder pain in stroke patients. Shoulder complaints are among the commonest causes of musculoskeletal pain after stroke. While many treatments have been employed in the treatment of

shoulder disorders, few have been proven in randomized controlled trials. Physiotherapy is often the first line of management for shoulder pain. This is often managed physiotherapeutically, with 'hands-on' manual therapy and exercises being mainstays. To determine the most effective treatment protocol, it is necessary to understand the cause of shoulder pain.

In developed countries the recovery process of stroke survivors is supported with stroke rehabilitation services. These services reduce disability and increase the chances of a person returning to their own home.

1.2 Rationale

Stroke is a common neurological condition, mostly seen in developing country. Day by day there is increasing the number of stroke patient, in different areas. By the by, there are so many complication may arise after stroke. Shoulder pain is one of the major and serious complications among them. Shoulder pain after stroke has been connected with contracture of the shoulder, glenohumeral subluxation, injury of the axillary nerve, rupture of the rotator cuff, and spasticity of shoulder muscles, and it is associated with poor motor recovery. Prevalence of hemiplegia in South India is 56.9 per 100,000; as compared to 150 to 186 per 100,000 in the USA and Europe. Hemiplegic shoulder pain (HSP) is one of the commonest complications, occurring in about 20-72% of such patients with average figures ranges from 43 to 64 (Joy et al., 2012) and another study in Malaysia reported the prevalence of shoulder pain from 5% and 84% after stroke (Hejazi & Mazlan, 2012).

Shoulder pain may rise in different reasons after stroke. This study will help to find out the characteristics of pain in the shoulder joint from shoulder subluxation, spasticity, and rotator cuff tears by malhandling and also to identify the pain onset after stroke, Severity and behavior of pain andaggravating factor like existing movement, shoulder subluxation of this pain among the stroke patient. By doing this research,to facilitate early identification of patients who may be at risk of developing shoulder pain and this problem may be drawn out and gives proper education about the nature of shoulder pain among the stroke patient. This study will be helpful in making physiotherapist to aware about the pain in shoulder of stroke patient and to avoid the development of shoulder pain in "at risk patients". Physiotherapy plays a vital role in the management of painful hemiplegic stroke patient. So it will also be helpful for physiotherapist working in this area for delivering treatment service. As a result patients become more benefited. Therefore, it is very important for stroke patients to treat shoulder pain properly.

This finding of the study will brought to authority concern for future intervention whereby physiotherapy may extent their cooperation and will take preventive measure in shoulder pain among the stroke patient. Besides this it will be helpful for professional development which is crucial for current situation of the profession.

1.3 Research Question

- What are the characteristics of shoulder pain among the stroke patients?

1.4 Objectives

1.4.1 General objective

- To determined the characteristics of the shoulder pain among the stroke patient.

1.4.2 Specific objectives

- To explore the Socio-demographic information of the participants
- To find out more affected age group.
- To clarify the onset and behavior of Shoulder pain after stroke.
- To identify the pain intensity/severity level according to NPR scale.
- To focus the shoulder pain during movement.
- To illuminate the shoulder subluxation with pain.

1.5 List of variables

Conceptual Framework

Independent variables   **Dependent variable**

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┌─────────────────────────────────────────┐
│      Socio-economic demography           │
│  (Age, Gender, Marital Status, Religion, │ ═══>
│   Residential Area, Education level,     │
└─────────────────────────────────────────┘

┌─────────────────────────────────────────┐
│            Type of stroke                │ ═══>
└─────────────────────────────────────────┘

┌─────────────────────────────────────────┐
│            Causes of pain                │ ═══>
└─────────────────────────────────────────┘

┌─────────────────────────────────────────┐                    ┌──────────────────┐
│          Side of Shoulder pain           │ ═══>        ═══>   │  Shoulder pain   │
└─────────────────────────────────────────┘                    └──────────────────┘

┌─────────────────────────────────────────┐
│          Shoulder Subluxation            │ ═══>
└─────────────────────────────────────────┘

┌─────────────────────────────────────────┐
│        Onset ofpain after Stroke         │ ═══>
└─────────────────────────────────────────┘

┌─────────────────────────────────────────┐
│            Behavior ofpain               │ ═══>
└─────────────────────────────────────────┘

┌─────────────────────────────────────────┐
│      Existing ROM ofShoulder joint       │ ═══>
└─────────────────────────────────────────┘
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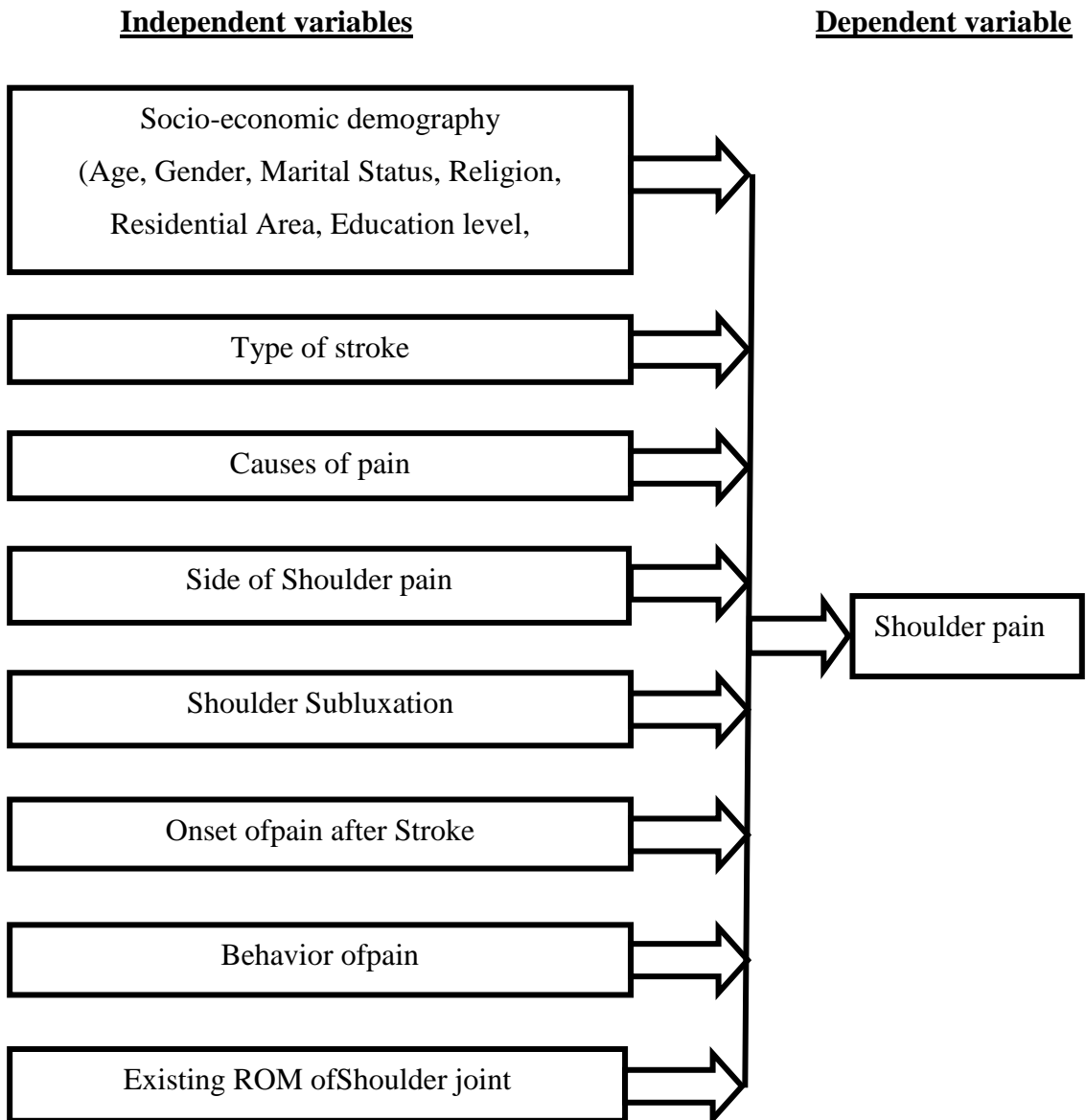
1.6 Operational Definitions

Stroke

WHO defines stroke as rapidly developed clinical signs of focal disturbance of cerebral function lasting for more than 24 hours or leading to death without any apparent cause other than vascular origin.

Hemiplegia / Hemiplegic

It is a condition where the totalparalysis 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

Pain in the shoulder joint is called shoulder pain. It may be occurs by traumatic or pathological history.

CHAPTER-II:	LITERATURE REVIEW

In the Netherlands, each year, 41.000 new cases of stroke are diagnosed. A stroke, or cerebrovascular accident (CVA), is occurred by an obstruction or hemorrhage of a blood vessel supplying blood to the brain. As a result, brain function is (temporarily) disturbed. Many stroke survivors are left with permanent disabilities, including (partial) paralysis, somatosensory deficits, speech and language problems, cognitive deficits, fatigue and emotional or personality changes. In addition, pain is common complication after stroke. Poststroke pain can be a vast burden for the patient, increases hospital stay, reduces quality of life and interferes with functional recovery after stroke (Roosink, 2011). The term 'stroke' is used synonymously with cerebrovascular accident. Shoulder pain is a common complication after stroke and has a great impact on patient rehabilitation (Ikai et al., 1998). The most common forms of chronic post-stroke pain are shoulder pain, CPSP, painful spasticity, and tension-type headache. Shoulder pain is reported in 30–40% of patients with stroke and has been associated with sensory and motor deficits, subluxation, and a limited passive range of movement (Klit et al., 2009).

Immobilization of the upper extremity can occur in the involved side of the body following CVA. This immobilization can be causes to decreased active movement and/or spasticity, both of which can limit passive and active movement. This immobilization can impair circulation in the upper extremity and affect the autonomic nervous system, which may result in a reflex sympathetic dystrophy or shoulder-hand syndrome (Anderson, 1983).The prevalence of shoulder pain, one of the most common sites of pain after stroke, ranges from 11% to 40%, and of CPSP, from 8% to 35%. Thus the incidence of pain after stroke has varied noticeably in previous studies, most probably because of different inclusion criteria, definitions, and means of follow up. The intensity of pain has not been calculated, and little is known about the evolution of pain with time (Jo¨nsson et al., 2006). Shoulder pain can also lessen the functional performance of activities as well as the instrumental activities of daily living. The clinical management of hemiplegic shoulder pain frequently consists of the administration of oral analgesics, intraarticular injection of corticosteroids, the use of physical modalities, and therapeutic exercise (Lo et al., 2003).

Shoulder pain is a common complication after stroke, occurring in up to 84% of persons who have had a stroke (Zorowitz et al., 1996). Shoulder pain is a common complication after a cerebrovascular accident. From 16% to 72% of stroke patients develop hemiplegic shoulder pain (Walsh, 2001). It may occur in up to 80% of stroke patients who have little or no control the movement of the affected upper limb (Ancliffe, 1990). The recovery of a patient following cerebrovascular accident (CVA) is affected by the amount of brain damage and the development of complications. Development of a painful shoulder is one of the serious complications that can hamper with the patient's entire rehabilitation program, as well as ambulation training and self-care activities. A painful shoulder can limit the patient's mobility function, because when a patient protects his or her arm, this restricts both active and passive movements. This limits the patient's activities, such as rolling in bed, transferring, putting on a shirt or blouse, and bending to reach his or her feet to put on shoes and socks. The occurrence of painful shoulders in patients with hemiplegia can be quite high. Single survey founded that the incidence to be as high as 70% (Caldwell et al., 1996).

Shoulder pain in the hemiplegic patient is anincomprehensible problem. Some of the study suggested that the etiologies of shoulder pain include immobilization of the upper extremity, trauma to the joint structures, and subluxation of the glenohumeral joint. However, shoulder pain often develops from a combination of these problems. Abnormal tone (both spasticity and flaccidity) has been suggested as an etiological factor in hemiplegic shoulder pain. However, clinical observations suggest that shoulder pain does not occur until spasticity develops. Most authorities agree that the etiology of hemiplegic shoulder pain is probably multi-factorial (Walsh, 2001).

Dromerick et al. (2006) also implicate 2 vertical stabilizers of the humerus namely the long head of the biceps and the supraspinatus in early onset hemiplegic shoulder pain. During the primary period following a stroke the hemiplegic arm is flaccid or hypotonic. This is why the shoulder muscles are unable to anchor the humeral head within the glenoid cavity, resulting in a high risk of shoulder subluxation. Shoulder subluxation is associated with pain. During this period, the affected extremity should be properly supported; the weight of the arm itself may be enough to cause subluxation. Glenohumeral subluxation may also occur as a result of adopting

incorrect sleeping postures, lack of support when the patient is in a vertical position or tension on the hemiplegic arm when the patient is being moved from one place to another (Murie-Fernández et al., 2012).

Kalichman & Ratmansky (2011) reported that prevalence of HSP is approximately 22%-23% in the general population of stroke survivors and approximately 54%-55% among stroke patients in rehabilitation settings. It hampers with effective rehabilitation programmed of upper limb in hemiplegia, thereby, compromising functional recovery and prolonging hospital stay. Good management of patients can reduce both the frequency and intensity of shoulder pain, improving functional outcome. There are not enough studies done to establish incidence of HSP with various risk factors (Kumar et al., 1990).The primary cause of HSP is not fully understood. According to involvement of anatomical structures, the causes of HSP may be due to; (i) rotator cuff tear, (ii) over-stretching of ligaments and muscles, like supraspinatus and deltoid, (iii) spasticity, (iv) muscle trigger points, (v) subacromial bursitis, (vi) tendinitis of long head of biceps tendon, (vii) adhesive capsulitis, (viii) Impingement syndromes, (ix) reflex sympathetic dystrophy, (x) brachial plexopathy and (xi) central pain syndromes (Teasell et al., 2003).

Shoulder pain is a common and potentially disabling condition affecting stroke survivors. The incidence of shoulder pain after stroke varies considerably, but the most recent data suggest almost one-third of people experience shoulder pain within the first four months after stroke (Lindgren et al., 2007). While the etiology of shoulder pain after stroke remains unclear, it appears related to the severity of motor impairments in the upper limb, loss of external rotation range of movement and development of soft tissue damage within the shoulder joint complex (Turner-Stokes & Jackson, 2002). Shoulder pain after stroke has been associated with poor recovery of upper limb activity, increased length of hospital stay (Roy et al., 1994), disturbed sleep (Küçükdeveci et al., 1996), and depression (Wanklyn et al., 1996; Gamble et al., 2000).Shoulder subluxation is considered to be a problem because it causes shoulder pain and hinders the recovery of upper limb function. It has been suggested that subluxation causes shoulder pain by overstretching the soft tissues (such as the capsule, ligaments and muscles) surrounding the shoulder (Ada&Foongchomcheay, 2002). However, most studies report no significant correlation between subluxation

and pain (Bohannon and Andrews, 1990; Zorowitz et al., 1996). It is now thought that subluxation is only one of several factors that can cause shoulder pain after stroke. On the other hand, there is evidence to suggest that shoulder subluxation is associated with poor upper limb function (Hanger et al., 2000) and reflex sympathetic dystrophy (Dursun et al., 2000). Therefore, its prevention should be an important part of upper limb rehabilitation. After stroke, as a result of paralysis, the gravitational pull on the humerus causes stretching of the capsule of the shoulder joint, resulting in inferior subluxation. Glenohumeral subluxation may also occur as a result of adopting incorrect sleeping postures, lack of support when the patient is in a vertical position, or tension on the hemiplegic arm when the patient is being moved from one place to another. This is why subluxation is the cause of pain in a hemiplegic shoulder (Murie-Fernández et al., 2012).

Shoulder pain and stiffness is a serious and frequent problem in patients following stroke (Roy et al., 1994). The incidence has been reported to be as high as 84 per cent (Dean et al., 2000). Shoulder pain and stiffness often prevent the patient's full participation in rehabilitation and contribute to poor outcome in upper limb function following stroke. Shoulder pain and stiffness may be due to several factors following stroke. Glenohumeral joint subluxation due to lack of muscular activity around the shoulder is common, although a strong relationship between subluxation and pain has not been supported (Zorowitz et al., 1996).

As epidemiological studies have shown that painful restriction of the glenohumeral joint affects 21% of community-dwelling people aged over 70 years per annum, it is not surprising that shoulder pain is a common feature during the lengthy rehabilitation process after stroke. The reported frequency of hemiplegic shoulder pain syndrome varies from 5% to 84% of stroke patients (Dromerick&Reding, 1994). Despite the high frequency of hemiplegic shoulder pain syndrome, the literature is full of conflicting reports about the epidemiology, risk factors, and etiology of hemiplegic shoulder pain syndrome. Symptoms can appear in the first weeks after the stroke, or develop much later (Poulin de Courval et al., 1990). Risk factors for hemiplegic shoulder pain syndrome identified in the literature include glenohumeral subluxation, hemineglect, spasticity, flaccidity, and prior shoulder pathology (Gamble et al., 2002). Several clinical diagnoses have been proposed as causes of hemiplegic shoulder pain

syndrome, including rotator cuff tendonitis or tears, subacromial bursitis, bicipital tendonitis; diffuse shoulder pain or adhesive capsulitis, brachial neuralgias, sympathetically mediated pain, and referred pain (Braus et al., 1994). The presence of hemiplegic shoulder pain syndrome is associated with poorer motor recovery, though a causal link has not been made (Roy, 1994).

Walsh (2001) noted that shoulder pain might be occurred by passive abduction of the hemiplegic arm can result in rotator cuff injury. So, therapeutic range of motion exercises done by the patients can involve passive abduction of the arm. Kumar et al. (1990) analyzed the occurrence of pain in patients receiving three different rehabilitation exercise programs: range of motion by the therapist, use of a skateboard, and use of an overhead pulley. They found that patients who used the overhead pulley had the highest risk of developing shoulder pain and concluded that use of the pulley should be avoided during stroke rehabilitation.

The rotator cuff is the term for all of the tendons pertaining to a group of 4 muscles: the subscapularis, which rotates the arm inwardly; the supraspinatus, which raises the arm and separates it from the trunk; the infraspinatus, which aids in raising the arm during external   rotation; and the teres minor, which also rotates the arm externally. This muscle group is frequently injured; typical injuries include strains, tendinitis, impingement, bursitis and sprains. The supraspinatus is the most commonly affected muscle. Its tendon runs below the bone and is susceptible to compression by the acromion. Degenerative changes are common in rotator cuff muscles, and they may contribute to PHS. The incidence of rotator cuff strain in hemiplegic patients is between 33%, 31 and 40%, while this percentage in the general population ranges from 20% to 40%. In the general population, shoulder pain is very often associated with abnormalities in this muscle group. It is therefore not surprising that a certain number of patients with PHS would also be affected (Murie-Fernández et al., 2012).

In the early flaccid phase following the stroke, tissues in the area of the glenohumeral joint are especially susceptible to trauma due to traction in the joint, incorrect passive movements and the effect of gravity (Krotenberg, 1990), all of which can contribute to muscle strain (Bender & McKenna, 2001).

Spasticity is defined as a velocity dependent increase in muscle tone, associated with a hyperactive stretch reflex. This symptom is part of upper motor neuron syndrome. Under normal circumstances, muscular balance is maintained between the different muscle pairs (agonists—antagonists). Following a stroke, muscular balance may be altered as muscle groups affected by spasticity become dominant. This produces the typical posture that reflects a spastic muscle pattern. Flexor tone is dominant in the upper limbs, resulting in retraction and depression of the scapula, in addition to internal rotation and adduction of the shoulder (subscapularis, pectoralis major, teres major and latissimusdorsi). The subscapularis and pectoralis muscles are the ones most involved in this process. The subscapularis is one of the shoulder's internal rotators, and it also contributes to arm abduction and extension from a flexed position. Subscapularis muscle spasticity limits abduction, flexion and external rotation (Murie-Fernández et al., 2012).

Zorowitz et al. (1996) state that limitation of external rotation in the hemiplegic shoulder is the factor most closely linked to PHS, and mentioned that this problem specifically to the subscapularis. The pectoralis major performs flexion, adduction and internal rotation of the arm. This muscle is important when abduction is more limited than external rotation (Hecht, 1995, p.248-55).

Murie-Fernández et al. (2012) focus that spasticity are one of the main factor and the one most commonly involved in the onset of PHS. This argument is based on the possibility that musculoskeletal alterations occurring after the stroke are associated with PHS. In fact, PHS incidence is higher than normal among patients with spasticity, regardless of the intrinsic pathology affecting the shoulder. Poulin et al. (1990) state that patients with PHS show significantly more spasticity in the affected limb than in limbs that are pain-free.

Poor handling and positioning of the affected upper limb in stroke patients contribute toward shoulder pain. The mobility of the recovering stroke patient is dependent on the assistance of nurses, therapists, doctors, other additional staff, and family members. It is also dependents on his/her own efforts. The Handling, positioning, and transferring on a day-to-day basis can exert great stress on the vulnerable shoulder. The problem may be exacerbated by the patient's sensory and perceptual deficits.

There has been concern that trauma to the constituent components of the shoulder joint may be caused by poor handling of the patient's affected arm (Walsh, 2001).

Wanklyn et al. (1996) studied the prevalence of hemiplegic shoulder pain and associated factors in patients with stroke. Sixty three percent of the patients developed hemiplegic shoulder pain in the first six months after their stroke. Patients who needed help with transfers were more likely to develop hemiplegic shoulder pain. Certainly, patients with noticeably decreased voluntary movement after a cerebrovascular accident usually experience shoulder joint mal-alignment or subluxation in the early stages of recovery.

Careful positioning and handling of the limb are thought to prevent hemiplegic shoulder pain, but there is a range of opinions about how correct limb positioning is best achieved (Jesperson et al., 1995). Brauset al., (1994) investigated the efficacy of an information and education programmed in the prevention of hemiplegic shoulder pain. All members of the diagnostic and therapeutic team as well as patients and their family were provided with instructions on how to avoid injuries to the affected limb. The investigators found that awareness of potential injuries to the structures of the shoulder joint reduced the frequency of shoulder pain from 27% to 80%.

CHAPTER–III:	METHODOLOGY

3.1 Study design

Quantitative research approach was applied to determine the characteristics of the shoulder pain among the stroke patient in the form of a cross sectional designs wereused for this study. This design involves identifying group of people and then collecting the information that might be requires when they use the particular service. Survey research is one of the most common forms of research that involves the asking a large group of people questions about a particular topic or issue and these are related to the interest of the participant. Survey is a method of collecting data which involves the measuring relevant sample variables (often using s questionnaire) without any form of manipulation or systemic intervention .The idea with the survey usually approaches a sample of target group of interest, interviews them or ask them questionnaire .

3.2 Study population

A population is the total group or set of events or totality of the observation on which a research is carried out. In this study, sample populations were selected from the participant of Centre for the Rehabilitation of the paralyzed (CRP), Savar, Dhaka.

3.3 Study site

Centre for the Rehabilitation of paralyzed (CRP).Savar, Dhaka.

3.4 Study area

Neurology unit of the Centre for the rehabilitation of the paralyzed.

3.5 Sampling

Nonrandom convenient sampling was applied to select sample.

3.6 Sample size

For this study it was determinate to focus his study by 322 samples following the calculation. But as the study was done as a part of fourth professional academic

research project and there were some limitations, so in this study it was limited with 50 cutting and finishing operators as sample.

Sampling procedure for cross sectional study done by following equation-

$$n = \left\{ \frac{\left(z\left(1-\frac{\alpha}{2}\right)\right)}{d} \right\}^2 \times pq$$

Here,

$$z\left(1 - \frac{\alpha}{2}\right) = 1.96$$

p= 0.7

q= 1-p

d= 0.05

Where

n = sample size

$$Z\left(1 - \frac{\alpha}{2}\right)$$ = linked to 95% confidence interval (use 1.96)

p = expected prevalence (as fraction of 1)

q = 1- p (expected non-prevalence)

d = margin of error at 5% (standard value of 0.05)

3.7 Inclusion and Exclusion criteria

3.7.1 Inclusion criteria
- Both male and female selected who had stroke.
- Both ischemic and hemorrhagic types of stroke with shoulder pain.
- All age group was selected who have shoulder pain after stroke.

3.7.2 Exclusion criteria
- Patient and caregiver who are not voluntarily agreed to participate in the study.
- Patient who has history of trauma like as fracture in the shoulder joint.
- Have other type of neurological disorder except stroke.

3.8 Sampling technique

For this study convenience sampling technique are used due to the time limitation and also for the small size of population and as it was the one of the easiest, cheapest and quicker method of sample selection. Samples were selected from Centre for the Rehabilitation of the paralyzed (CRP) at Savar, Dhaka by using inform consent.There are a lot of patients, from this population it was selected 50 samples, according to the inclusion and exclusion criteria.

3.9 Data collection tools

Pen, Pencil, Paper, Eraser, Clip board, Laptop, Structural Questionnaires were used as data collection tools.

3.10 Data analysis plan

For this study descriptive analysis procedure are used to analyze collected data. Here researcher has been find out percentages, average for data. And Data were analyzed in Microsoft office Excel 2007 using a SPSS 16 version software programmer.

3.11 Ethical consideration

- It should be ensured by the investigator that it would maintain the ethical issue at all aspects of the study. Because it is the crucial part of the all form of research.
- For Conducting this research ethical committee have checked the proposal and allowed to carry out the research project. The formal permission was taken from the head of the physiotherapy department to collect the data.
- All the participants and authority were informed about the purpose of the study.
- The entire interviews were taken in a comfort feeling and confidential place.
- Researcher ensures the confidentiality of participants and shares the information only with research supervisor. The assessment files were strictly secured and it was not open in front others without researcher.

3.12 Informed consent

For this study participants were selected conveniently for this study according to the inclusion and exclusion criteria and inform the study objective properly by using consent form.Participant for the interview were explained clearly about the study and verbally informed that their information would be published but their name and address would not be used in any means in the study project. The interview note and recording word would not be shared or discussed with other. The study would not harm or embarrasses her or him in order to participant in the study. Participants also ensure that their participation was voluntary and they can reject or withdraw from the study any time.

3.13 Limitations

There were a number of limitations and barriers in this research project which had affect the accuracy of the study, these are as follow:

- The main limitation of the study was its short duration that may have affected the result of the study. For better it would take more time.

- Sample selected from Neurology outdoor of C.R.P due to limitation of time and accessibility. But it needed to collect samples from different places and organizations in Bangladesh to make it generalized.

- Sample was drawn with convenient sampling technique which had possible chance to selection bias. For receiving physiotherapy treatment, we get only few stroke patient with shoulder pain came to the physiotherapy department at CRP. Most of the patients are not represented all over populated of Bangladesh, so most of the shoulder pain after stroke patients did not participate in this study.

- Total number of sample was 50 which were very small in number to generalize the result.

- The researcher was a 4th year B.Sc. in physiotherapy student and this was his first research project. He had limited experience with techniques and strategies in terms of the practical aspects of research. As it was the first survey of the researcher so might be there were some mistakes by the researcher.

Age group

The study was conducted on 50 participants of Shoulder pain after stroke patient. Out of the participant the mean age of the participants was 56.66 (±12.14) years. The range is 55 with minimum age 25 years and maximum 80 years. Among the participants the higher numbers of the participants were 55 years and the numbers were 8 (16%). The number of ≤50 years were 15 (30%) and >50 were 35 (70%).

Age Groups	Number (n)	Percentage (%)
25-35 Years	2	4
36-45 Years	7	14
46-55Years	17	34
56-65 Years	14	28
66-75 Years	8	16
>75 Years	2	4
Total	**50**	**100**

Table-1: Age group of the participants.

Gender

Among the 50 Participants, majority of the participant were had male and the number were 39 and Female were 11. In percentage, 78% were male and 22% were female. The people of male are more vulnerable than the female.
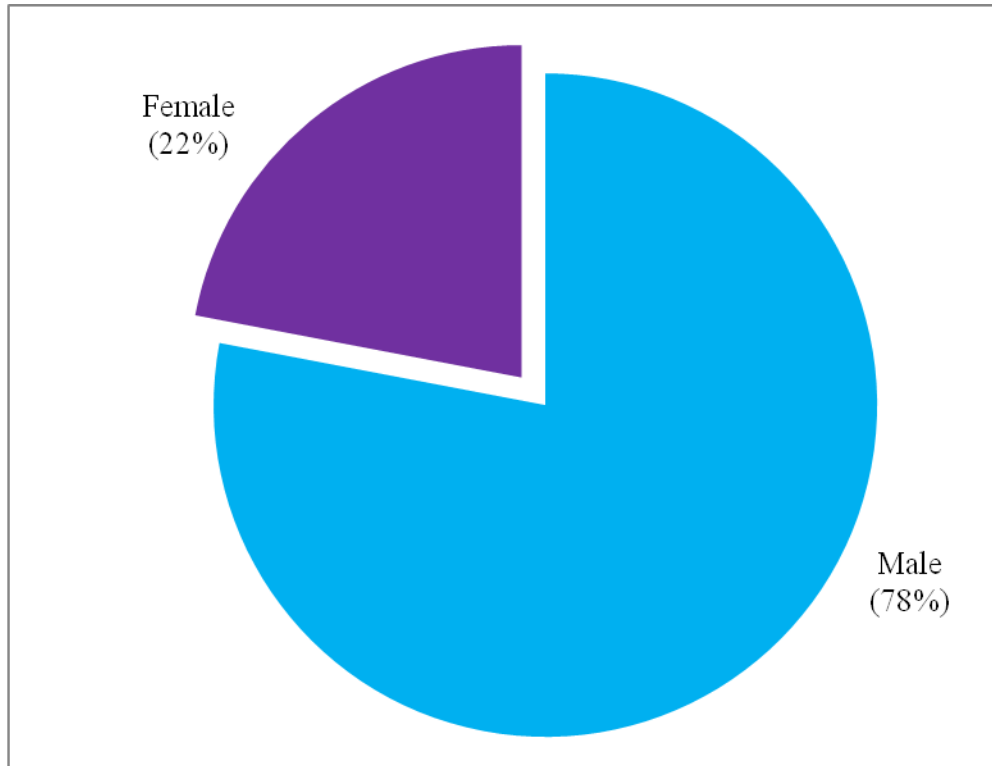
Figure-1: Sex of the participants.

Marital Status

Among the 50 participants 48 participants were married, and 2 participants were unmarried. In percentage 96% participants were married and 4% participants were unmarried.
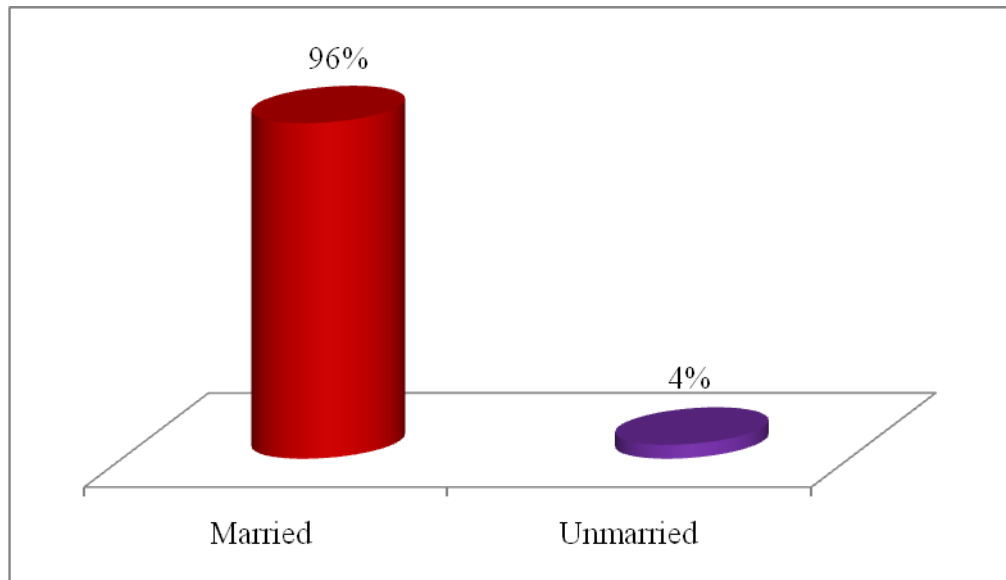
Figure-2: Marital Status of the Participants.

Religious

Among the 50 participants 43 participants were Islam, 6 participants were Hindu and 1 participant were Budhu. In percentage 86% participants were Islam, 12% participants were Hinduism and 2% participant were Budhu.
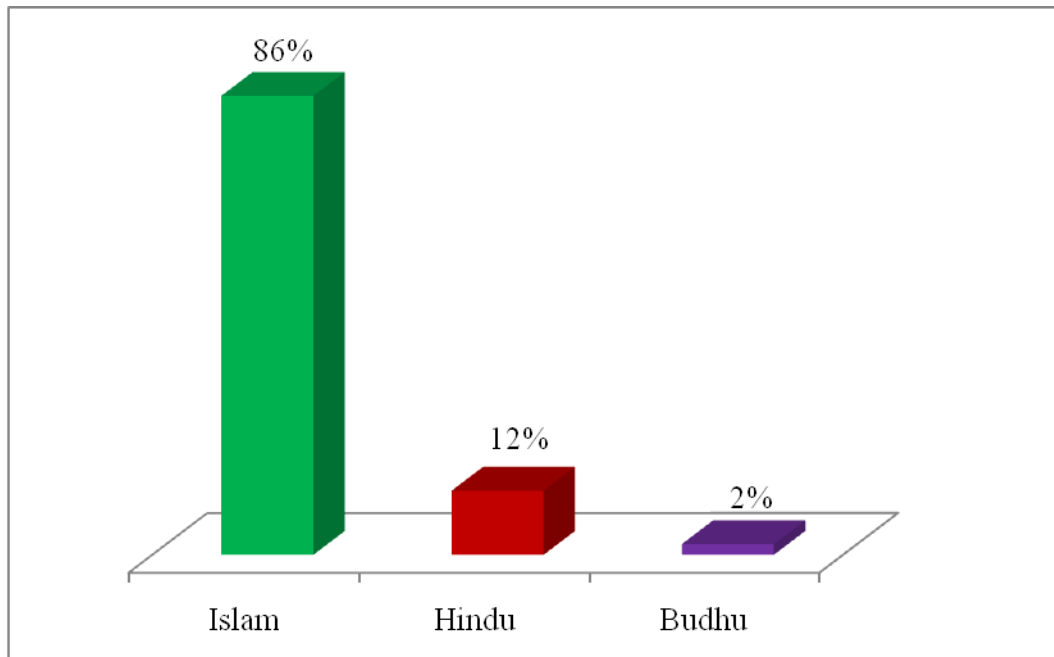
Figure-3: Religious of the Participants.

Residential Area

Among the 50 participants, 36 participants were rural and 14 participants were urban. In percentage, urban participants were 28% and rural participants were 72%.
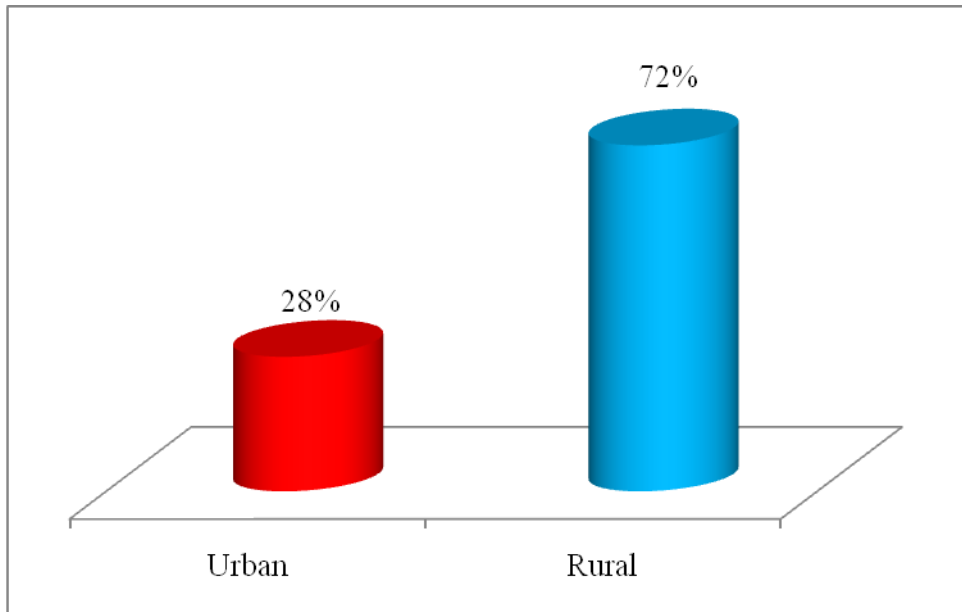
Figure-4: Residential area of the participants.

Educational Status

Among the 50 participants 2 participants never attended school, 4 participants had some primary education, 7 participants completed primary education, 7 participants had some secondary education, 9 participants completed secondary education, 7 participants had higher secondary education, and 14 participants have Bachelor or above. In percentage 4% participants never attended school, 8% participants had some primary education, 14% participants completed primary education, 14% participants had some secondary education, 18% participants completed secondary education, 14% participants had higher secondary education, and 28% participants have Bachelor or above.
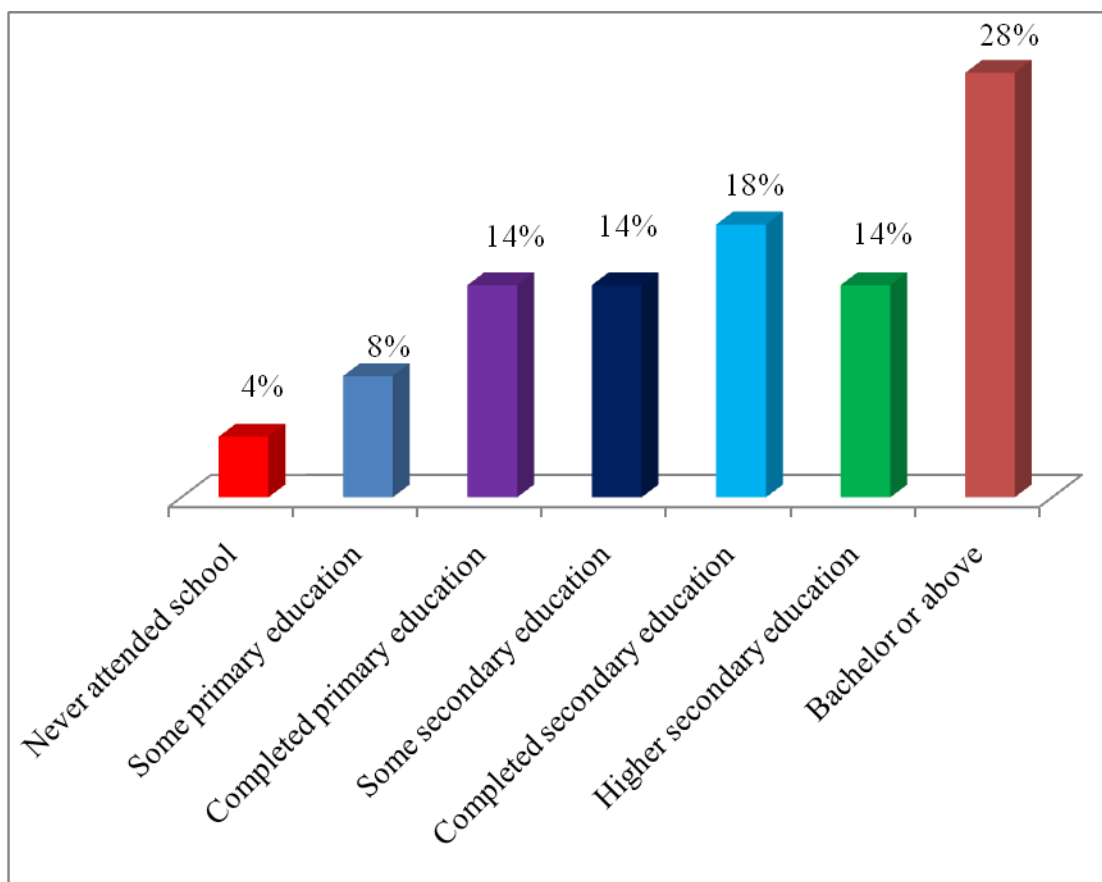
Figure-5: Educational Status of the participants.

Occupation

Among the 50 participants 4 participants were agriculture, 3 participants were driver, 13 participants were businessman, 2 participants were day laborer, 1 participant were unemployed, 9 participants were house wife, 7 participants were teacher and 11 participants were others occupation. In percentage 8% participants were agriculture, 6% participants were driver, 26% participants were businessman, 4% participants were day laborer, 2% participant were unemployed, 18% participants were house wife, 14% participants were teacher, and 22% participants were others occupation.
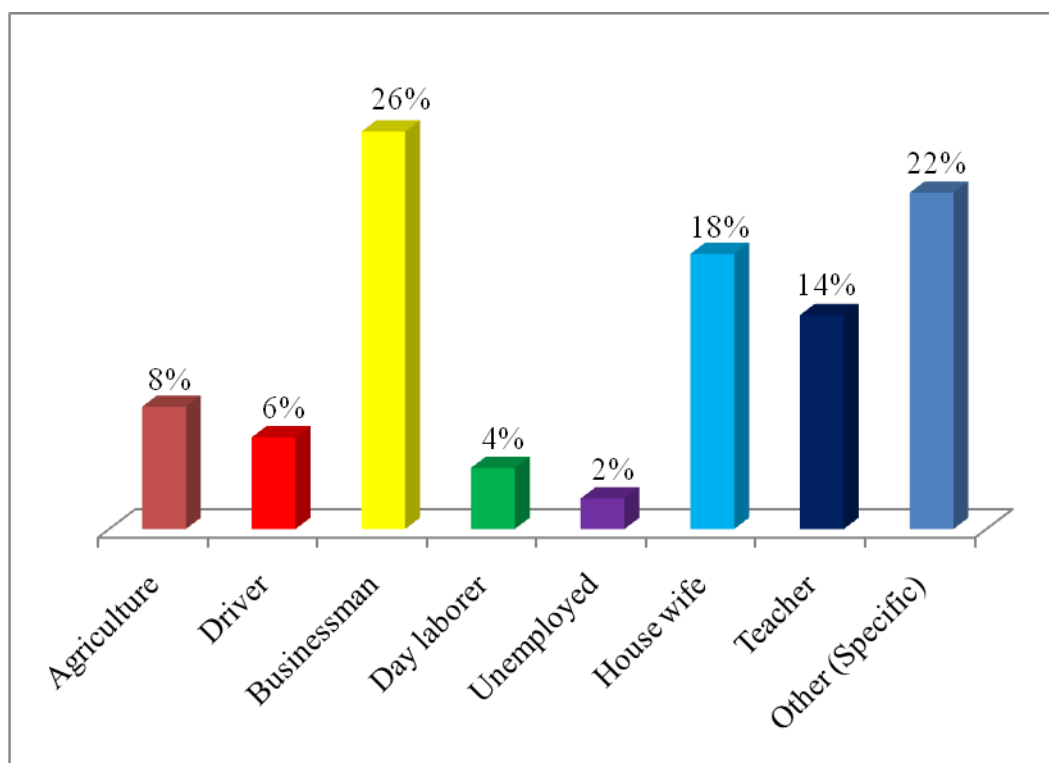
Figure-6: Occupation of the participants.

Types of stroke

Among the 50 participants 40 participants were ischemic type of stroke and 10 participants were hemorrhagic type of stroke. In percentage 80% participants were ischemic type of stroke and 20% participants were hemorrhagic type of stroke.
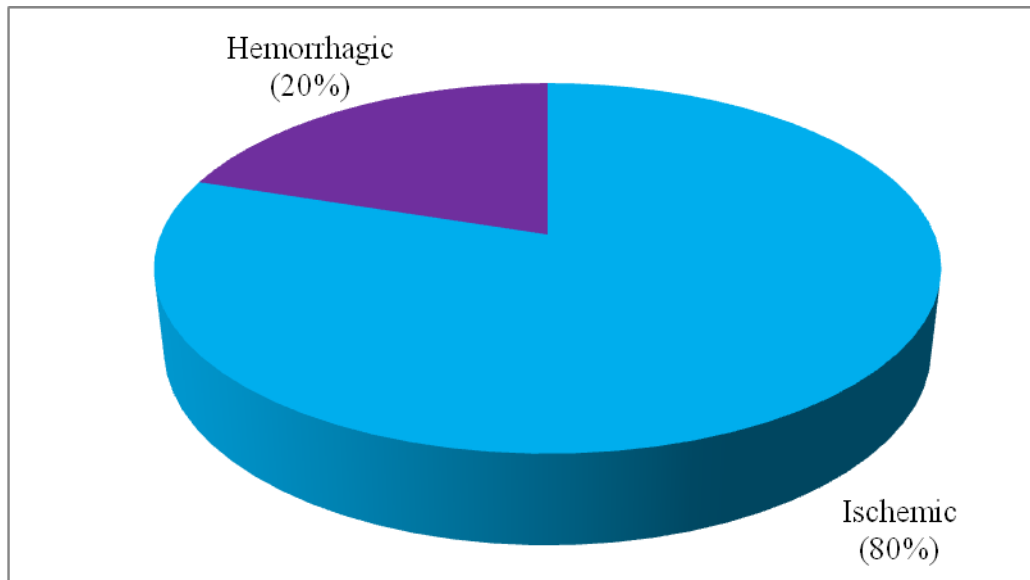
Figure-7: Type of stroke of the participants.

Side of shoulder pain

Among the 50 participant 26 participants were right side shoulder pain after stroke and 24 participants were left side shoulder pain after stroke. In percentage, 52% participants were right side shoulder pain and 48% participants were left side shoulder pain after stroke.
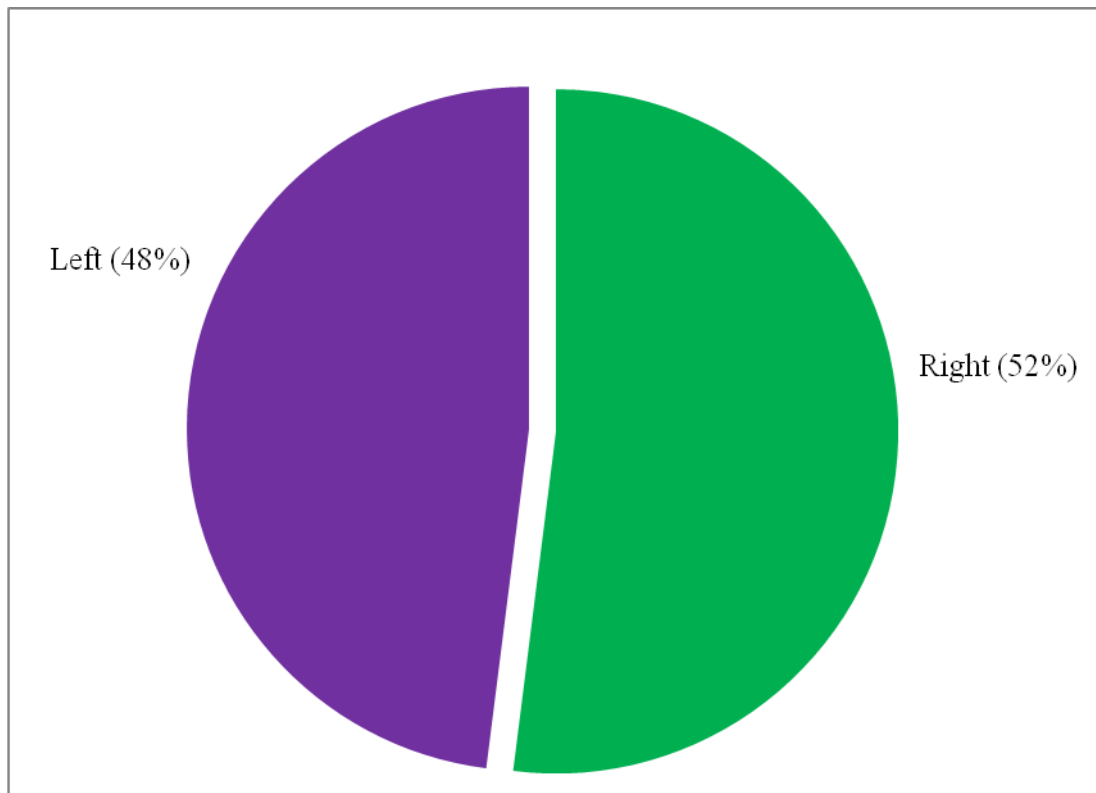
Figure-8: Side of shoulder pain of the participants.

Onset of Shoulder Pain after Stroke

Among the 50 participants 15 participants were 0-2 weeks start shoulder pain after stroke, 32 participants were 2 weeks-2 months start shoulder pain after stroke, 3 participants were >2 months start shoulder pain after stroke. In percentage 30% participants were 0-2 weeks start shoulder pain after stroke, 64% participants were 2 weeks-2 months start shoulder pain after stroke, 6% participants were >2 months start shoulder pain after stroke.
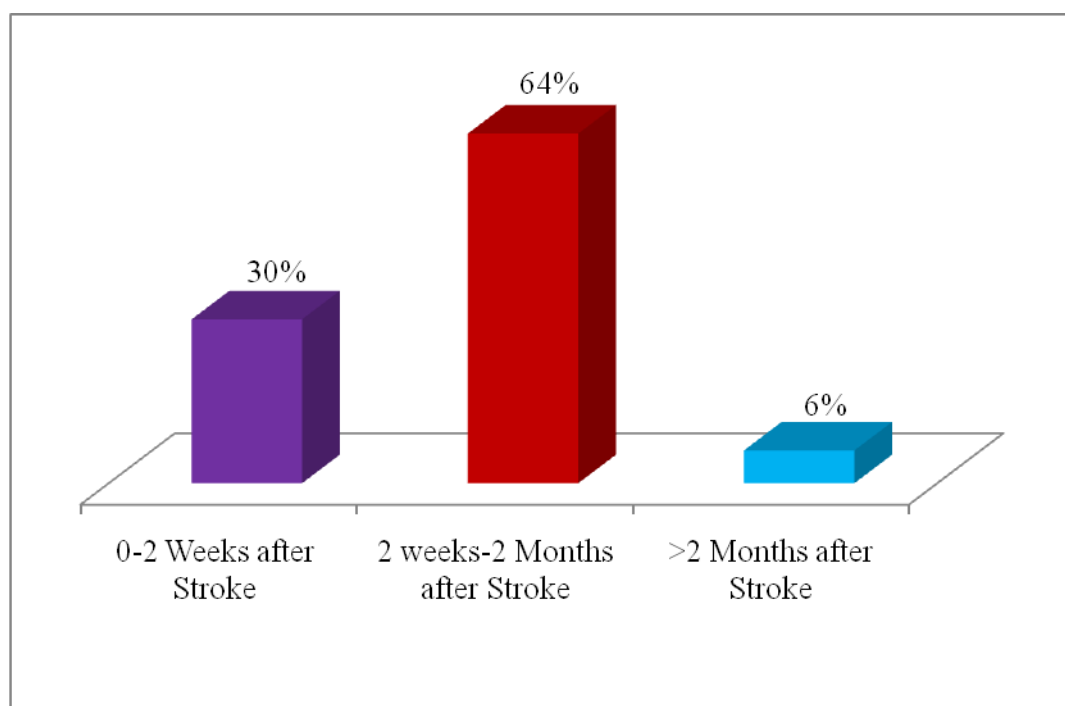
Figure-9: Onset of Shoulder pain after stroke of the participants.

Severity of shoulder pain

Among the affected participants who were suffering from shoulder pain after stroke, the severity of pain in NPR scale was in between 1-4 (mild pain) in 38% (n=19) shoulder pain, in between 5-7 (moderate pain) in 46% (n=23) shoulder pain and there were 16% (n=8) participants who had score in between 8-10 (severe pain) in NPR scale.

Severity in NPR scale	Number (n)	Percentage (%)
Mild (1-4)	19	38
Moderate (5-7)	23	46
Severe (8-10)	8	16
Total	**50**	**100**

Table-2: Severity of the Shoulder joint pain by NPR scale of the participants.

Pain Behavior

Among the 50 participants 10 participants were felt continuous shoulder pain, 40 participants were felt intermitted shoulder pain, and 1 participant had no pain. In percentage 20% participants were felt continuous shoulder pain, 80% participants were felt intermitted shoulder pain after stroke.
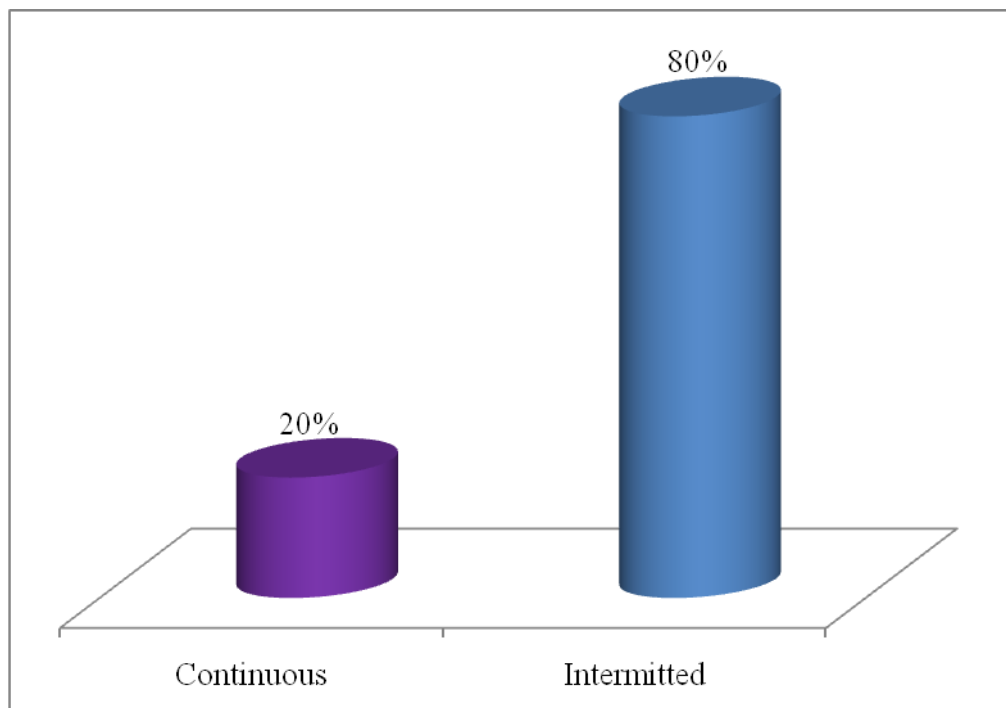
Figure-10: Pain Behavior of the participants.

Shoulder pain during movement

Among the 50 participants, 1 participant had felt pain in Abduction, 12 participants had felt pain in Flexion and abduction, and 2 participants had felt pain in Flexion, Extension, Abduction and Adduction, and 1 participant had felt pain in Flexion, Extension, External rotation and Internal rotation, and 6 participants had felt pain in Flexion, Extension, Abduction and External rotation, and 20 participants had felt pain in Flexion, Abduction and External rotation, and 7 participants had felt pain in Flexion, Extension and Abduction, and 1 participants were not applicable. In percentage, 2% participant had felt pain in Abduction, 24% participants had felt pain in Flexion and abduction, and 4% participants had felt pain in Flexion, Extension, Abduction and Adduction, and 2% participant had felt pain in Flexion, Extension, External rotation and Internal rotation, and 12% participants had felt pain in Flexion, Extension, Abduction and External rotation, and 40% participants had felt pain in Flexion, Abduction and External rotation, and 14% participants had felt pain in Flexion, Extension and Abduction, and 2% participants were not applicable.
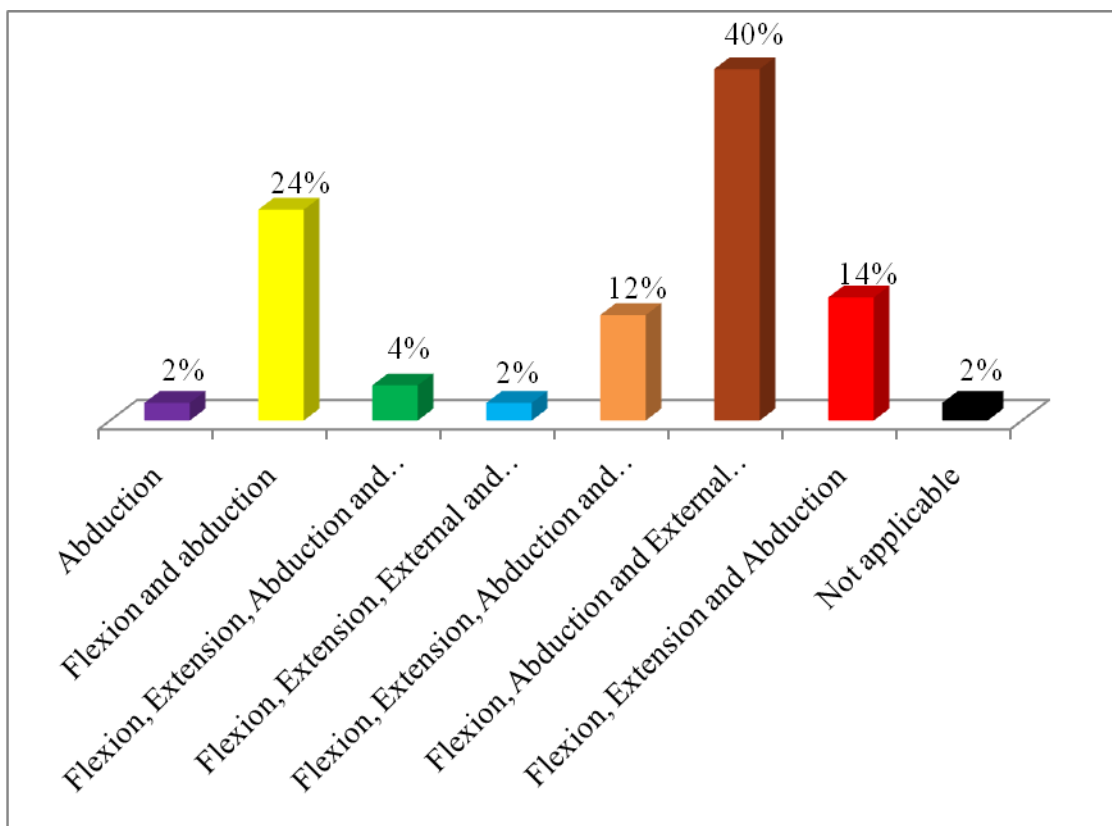
Figure-11: Shoulder pain during Movement of the participants.

Shoulder pain with shoulder subluxation

Among the 50 participants 18 participants were present of subluxation with shoulder pain and 32 participants were absent of subluxation with shoulder pain. In percentage, 36% participants were present of subluxation with shoulder pain and 64% participants were absent of subluxation with shoulder pain.
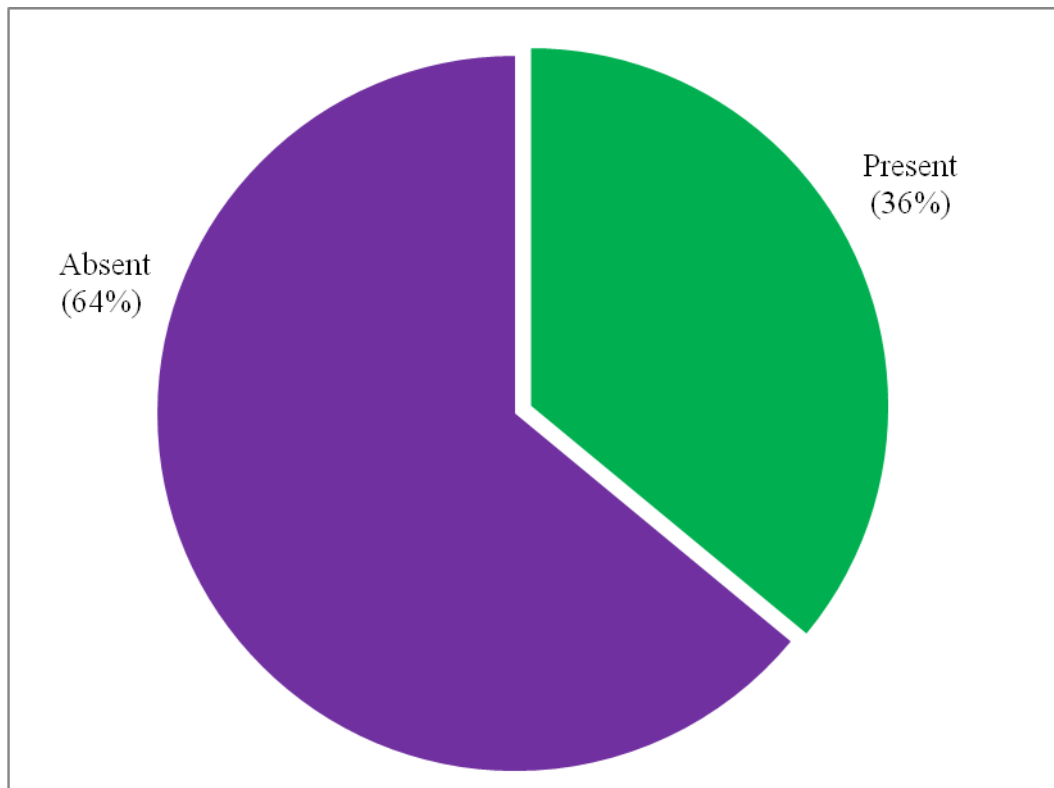
Figure-12: Shoulder pain with shoulder subluxation of the participants.

Cross tabulation between Age group and Sex

The study was conducted on 50 participants of Shoulder pain after stroke patient. Most of the participants where age group 46-55 years were male (n=11) and female (n=6).

Age groups	Gender		Total
	Male	Female	
25 – 35 Years	1	1	2
36 - 45 Years	6	1	7
46 - 55 Years	11	6	17
56 - 65 Years	13	1	14
66 - 90 Years	8	2	10
Total	**39**	**11**	**50**

Table-3: Cross tabulation between Age group and Sex of the participants.

Cross tabulation between age groups and Severity of the shoulder pain

Among the 50 participants, most of the participants were age group 56-65 years had felt mild pain (n=7), 46-55 years age group had felt moderate pain (n=11), and 56-65 years age group had felt severe pain (n=3).

Age groups	Severity of the shoulder pain by NPR scale			Total
	Mild(1-4)	Moderate(5-7)	Severe(8-10)	
25-35 Years	1	1	0	2
36-45 Years	2	4	1	7
46-55 Years	4	11	2	18
56-65 Years	7	4	3	14
66-75 Years	4	2	2	8
>75 Years	1	1	0	2
Total	**19**	**23**	**8**	**50**

Table-4**:** Cross tabulation between age and Severity of the shoulder pain of the participants.

Cross tabulation between type of Stroke and severity of the Shoulder pain

Among the 50 participants, most of the participants of Ischemic type of stroke were felt mild pain (n=14), moderate pain (n=20), and severe pain (n=6) on NPR scale rather than hemorrhagic stroke.

Type of stroke	Severity of the Shoulder pain by NPR scale			Total
	Mild(1-4)	Moderate(5-7)	Severe(8-10)	
Ischemic	14	20	6	40
Hemorrhagic	5	3	2	10
Total	**19**	**23**	**8**	**50**

Table-5**:** Cross tabulation between type of Stroke and severity of the Shoulder pain among the participants.

Cross tabulation on type of stroke and side of the shoulder pain

Among the 50 participants, most of the participants of Ischemic type of stroke were felt pain on right side (n=20) and left side (n=20) shoulder pain rather than Hemorrhagic type of stroke.

Type of stroke	Side of Shoulder Pain		Total
	Right	Left	
Ischemic	20	20	40
Hemorrhagic	6	4	10
Total	**26**	**24**	**50**

Table-6: Cross tabulation between Type of stroke and Side of Shoulder Pain of the participants.

Cross tabulation between pain onset and severity of the shoulder pain

Among the 50 participants, most of the participants had felt mild pain (n=12), Moderate pain (n=14) and Severe (n=6) pain were onset of shoulder pain during 2 weeks-2 Months after Stroke.

Pain Onset after stroke	Severity of the Shoulder pain by NPR scale			Total
	Mild(1-4)	Moderate(5-7)	Severe(8-10)	
0-2 Weeks after Stroke	6	7	2	15
2 weeks-2 Months after Stroke	12	14	6	32
>2 Months after Stroke	1	2	0	3
Total	**19**	**23**	**8**	**50**

Table-7: Cross tabulation between pain onset after stroke and severity of the shoulder pain by NPR scale of the participants.

Fifty participants had participated in this study. The study was done under the cross-sectional survey design. The aims of this study was to find out characteristics of shoulder pain among the stroke patients along with more affected age group, sex, pain onset and severity of pain and pain behavior and so on. Shoulder pain is a well known and common complication after stroke.The findings from this study support that shoulder pain is a common problem (Lingdgren et al., 2007) that can occur early after stroke (Dromerick et al., 2008). Several factors, including weakness, alteredmotor control, joint stiffness, subluxation, and sometimes also paralysis of the upper limb may responsible for this cause of shoulder pain.

Age is one of variable in this study. Here the mean age is 56.66 (±12.14) years; other study in Washington (Dromerick et al., 2008) shows mean age 57.30 (±25.20) years.

In this study where male is 78% and female is 22%. Another study in India was shows (Joy et al., 2012) male is 61.5%% and female is 38.5%.

In this study, 4% were never attended school, 8% were some primary education, 14% were completed primary education, 14% were some secondary education, 18% were completed secondary education, 14% were higher secondary education, and 28% were Bachelor or above among the participants educational status. Here (Salbach et al., 2006) shows in America 29% were none primary, secondary 37% and college-university 34%.

This study shows 80% were ischemic and 20% were hemorrhagic stroke among participant. Other study on shoulder pain in hemiplegic patients in Turkey (Demirci et al., 2007) shows that 71.8% ischemic and 28.2%hemorrhagic stroke.

In this study, 52% were right sided hemiplegia and 48%were left sided hemiplegia had complain shoulder pain after stroke. In Washington a study about Hemiplegic Shoulder Pain Syndrome: Frequency and Characteristics during Inpatient Stroke

Rehabilitation by the Dromerick et al., (2008) showed that the Left sided hemiplegia 24 (52%) and Right sided hemiplegia 22 (48%) had felt shoulder pain.

This study shows the duration of Shoulder pain after stroke where 30% were 0-2 weeks, 64% were 2 weeeks-2 months, 6% were >2 months. In Sweden a study about shoulder pain after stroke by Lindgern et al., (2007) show that the duration of Shoulder pain after stroke where 55% were 0-2 weeks, 30% were 2 weeeks-2 months, 11% were >2 months. Comparison of these results explore that, his study does not support this study because there are some variation in environment, participants etc.

Among the participants who were suffering from shoulder pain after stroke, the severity of pain in NPR scale was in between 1-4 (mild pain) in 38% (n=19) shoulder pain, in between 5-7 (moderate pain) in 46% (n=23) shoulder pain and in between 8-10 (severe pain) in 16% (n=8) shoulder pain in NPR scale. Another study in Sweden (Lindgern et al., 2007) shows 79% had complained moderate–severe shoulder pain in NPR scale.

In my study, I find out most of the participant complain their behavior of pain80 % (n=40) participants were felt intermitted shoulder pain, and 20% (n=10) participants were felt continuous shoulder pain after stroke.

In this study rural participants more affected than the urban participants.Where rural participants were 72% (n=36) and urban participant were 28% (n=14).

CHAPTER-VI: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In the world, stroke is considered as the 3rd leading cause of death and it is becoming a major threat of Neurological disability in population of Bangladesh. Bangladesh is a developing country with low socio-economic condition where people are not enough concerned about health. Health services are not sufficient in the Government and non-government sector. There are so many complications arise among the stroke patient like as pressure sore, bronchopneumonia, spasticity, shoulder pain, abnormal reaction etc. According to literature it was revealed that shoulder pain is more common among this complication after stroke. Development of shoulder pain is more common complication in stroke patients. Evaluation of post-stroke pain should be part of stroke follow-up. This study shows the characteristics of the shoulder pain among the stroke patients. From this data results, it was focused that shoulder pain more male than the female, in rural patients shoulder pain are more developed. The ischemic types of stroke are also more vulnerable for shoulder pain complication. The onset of shoulder pain after stoke are common in 2 weeks to 2 months and had felt moderate pain on NPR scale and maximum participants compliant that the pain behavior is intermittent in nature. Majority of the participants produce pain during passive shoulder flexion, abduction and external rotation movement and shoulder subluxation are sometimes responsible for shoulder pain. Physiotherapy has been used in the treatment of hemiplegic shoulder pain by applying various therapeutic measures. In Bangladesh the physiotherapy started after liberation war. Most of the people are not enough familiar about physiotherapy. They consider it only as exercise. To make a bright future of physiotherapy it is essential to increase awareness about physiotherapy and effectiveness of early physiotherapy interventions for patient. In Bangladesh physiotherapy is a developing professions which is dominated by other health professionals due to lack of standard manpower. For this reason it is important to develop local evidence based practice. Evidence based practice is significant to find out the absolute reason of achieving the treatment goals and improvement. Last of all, this research has tried to represent the characteristics of the shoulder pain among the stroke patient.

6.2 Recommendations

The aim of this study was to explore the characteristics of shoulder pain among the stroke patient and the result that the researcher found from the study has fulfilled the aim of this research project. The researcher recommended the following things-

- Should take more samples for generating the result and make more valid and reliable.
- Should take more samples for pilot study to establish the accuracy of the questionnaire.
- Sample should collect from different hospital, clinic, institute and organization in different district of Bangladesh to generalize the result.
- This study can also accomplish with other individual functional problems.
- To find out an effective and efficient result in generalized form, other measurement scale should be used in consideration.
- To achieve more improvement more time with greater concentration of physiotherapy was needed.

This is an undergraduate study and doing the same study at graduate level will give more precise output. There were some limitation of this study mentioned at the relevant section; it is recommended to overcome those limitations during further study.

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Appendix-1

Verbal Consent Statement

(Please read out to the participants)

Assalamualaikum/Namasker, my name is N.M. Mahmudul Hasan, I am conducting this study for a B.Sc-in-Physiotherapy project study dissertation titled "Characteristic of shoulder pain among the stroke patient." under Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related information regarding Shoulder pain. You will perform some tasks which are mention in this form. This will take approximately 20-30 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. The researcher is not directly related with this stroke Rehabilitation area, so your participation in the research will have no impact on your present or future jobs in this area. All information provided by you will be continue the services as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous and also all information will be destroyed after completion of the study. Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview.

If you have any query about the study or your right as a participant, you may contact with me and/or my supervisor Ehsanur Rahman, Lecturer, Department of Physiotherapy, BHPI, Savar, Dhaka.

Do you have any questions before I start?

So, may I have your consent to proceed with the interview or work?

Yes

No

Signature of the Participant _____

Date…………………

Signature of the Interviewer _____

Date…………………..

Questionnaire

Socio-demographic:

QN	Questions	Responses
1.	Name:	
2.	Age:	………year
3.	Sex:	1=Male 2=Female
4.	Address:	
5.	Date of interview:	………………….. Day/month/year
6.	Marital Status:	1=Married 2=Unmarried 3=Divorced 4=Separated 5=Widow
7.	What is Your Religion	1=Islam 2=Hindu 3=Others
8.	Your Residential Area	1=Urban 2=Rural
9.	What is Your Education	1=Never attended school 2=Some primary education 3=Completed primary education 4=Some secondary education 5=Complete secondary education 6=Higher secondary 7=Bachelor or above 8=Other (specify):………….

10.	What is Your Occupation	1=Rickshaw puller
		2=Agriculture
		3=Factor/garments worker
		4=Driver
		5=Businessman
		6=Day laborer
		7=Unemployed
		8=House wife
		9=Teacher
		10=Other (specify)………
11.	Type of Stroke	1=Ischemic
		2=Hemorrhagic

Shoulder pain related:

1.	Which is your dominant side?	1=Right
		2=Left
2.	In which side of shoulder pain?	1=Right
		2=Left
3.	When did your Shoulder Pain start after stroke?	…………………. Day/Month/Year
4.	Have you feel any pain at rest?	1=Yes
		2=No
5.	Pain when dressing?	1=Yes
		2=No
6.	Pain onset after stroke?	1=0–2 weeks after stroke
		2=2 weeks–2 months after stroke
		3=>2 months after stroke
7.	Your Pain Behavior	1=Continuous
		2=Intermitted
		3=Not applicable
8.	Your Frequency of pain	1=Constantly
		2=Often

		3=Not applicable
9.	Severity of Shoulder pain by NPR Scale.	1=1-4(mild) 2=5-7(moderate) 3=8-10(severe) 4=Not applicable
10.	Do You Take Drug For This Pain?	1=Yes 2=No
11.	Dose Yours Pain Start with movement	1=Yes 2=No
12.	If Yes, Which Movement aggravates the Shoulder Pain	1=Flexion 2=Extension 3=Abduction 4=Adduction 5=Medial Rotation 6=Lateral Rotation
13.	Does Your Pain start within 1-60 degree in….	1=Flexion 2=Extension 3=Abduction 4=External rotation
14.	Does Your Pain start within 60-180 degree in….	1=Flexion 2=Extension 3=Abduction
15.	Does you have any Past History of trauma at the shoulder joint	1=Yes 2=No
16.	Have You Any Pain with Subluxation of the Shoulder joint?	1=Present 2=Absent
17.	Do You use any Bobath Sling for shoulder Sublaxation?	1=Yes 2=No
18.	Outcome of Physiotherapy?	1=Improve 2=Not improve 3=No change 4=Not taken

সম্মতিপত্র

(অংশগ্রহনকারীকেপড়ে শোনাতেহবে)

আসসালামুআলাইকুম/ নমস্কার,

আমার নাম এন এম ,, মুহামদ নাসাহ লু, আমি এই গবেষণা প্রকল্পটি বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বিআইচপিআই)- এ পরিচালনা করছি যা আমার ৪র্থ বর্ষ বি এসসি ইন ফিজিওথেরাপি কোর্সেও অধিভূক্ত । আমার গবেষনার শিরোনাম হল " **স্টোকেআক্রান্ত রোগীদের মধ্যে কাধেরব্যথার বৈশিষ্ঠ্য** "। আমি আপনাকে কিছু ব্যক্তিগত এবং কাধের ব্যাথা সম্পর্কে প্রশ্ন করতে চাই । এতে আনুমানিক ২০-৩০মিনিট সময় লাগবে।

আমি আপনাকে অবগতি করছি যে, এটা আমার অধ্যয়নের অংশ এবং অন্য কোন উদ্দেশ্যে ব্যবহৃত হবেনা। এই গবেষনা আপনার বর্তমান ও ভবিষ্যত চিকিৎসায় কোন প্রকার প্রভাব ফেল বেনা। আপনি যে সব তথ্য প্রধান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনা প্রবাহেএটা নিশ্চিত করা হবে যে এই তথ্যের উৎস অপ্রকাশিত থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহন সেচ্ছাপ্রনোদীত এবং আপনি যে কোন সময় এই অধ্যয়ন থেকে কোন নেতিবাচক ফলাফল ছাড়াই নিজেকে প্রত্যাহার করতে পারবেন। এছাড়াও কোন নির্দিষ্ট প্রশ্ন অপছন্দ হলে উত্তরনা দেয়ার এবং সাক্ষাৎকারের সময় কোন উত্তর না দিতে চাওয়ার অধিকারও আপনার আছে।

এই অধ্যয়নে অংশগ্রহনকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি আমাকে অথবা/ এবংএহসানুর রহমান, অধ্যাপক, ফিজিওথেরাপিবিভাগ, বি এইচ পিআই,সআরপি,সাভার,ঢাকা-১৩৪৩-তে যোগাযোগকরতেপারেন।

আমিআপনারঅনুমতিনিয়ে এই সাক্ষাৎকারশুরুকরতেযাচ্ছি।

হ্যাঁ.........

না ....

১। অংশগ্রহণকারীর স্বাক্ষর................................

২। সাক্ষাৎগ্রহনকারীরস্বাক্ষর.............................

আর্থ-সামাজিকসম্পর্কে:

প্রশ্ন নঃ	প্রশ্ন	উত্তর
১.	নাম:	
২.	বয়স:	.........বছর
৩.	লিঙ্গ	১=পুরুষ ২=মহিলা
৪.	ঠিকানা:	গ্রাম: পোস্টঅফিস: থানা: জেলা:
৫.	তারিখ	
৬.	বৈবাহিকঅবস্থা:	১=বিবাহিত ২=অবিবাহিত ৩=বিবাহবন্ধন বিচ্ছেদ ৪=আলাদা ৫=অন্যান্য.........
৭.	আপনার ধর্ম কি?	১=ইসলাম ২=হিন্দু ৩=অন্যান্য
৮.	আপনার আবাসিক অবস্থা?	১=শহর ২=গ্রাম
৯.	আপনার শিক্ষাগত যোগ্যতা?	১=কখনও স্কুলে যান নি ২=কিছু প্রাথমিক শিক্ষা ৩=সম্পূর্ণ প্রাথমিক শিক্ষা ৪=কিছু মাধ্যমিক শিক্ষা ৫=সম্পূর্ণ মাধ্যমিক শিক্ষা ৬= উচ্চ মাধ্যমিক শিক্ষা ৭=সমমাননা অথবা এর বেশি ৮=অন্যান্য----------
১০.	আপনার পেশা কি?	১=রিক্সাচালক ২= কৃষক

		৩।=গার্মেন্টসকর্মী
		৪=গাড়িচালক
		৫=ব্যবসায়িক
		৬=দিনমজুর
		৭=বেকার
		৮=গৃহিনী
		৯=শিক্ষক
		১০=অন্যান্য-------
১১.	স্ট্রোক এর ধরন?	১=ইস্কেমিক
		২=হিমোরেজিক

কাধেরব্যথাসম্পর্কিত:

প্রশ্ননং	প্রশ্ন	উত্তর
১.	আপনার ব্যথার ধরন কি রকম?	১=সব সময় ২=কিছুক্ষন পর পর ৩=গ্রহনযোগ্য নয়
২.	সব সময় আপনি কোন হাত ব্যবহার করতেন	১=ডান ২=বাম
৩.	আপনি স্থির অবস্থায় কোন ব্যথা অনুভব করেন?	১=হ্যাঁ ২=না
৪.	আপনার কোন পাশের কাধে ব্যথা?	১=ডান ২=বাম
৫.	পোশাক পরিধান করার সময় ব্যথাহয়?	১=হ্যাঁ ২=না
৬.	আপনিকি এই ব্যথার জন্য ঔষধ সেবন করেন?	১=হ্যাঁ ২=না
৭.	নাড়াচারা করলে কি ব্যথা শুরু করে	১=হ্যাঁ ২=না
৮.	আপনারব্যথারব্যবহার	১=সব সময় ২=কিছুক্ষন পর পর ৩=গ্রহনযোগ্য নয়

৯.	যদি হ্যাঁ, তাহলে কোন ধরনের কাধের নাড়াচারায়	১=ফ্লেকশন
		২=এক্সটেনশন
		৩=এবড্রাকশন
		৪=এডাকশন
		৫=এক্সটার্নাল রোটেশন
		৬=ইন্টার্নাল রোটেশন
১০.	১ থেকে ৬০ডিগ্রী মধ্যে আপনার ব্যথা হয়	১=ফ্লেকশন
		২=এক্সটেনশন
		৩=এবড্রাকশন
		৪=এক্সটার্নাল রোটেশন
১১.	৬০ থেকে ১৮০ ডিগ্রী মধ্যে আপনার ব্যথা হয়	১=ফ্লেকশন
		২=এক্সটেনশন
		৩=এবড্রাকশন
১২.	আপনার কি পূর্বে এই কাধে আঘাতের কোন ঘটনা আছে	১=হ্যাঁ
		২=না
১৩.	আপনার ব্যথা কখন শুরু হয়েছে	১=০-২ সপ্তাহ স্টোকএর পর
		২=২সপ্তাহ থেকে ২ মাস স্টোকএর পর
		৩=২মাসের বেশি স্টোকএর পর
১৪.	স্টোক এর পর আপনার কখনব্যথা শুরু হয়েছে	-----------
১৫.	আপনার ব্যথার তীব্রতা কি ধরনের by NPR scale	১=১-৪
		২= ৫-৭
		৩=৮-১০
		৪=গ্রহনযোগ্য নয়
১৬.	আপনার কাধের ব্যথার সাথে কোন সাবলাক্সেজেশন আছে কি না	১=আছে
		২=নাই
১৭.	যদি হ্যাঁ; তাহলে আপনি কি কাধের সাবলাক্সেজেশনএর জন্য Bobath slingব্যবহার করেন	১=হ্যাঁ
		২=না
১৮.	ফিজিওথেরাপি চিকিৎসা ফলাফল কি?	১=উন্নতি হয়েছে
		২=কোন উন্নতিহয় নাই
		৩=কোন পরিবর্তন নাই
		৪=কোন থেরাপি গ্রহন করেন নাই

Permission Letter

Date: 24.03.13

To

The Head of the Department,

Physiotherapy Department,

Center for the Rehabilitation of the Paralyzed (CRP)

Savar, Dhaka-1343

Subject: Permission to collect data to conduct a research study.

Sir,

I respectfully to state that I am a student of 4th year B.Sc. in physiotherapy at Bangladesh Health Professions Institute (B.H.P.I). In 4th year we have to do a research project and I have chosen a title that is "**characteristics of shoulder pain among the stroke patient**" and my supervisor is Mohammad Ehsanur Rahman, Lecturer, Department of Physiotherapy. I would like to collect data at physiotherapy department of CRP in Saver. Data will be collected within 8.00 a.m. to 5.00 p.m.

I therefore pray and hope that you would be kind enough to give me permission to do this study successfully in your department.

Yours faithfully

N.M.Mahmudul Hasan

N.M. Mahmudul Hasan

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

CRP, Savar, Dhaka

Farjana Sharmin
Clinical physiotherapist

FARJANA SHARMIN (RUMANA)
Clinical Physiotherapist
Neurology Unit, PT Dept.
CRP, Savar, Dhaka.

Md. Sohrab Hossain
BPT, DU, D' Orthopaedics Cyriax (Belgium), MP
PGT-UK, AUS, CA
Associate Professor Physiotherapy, BHPI
Head of the Physiotherapy Department CRP