

**OUTCOME OF STROKE SURVIVORS USING
STROKE IMPACT SCALE FOR THE PATIENT
ATTENDED AT CRP**

Md. Raihan Habib

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

Session: 2006

BHPI, CRP, Savar, Dhaka-1343

Bangladesh



Bangladesh Health Professions Institute (BHPI)

Department of Physiotherapy

CRP, Savar, Dhaka-1343

Bangladesh

August 2012

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.

**OUTCOME OF STROKE SURVIVORS USING
STROKE IMPACT SCALE FOR THE PATIENT
ATTENDED AT CRP**

Submitted by, **Md. Raihan Habib** for the partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy.

.....

Nasirul Islam
B.Sc PT (Hons.), MPH
Assistant Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka
Supervisor

.....

Md. Sohrab Hossain
B.Sc PT (Hons.), Dip. Ortho. Med, MPH
Associate Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

.....

Mohammad Anwar Hossain
B.Sc PT (Hons.), Dip. Ortho. Med, MPH
Associate Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

.....

Md. Shofiqul Islam
B.Sc PT (Hons.), MPH
Lecturer
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

.....

Md. Obaidul Haque
B.Sc PT (Hons.), Dip. Ortho. Med, MPH
Associate Professor & Course Coordinator
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

Declaration

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

Signature:

Date:

Md. Raihan Habib

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

Session: 2006-2007

BHPI, CRP, Savar, Dhaka-1343

Bangladesh

Acknowledgement

First of all, I would like to express my gratefulness to Almighty Allah to complete this dissertation in time.

I would like to express my munificent thanks to my honorable supervisor Nasirul Islam, Assistant Professor, Department of Physiotherapy, for this sincere guidance to accomplish this research. I am also grateful to him for giving me his valuable time when I needed. Thanks to all my teachers of the Bangladesh Health Professions Institute (BHPI) for their support and guidance throughout the study.

I am very much grateful to my classmates, especially S.M Mustofa Kamal for helping me throughout the time of dissertation. I extend my gratitude to the librarian of BHPI and their associates for their support and valuable co-operation.

Abbreviations

| | |
|---------------|--|
| BHPI: | Bangladesh Health Professions Institute |
| CT: | Computer Tomography |
| CRP: | Center for the rehabilitation of the paralyzed |
| HRQOL: | Health Related Quality of Life |
| MRI: | Magnetic Resonance Imaging |
| QOL: | Quality of life |
| SIS: | Stroke Impact Scale |
| SPSS: | Statistical Package of Social Sciences |
| TIA: | Transient Ischemic Attack |

CONTENTS

| | Page No. |
|--------------------------------------|-----------------|
| Declaration | i |
| Acknowledgement | ii |
| Abbreviations | iii |
| List of figures | vi |
| Abstract | vii |
| CHAPTER I- INTRODUCTION | 1-4 |
| 1.1 Background | 1 |
| 1.2 Rationale | 2-3 |
| 1.3 Research question | 3 |
| 1.4 Aim of the study | 3 |
| 1.5 Objectives of the study | 3 |
| 1.6 Operational definition | 4 |
| CHAPTER II- LITERATURE REVIEW | 5-14 |
| CHAPTER III- METHODOLOGY | 15-19 |
| 3.1 Study design | 15 |
| 3.2 Study site | 15 |
| 3.3 Population | 15 |
| 3.4 Study sample | 15-16 |
| 3.5 Sample size | 16 |
| 3.6 Sample procedure | 16 |
| 3.7 Inclusion criteria | 16 |
| 3.8 Exclusion criteria | 17 |
| 3.9 Method of data collection | 17 |
| 3.10 Materials for research project | 17 |
| 3.11 Ethical consideration | 17-18 |
| 3.12 Informed consent | 18 |
| 3.13 Rigor | 18 |
| 3.14 Limitation of the study | 18-19 |
| CHAPTER IV RESULTS | 20-32 |

| | Page No. |
|------------------------------|-----------------|
| CHAPTER V DISCUSSION | 33-34 |
| CHAPTER VI CONCLUSION | 35 |
| REFERENCES | 36-39 |
| ANNEXURE | 40-54 |
| Inform consent (Bengali) | 40 |
| Inform consent (English) | 41 |
| Questionnaire (Bengali) | 42-47 |
| Questionnaire (English) | 48-53 |
| Permission letter | 54 |

Lists of Figures

| | Page No. |
|--|-----------------|
| Figure-1: Age of the Participants | 20 |
| Figure-2: Sex of the Participants | 21 |
| Figure-3: Onset of stroke | 22 |
| Figure-4: Type of stroke | 23 |
| Figure-5: Side of stroke | 23 |
| Figure-6: Strength | 24 |
| Figure-7: Memory | 25 |
| Figure-8: Emotion | 26 |
| Figure-9: Communication | 27 |
| Figure-10: Activities in daily living | 28 |
| Figure-11: Mobility | 29 |
| Figure-12: Hand function | 30 |
| Figure-13: Participation | 31 |
| Figure-14: Stroke recovery | 32 |

Abstract

Purpose: To identify outcome of stroke survivors using stroke impact scale for the patient attended at CRP. *Objective:* To identify the variables that could predict the outcome of stroke, to investigate how the physical strength, hand function, mobility, activities of daily living, memory and thinking, communication and emotion, social participation which influence the outcome of stroke survivors. *Methodology:* A quantitative (cross sectional) research model in the form of a prospective type survey design is carried out in this study. Total 30 samples were selected by purposive sampling from inpatient of neurology department of Centre for the Rehabilitation of the paralyzed (CRP). Data were collected by mixed type questionnaire. Confidentiality of the information was strictly maintained. The investigator filled out the questionnaire after having face to face interview. Data were numerically coded and captured in SPSS 16.0 version software and analyzed in terms of percentages, displayed through bar charts using Microsoft excel. The investigator targeted to measure the outcome of stroke survivors using stroke impact scale and identified the level of physical strength, hand function, mobility, physical and instrumental activities of daily living, memory and thinking, communication and emotion, social participation. *Result:* The finding of the research shows that Male (80%) are more affected than female (20%), the incidence of stroke is more frequent over the age of 58 year which is (36.60%). The percentage of hemorrhagic stroke (76.70%) is more than ischemic stroke (23.30%), most participants (73.30%) didn't report incontinence, 26.70% participants felt little difficulty about sitting balance, 20% participants had very difficulty in transferring from bed to wheelchair, 30% participants has no limitation in religious activities, most of the time participants (40%) felt sad, and 26.70% participants have had recovery about 40%. *Conclusion:* This study findings demonstrated a crucial outcome using stroke impact scale among stroke survivor. However, psychological support, counseling, motivation and effective communication are cornerstone for their successful rehabilitation and to be addressed by health care professionals.

Key words: Outcome, Stroke survivors, Stroke Impact Scale.

1.1 Background

Stroke is one of the major chronic illnesses world-wide that health-care organizations will need to address for the next several decades. That's why it can affect virtually all human functions and unlike other disabling conditions, the onset of stroke is sudden, leaving the individual and the family are not well prepared to deal with its sequel (Patel, 2007). Stroke remains the leading cause of serious, long-term neurologic impairment and functional disability. Stroke is often a catastrophic event affecting all aspects of an individual's life (Deborah, 2005). The impact of stroke on a patient is usually unanticipated and often devastating, requiring major adjustment in lifestyle and psychology of stroke survivors (Pan, 2008). Current stroke outcome assessments are limited to the resulting neurological impairment and functional disability, neglecting to evaluate the total influence of the event on a patient's well-being (Deborah, 2005).

The Stroke Impact Scale (SIS) has been developed to be a more comprehensive measure of health outcomes for stroke populations (Duncan, 1999). In 1999, the Stroke Impact Scale (SIS) emerged as a tool to measure these important multidimensional consequences of stroke. This diagnosis-specific measure considers the perspective of the patient in multiple domains, ranging from hand function and activities of daily living to memory and social participation (Deborah, 2005). The SIS incorporates meaningful dimensions of function and health-related quality of life into 1 self-report questionnaire. The SIS Version 2.0 includes 64 items and assesses 8 domains [strength, hand function, activities and independent activities of daily living (ADL/IADL), mobility, communication, emotion, memory and thinking, and participation/role function.

1.2 Rationale

Stroke is the leading cause of disability worldwide. In under developed countries like Bangladesh stroke also causes death where health support system including rehabilitation is not available. For proper rehabilitation of stroke patient, it needs multi disciplinary treatment. In this condition, only medical management is not enough rather than the therapeutic management is essential for the management of stroke.

The stroke impact scale is the measurement of outcome containing strength, hand function, mobility, and activities of daily living, emotion, memory, communication and social participation. The first three domains is physical domains that are commonly seen after treatment. There is also research about functional activity or recovery of physical activity after stroke in Bangladesh. Life is influenced by emotion, psychological motivation, depression etc. After stroke there is significant change in emotion, memory, communication, social participation etc. These factors influenced the quality of life of stroke survivors. A stroke patient cannot back to his/her fulfillment of his life purpose, because he has memory problem, communication problem. For that reason, he thinks himself burden in family, society.

The magnitude of stroke patient's depression level, emotional status and problem in communication is remaining unknown by the health care provider. After completion of the study we will find the evidence about depression, physical function, emotion and communication.

It is very important to find out the outcome while a physiotherapy management team does work towards the improvement or the recovery of outcome of stroke patient, otherwise the outcome of stroke survivors is not significant. Effectiveness of physiotherapy practice is essential to promote outcome of stroke patient. So that, this research will give ideas about the outcome after taking physiotherapy and by this result we take appropriate measures to improvement outcome. This study also helps to provide important platform for physiotherapists. The physiotherapists can explain these factors to the family members and to the patient.

1.3 Research question

What is the outcome of stroke survivors in stroke impact scale for the patient attended at CRP?

1.4 Aim of the study

The aim of the study is to assess outcome of stroke survivors in stroke impact scale for the patient attended at CRP.

1.5 Objectives

1.5.1 General objective

- To assess outcome of Stroke Survivors Measured by the Stroke Impact Scale to estimate the impact of individual characteristics

1.5.2 Specific Objectives

- To identify the variables that could predict the outcome of stroke.
- To investigate how the strength, hand function, mobility, physical and instrumental activities of daily living, memory & thinking, communication and emotion, social participation which influence the outcome of stroke survivors.

1.6 Operational Definition

Stroke

A stroke is a cerebrovascular accident, is the rapid loss of brain function due to the disturbance of blood supply in the brain.

Outcome

Means the improvement of function during perform a goal directed task and it helps to involve activities of daily living.

Stroke impact scale

The Stroke impact scale is an measurement scale that includes 64 items and assess 8 domains (strength, hand function, activities and independent activities of daily living (ADL/IADL), mobility, communication, emotion, memory and thinking and participation/role function.

The sudden death of some brain cells due to a lack of oxygen when the blood flow to the brain is impaired by blockage or rupture of an artery to the brain. A stroke is also called a cerebrovascular accident or, for short, a CVA. Stroke is synonymous with cerebrovascular accident (CVA) and is a clinical definition. The world health organization of stroke is 'a rapidly developed clinical sign of focal disturbances of cerebral function of presumed vascular origin and of more than 24 hour duration'. This definition does not include 'transient ischaemic attack'. Hemiplegia is the paralysis of muscle on one side of the body, contralateral to the side of the brain in which the CVA occurred (Durward et al, 1998).

A Stroke is an acute medical emergency. Stroke (also called "Brain Attack") is a disease of the circulatory system caused by the rupturing or the blockage of an artery. In middle aged and older women, approximately 70% of strokes are thromboembolic (caused by a blockage from a blood clot), 15% consist of intracerebral hemorrhage, and 10% of subarachnoid hemorrhage. Depending on where the rupture or blocked artery leads, this part of the brain does not get oxygen. This can result in permanent brain damage, disability and sometimes death.

When a section of the brain is deprived of oxygen, neurological symptoms result, such as loss of vision in one eye (or other vision changes), confusion, vertigo, inability to speak, numbness or weakness of one side of the body, severe headache and asymmetrical drooping of the face. These symptoms require immediate attention by emergency room doctors.

According to American stroke association (2002), 'a stroke occurs when a blood vessel bringing oxygen and nutrients of the brain bursts or is clogged by blood clot or some other particles. Because of this rupture or blockage, part of the brain does not get the flow of blood according to its demands. Deprive of oxygen nerve cells in the affected areas of the brain cannot function and die within minute, as a result nerve cells cannot function. The part of the body is controlled by this cell cannot function

either . The devastating effects of stroke are often because death cells are not replacing ' (Impact of Stroke 2002).

Cerebral ischaemia and infarction are caused by sudden occlusion of an artery supplying the brain or less often , by low flow distal to an already occluded or highly stenosis can be the result of disease of the arterial wall; embolism from heart ; hematological disorder ; and various rare but sometimes treatable condition which are proportionately more common in young stroke patient (where degenerative arterial disease is unusual) can still be a cause of stroke in the elderly. Venous infarction is considered later ischaemia due to head injury, encephalitis and othres global encephalopathy condition (Walton, 1993)

Ischemic stroke occurs when an artery to the brain is blocked. The brain depends on its arteries to bring fresh blood from the heart and lungs. The blood carries oxygen and nutrients to the brain, and takes away carbon dioxide and cellular waste. If an artery is blocked, the brain cells (neurons) cannot make enough energy and will eventually stop working. If the artery remains blocked for more than a few minutes, the brain cells may die. This is why immediate medical treatment is critical (TISC, 2012).

Strokes caused by the breakage or "blowout" of a blood vessel in the brain are called hemorrhagic strokes. The medical word for this type of breakage is hemorrhage. Hemorrhages can be caused by a number of disorders which affect the blood vessels, including long-standing high blood pressure and cerebral aneurysms. An aneurysm is a weak or thin spot on a blood vessel wall. These weak spots are usually present at birth. Aneurisms develop over a number of years and usually don't cause detectable problems until they break. There are two types of hemorrhagic stroke subarachnoid and intracerebral. In an intracerebral hemorrhage, bleeding occurs from vessels within the brain itself. Hypertension (high blood pressure) is the primary cause of this type of hemorrhage.

In a subarachnoid hemorrhage (SAH), an aneurism bursts in a large artery on or near the thin, delicate membrane surrounding the brain. Blood spills into the area around

the brain which is filled with a protective fluid causing the brain to be surrounded by blood-contaminated fluid (NSA, 2012).

The ability to define the world and our place in it distinguishes our humanity. Stroke or brain attack forever alters this world-making capacity. The stroke patient's world, once comprehensible and manageable, is transformed into a confusing, intimidating and hostile environment. The skills of intellect, sensation, perception and movement, which are honed over the course of a lifetime and which so characterize our humanity are the very abilities most compromised by stroke. Stroke can rob people of the most basic methods of interacting with the world (Drake, 2005)

The specific abilities that will be lost or affected by stroke depend on the extent of the brain damage and most importantly where in the brain the stroke occurred. The brain is an incredibly complex organ, and each area within the brain has responsibility for a particular function or ability. The brain is divided into four primary parts: the right hemisphere (or half), the left hemisphere, the cerebellum and the brain stem (NSA, 2012).

‘A stroke may result in a severe dramatic change to a person’s life. It can be very hard to accept this and may result in unrealistic expectation and depression. People often feel a great physical and mental tiredness. Movements are not as autonomic and smooth as before the stroke. So people who had a stroke use much more energy than someone who has not. In relation with movement the functional activities of the stroke patient become dependent. It influences in all aspects of daily living at home such as dressing, toileting, bathing. Each stroke differs depending upon the brain injury, the severity of the injury, and the person’s general health (Mondol, 2004).

Stroke Rehabilitation Information (2012) has described the following effects of brain attack –

Weakness (hemi paresis) or paralysis (hemiplegic) on one side of the body that may affect the whole side or just the arm or leg. The weakness or paralysis is on the side of the body opposite the side of the brain affected by the stroke; Spasticity, stiffness in muscles, painful muscle spasms; Problems with balance and/or coordination; Problems using language, including having difficulty understanding speech or writing (aphasia);

and knowing the right words but having trouble saying them clearly (dysarthria); Being unaware of or ignoring sensations on one side of the body (bodily neglect or inattention); Pain, numbness or odd sensations; Problems with memory, thinking, attention or learning; Being unaware of the effects of a stroke; Trouble swallowing (dysphagia); Problems with bowel or bladder control; Fatigue; Difficulty controlling emotions (emotional liability); Depression; Difficulties with daily tasks (NINDS, 2012).

The most important modifiable risk factors for stroke are high blood pressure and atrial fibrillation (although magnitude of this effect is small: the evidence from the Medical Research Council trials is that 833 patients have to be treated for 1 year to prevent one stroke). Other modifiable risk factors include high blood cholesterol levels, diabetes, cigarette smoking (active and passive), heavy alcohol consumption and drug use, lack of physical activity, obesity, processed red meat consumption and unhealthy diet. Alcohol use could predispose to ischemic stroke, and intracerebral and subarachnoid hemorrhage via multiple mechanisms (for example via hypertension, atrial fibrillation, rebound thrombocytosis and platelet aggregation and clotting disturbances). The drugs most commonly associated with stroke are cocaine, amphetamines causing hemorrhagic stroke, but also over-the-counter cough and cold drugs containing sympathomimetics

The stroke centre (2012) has described the following risk factors of stroke- Manageable or Preventable Risk Factors: Diet & Nutrition, physical inactivity, smoking, substance/alcohol abuse, certain medical conditions, including:-Abnormal blood vessel connections (arteriovenous malformations and arteriovenous fistulas), cerebral aneurysms (unruptured), cholesterol level (high levels of “bad” cholesterol and/or low levels of “good” cholesterol), diabetes hardening of the arteries (atherosclerosis/arteriosclerosis), heart (cardiovascular) disease, high blood pressure (hypertension), obesity, transient ischemic attacks (TIAs). Unalterable Risk Factors: Age, ethnicity, heredity/family history of stroke, gender (TSC,2012)

Strokes are usually diagnosed by studying images of the brain (brain imaging) and carrying out physical tests. Doctor may check for the causes of stroke by taking blood tests to determine cholesterol and blood sugar levels, checking pulse for an irregular

heartbeat and taking a blood pressure measurement. Even if the physical symptoms of a stroke are obvious, brain imaging should also be carried out to determine: if the stroke has been caused by a blocked artery or burst blood vessel, which part of the brain has been affected, how severe the stroke is, the risk of a transient ischaemic attack (TIA). Different treatment is required for each type of stroke so a rapid diagnosis will make treatment more straightforward.

Two common methods used for brain imaging are a computer tomography (CT) scan and a magnetic resonance imaging (MRI) scan. A CT scan is like an X-ray but uses multiple images to build up a more detailed, three-dimensional (3D) picture of your brain. An MRI scan uses a strong magnetic field and radio waves to produce a detailed picture of the inside of your body.

The type of scan you may have in hospital depends on your symptoms. If it is suspected you had a major stroke, a CT scan is sufficient to identify whether the stroke is due to bleeding or clotting. It's quicker than an MRI scan and improves the chances of rapidly delivering treatments such as clot-busting drugs (thrombolytic) that might be used in appropriate cases but which are time-limited and require the results of the scan before the treatment can be given safely.

For people with more complex symptoms, where the extent or location of the damage is unknown, and in patients who have recovered from a transient ischaemic attack, an MRI scan is more appropriate. This will provide greater detail of brain tissue, allowing smaller or more unusually located strokes to be identified. All patients with suspected stroke should receive a brain scan within 24 hours. Some patients should be scanned within the hour, especially those who might benefit from clot-busting drugs (thrombolysis) such as alteplase or early anticoagulant treatment.

After the injection of a dye into an arm vein, both CT and MRI can be used to take pictures of the blood vessels in the brain, as well as the blood vessels in the neck that take blood to the brain from the heart. This is known as CT or MR angiography and is often done immediately after taking pictures of the brain itself.

A swallow test is essential for anybody who has had a stroke. Swallowing problems affect over a third of people after a stroke. When a person cannot swallow properly, there is a risk that food and drink may get into the windpipe and then into the lungs (called aspiration), which can lead to chest infections and pneumonia.

The test is simple. The person is given a few teaspoons of water to drink. If they can swallow this without choking and coughing they will be asked to swallow half a glass of water. If they have any difficulty swallowing, they will be referred to the speech and language therapist for a more detailed assessment. They will usually be kept 'nil by mouth' until they have seen the therapist and may therefore need to have fluids or food given directly into an arm vein (intravenous drip) or through the nose using a nasogastric tube.

An ultrasound scan uses high frequency sound waves to produce an image of the inside of your body. Your doctor may use a wand-like probe (transducer) to send high-frequency sound waves into your neck. These pass through the tissue creating images on a screen that will show if there is any narrowing or clotting in the arteries leading to your brain. This type of ultrasound scan is sometimes known as a doppler scan or a duplex scan. Where carotid ultrasonography is needed, it should happen within 48 hours. Dye is injected into your carotid or vertebral artery via a tube called a catheter. This gives a detailed view of your arteries than can be obtained using ultrasound, CT angiography or MR angiography.

In some cases an echocardiogram may be used to produce images of your heart using an ultrasound probe placed on your chest (transthoracic echocardiogram). In addition, transoesophageal echocardiography (TOE) may also be used. This involves an ultrasonic probe which is passed down the foodpipe (oesophagus), usually under sedation. Because it's directly behind the heart, it produces a clear image of blood clots and other abnormalities that may not get picked up by the transthoracic echocardiogram.

Definitive therapy is aimed at removing the blockage by breaking the clot down (thrombolytic), or by removing it mechanically (thrombectomy). The more rapidly blood flow is restored to the brain, the fewer brain cells die (Saver, 2006). Tight

control of blood sugars in the first few hours does not improve outcomes and may cause harm (Bellolio et al, 2011). High blood pressure is also not typically lowered as this has not been found to be helpful.

Thrombolysis with recombinant tissue plasminogen activator (RTPA) in acute ischemic stroke, when given before three hours of symptom onset increases the risk of death in the short term but in the long term improves the rate of independence and late mortality; the increase in long term mortality is not significant. When broken down by time to treatment it increases the chance of being alive and living independently by 9% in those treated within three hours, however the benefit for those treated between three and six hours is not significant. These benefits or lack of benefits occurred regardless of the age of the person treated (Wardlaw et al, 2012).

Its use is endorsed by the American Heart Association and the American Academy of Neurology as the recommended treatment for acute stroke within three hours of onset of symptoms as long as there are not other contraindications (such as abnormal lab values, high blood pressure, or recent surgery). This position for TPA is based upon the findings of two studies by one group of investigators (The National Institute of Neurological Disorders and Stroke RT-PA Stroke Study Group, 1995), which showed that tPA improves the chances for a good neurological outcome. When administered within the first three hours thrombolysis improves functional outcome without affecting mortality (Wardlaw, 2009). 6.4% of people with large strokes developed substantial brain hemorrhage as a complication from being given TPA thus part of the reason for increased short term mortality (Dubinsky, 2006). Additionally, it is the position of the American Academy of Emergency medicine that objective evidence regarding the efficacy, safety, and applicability of TPA for acute ischemic stroke is insufficient to warrant its classification as standard of care. Intra-arterial fibrinolysis, where a catheter is passed up an artery into the brain and the medication is injected at the site of thrombosis, has been found to improve outcomes in people with acute ischemic stroke (Lee et al, 2010).

Removal of the clot may be attempted in those where it occurs within a large blood vessel and may be an option for those who either are not eligible for or do not improve with intravenous thrombolytics (Tenser et al, 2011). Significant complication

occur in about 7%. A randomized control trial of these procedures has not been done as of 2011 (Grunwald et al, 2011).

Large territory strokes can cause significant edema of the brain with secondary brain injury in surrounding tissue. This phenomenon is mainly encountered in strokes of the middle cerebral artery territory, and is also called "malignant cerebral infarction" because it carries a dismal prognosis. Relief of the pressure may be attempted with medication, but some require hemicraniectomy, the temporary surgical removal of the skull on one side of the head. This decreases the risk of death, although some more people survive with disability who would otherwise have died (Simard et al, 2011).

People with intracerebral hemorrhage require neurosurgical evaluation to detect and treat the cause of the bleeding, although many may not need surgery. Anticoagulants and antithrombotics, key in treating ischemic stroke, can make bleeding worse. People are monitored for changes in the level of consciousness, and their blood pressure, blood sugar, and oxygenation are kept at optimum levels.

Ideally, people who have had a stroke are admitted to a "stroke unit", a ward or dedicated area in hospital staffed by nurses and therapists with experience in stroke treatment. It has been shown that people admitted to a stroke unit have a higher chance of surviving than those admitted elsewhere in hospital, even if they are being cared for by doctors without experience in stroke (Donnan et al, 2008). When an acute stroke is suspected by history and physical examination, the goal of early assessment is to determine the cause. Treatment varies according to the underlying cause of the stroke, thromboembolic (ischemic) or hemorrhagic.

Stroke rehabilitation is the process by which those with disabling strokes undergo treatment to help them return to normal life as much as possible by regaining and relearning the skills of everyday living. It also aims to help the survivor understand and adapt to difficulties, prevent secondary complications and educate family members to play a supporting role. A rehabilitation team is usually multidisciplinary as it involves staff with different skills working together to help the person. These include nursing staff, physiotherapy, occupational therapy, speech and language therapy, and usually a physician trained in rehabilitation medicine. Some teams may

also include psychologists, social workers, and pharmacists since at least one third of the people manifest post stroke depression. Validated instruments such as the Barthel scale may be used to assess the likelihood of a stroke patient being able to manage at home with or without support subsequent to discharge from hospital. Good nursing care is fundamental in maintaining skin care, feeding, hydration, positioning, and monitoring vital signs such as temperature, pulse, and blood pressure. Stroke rehabilitation begins almost immediately.

For most people with stroke, physical therapy (PT), occupational therapy (OT) and speech-language pathology (SLP) are the cornerstones of the rehabilitation process. Often, assistive technology such as a wheelchair, walkers, canes, and orthosis may be beneficial. PT and OT have overlapping areas of expertise, however PT focuses on joint range of motion and strength by performing exercises and re-learning functional tasks such as bed mobility, transferring, walking and other gross motor functions. Physiotherapists can also work with patients to improve awareness and use of the hemiplegic side. Rehabilitation involves working on the ability to produce strong movements or the ability to perform tasks using normal patterns. Emphasis is often concentrated on functional tasks and patient's goals. One example physiotherapists employ to promote motor learning involves constraint-induced movement therapy. Through continuous practice the patient relearns to use and adapt the hemiplegic limb during functional activities to create lasting permanent changes (O'Sullivan, 2007). OT is involved in training to help relearn everyday activities known as the Activities of daily living (ADLs) such as eating, drinking, dressing, bathing, cooking, reading and writing, and toileting. Speech and language therapy is appropriate for patients with the speech production disorders: dysarthria and apraxia of speech, aphasia, cognitive-communication impairments and/or dysphagia (problems with swallowing). Patients may have particular problems, such as dysphagia, which can cause swallowed material to pass into the lungs and cause aspiration pneumonia. The condition may improve with time, but in the interim, a nasogastric tube may be inserted, enabling liquid food to be given directly into the stomach. If swallowing is still deemed unsafe, then a percutaneous endoscopic gastrostomy (PEG) tube is passed and this can remain indefinitely.

Treatment of spasticity related to stroke often involves early mobilisations, commonly performed by a physiotherapist, combined with elongation of spastic muscles and sustained stretching through various positioning. Gaining initial improvements in range of motion is often achieved through rhythmic rotational patterns associated with the affected limb. After full range has been achieved by the therapist, the limb should be positioned in the lengthened positions to prevent against further contractures, skin breakdown, and disuse of the limb with the use of splints or other tools to stabilize the joint. Cold in the form of ice wraps or ice packs have been proven to briefly reduce spasticity by temporarily dampening neural firing rates. Electrical stimulation to the antagonist muscles or vibrations has also been used with some success (O'Sullivan, 2007).

Stroke rehabilitation should be started as quickly as possible and can last anywhere from a few days to over a year. Most return of function is seen in the first few months, and then improvement falls off with the "window" considered officially by U.S. state rehabilitation units and others to be closed after six months, with little chance of further improvement. However, patients have been known to continue to improve for years, regaining and strengthening abilities like writing, walking, running, and talking. Daily rehabilitation exercises should continue to be part of the stroke patient's routine. Complete recovery is unusual but not impossible and most patients will improve to some extent: proper diet and exercise are known to help the brain to recover.

Some current and future therapy methods include the use of virtual reality and video games for rehabilitation. These forms of rehabilitation offer potential for motivating patients to perform specific therapy tasks that many other forms do not. Many clinics and hospitals are adopting the use of these off-the-shelf devices for exercise, social interaction and rehabilitation because they are affordable, accessible and can be used within the clinic and home (Lange et al, 2009).

Other novel non-invasive rehabilitation methods are currently being developed to augment physical therapy to improve motor function of stroke patients, such as transcranial magnetic stimulation (TMS) and transcranial direct-current stimulation (tDCS) (Fregni, 2007) and robotic therapies (Balasubramanian et al, 2010).

3.1. Study design:

The research is conducted with an intention to find out the answer of the question “What is the outcome among the stroke survivors”. In order to achieve the goal on the selected study, it had chosen the quantitative method. This was the best method to answer this question because quantitative research was measurable.

For that, a quantitative methodology was selected. As quantitative research was suitable for exploring a new area and understanding individual’s attitudes and behaviours (Bailey, 1997).

3.2 Study site

The study was conducted in Neurology Department of Center for the Rehabilitation of the Paralyzed (CRP). It is a non-government organization working for the development of health care delivery system of Bangladesh through providing Physiotherapy, Occupational therapy, Speech and Language therapy services in indoor and outdoor programs.

3.3 Sample

A group of individuals or items that share one or more characteristics from which data can be gathered and analyzed is known as population (Hicks, 2000). In this study population was stroke patient of Neurology Department of CRP.

3.4 Study Sample

A sample is a smaller group was taken from the population. Sample size may be big or small, depending on the population and the characteristics of the study. As this research is in course curriculum, there are varieties of limitation e.g. Time length. Due to time limitation 30 sample was selected for the study.

3.5 Sample size

The equation of sample size calculation are given below-

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

Here,

$$Z(1 - \frac{\alpha}{2}) = 1.96$$

$$P = 0.25 \text{ (Here P=Prevalence and P=25\%)}$$

$$q = 1 - p$$

$$= 1 - 0.25$$

$$= 0.75$$

$$d = 0.05$$

According to this equation the sample should be more than 288 people but due to lack of opportunity the study was conducted with 30 patients attending at physiotherapy department selected randomly

3.6 Sampling procedure

Finding the appropriate number and type of people to take part in the study is called sampling (Hicks, 2000). Sample was taken by using purposive sampling method due to time limitation and as it is the one of the easiest, cheapest and quicker method of sample selection.

3.7 Inclusion Criteria

- Medically stable
- Age between 40-65 years
- Both sexes
- Onset of stroke from (1-12) month
- Both ischemic and hemorrhagic stroke

3.8 Exclusion Criteria

- Medically unstable.
- Age range <45 or >65 years
- Onset<1 month or >12 month
- Have other type of neurological disorder.
- Pusher syndrome.
- Any deformity, contracture surgical condition in lower limb.
- Any spinal deformity.
- Cognitive, visual, hearing problem.
- Patient who do not take regular treatment.
- Patient and caregiver who are not voluntarily agreed to participate in the study.

3.9 Method of data collection

All patients who diagnosed as stroke by the Physician and came at CRP for first time or continuing their Physiotherapy treatment will be asked to participate in the study. There was a developed structured questionnaire after reviewing literature for asking to the participants. In the questionnaire, there was participant's demographic information including age, sex, onset, type and site of stroke, and then stroke impact scale.

3.10 Materials for the research project

To conduct the study the researcher collected data through using different types of data collection tools. The researcher organized the materials to successfully complete the interview session. The organized material was questionnaires, consent forms, a pen & a pencil. SPSS (Statistical Package for the Social Sciences) software-16 version and Computer used to analyze data.

3.11 Ethical consideration

For conducting this research ethics 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. Data collection was started and complete within the allocated time frame. All the data was reviewed in strict secure

and maintained confidentiality. The assessment files were strictly secured and it was not open in front others without researcher.

3.12 Informed Consent

Written consent (appendix) was given to all participants prior to completion of the questionnaire. The researcher explained to the participants about his or her role in this study. The researcher received a written consent form every participants including signature. So the participant assured that they could understand about the consent form and their participation was on voluntary basis. The participants were informed clearly that their information would be kept confidential. The researcher assured the participants that the study would not be harmful to them. The participants had the rights to withdraw consent and discontinue participation at any time without prejudice to present or future treatment at the neurology department of CRP.

3.13 Rigor

During the data collection and data analysis the author always tried not to influence the process by his own perspectives, values and biases. No leading questions was asked and judgments were avoided. When conducting the study the researcher took help from the supervisor when needed. The other researchers can use the results in their related area.

3.14 Limitation of the study

The amount of participants was very small for the study. There were only 30 participants involved in this study. Small number of samples inclusion may be affected by external validity of the study and the results might not be representative of the population.

The recent literature especially the recently issued journals were not accessible. For this reason some of the latest information was not able to be included in the literature part.

This research project was a part of 4th year physiotherapy course and this type of work is first at this level, so there may have some problems in techniques and short out in term of practical aspect.

Time and resources were limited which have a great deal of impact on the study such as literature relevant to this topic, data collection time and financial support for conducting the research project.

The main objective of the study was to explore the quality of life among the stroke survivors. Convenience sampling was done to select samples. Total 30 data were collected from the stroke patient of CRP. The researcher analyzed age, sex, onset, type, affected side, strength, memory, emotion, communication, activities of daily living, mobility, hand function, participation of the stroke patient. Data were numerically coded and captured in SPSS 16.0 version software program .The investigator collected the data by interview and calculated as percentages, using bar charts by Microsoft excel.

Age group

Age of the participants were n=5 (16.70%) in between 40-42years, n=9 (30%) in between 45-48years, n=5 (16.70%) in between 50-58years and n=11 (36.60%) more than 58 years. Here mean age is 52.40 (± 8.939), mode is 45.

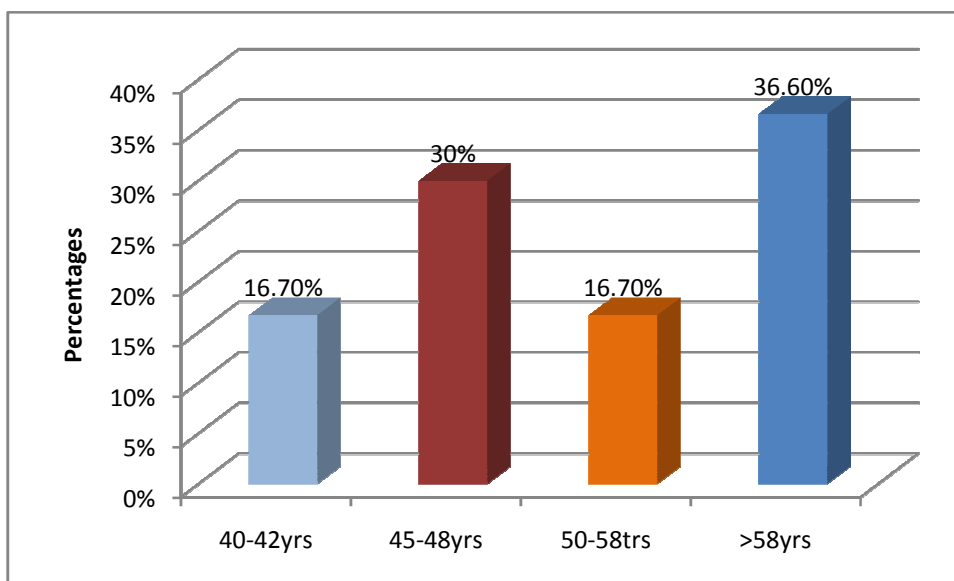


Figure-1: Age of the participant.

Gender

Gender of the participants, n=24 (80%) were male and n=6 (20%) were female.

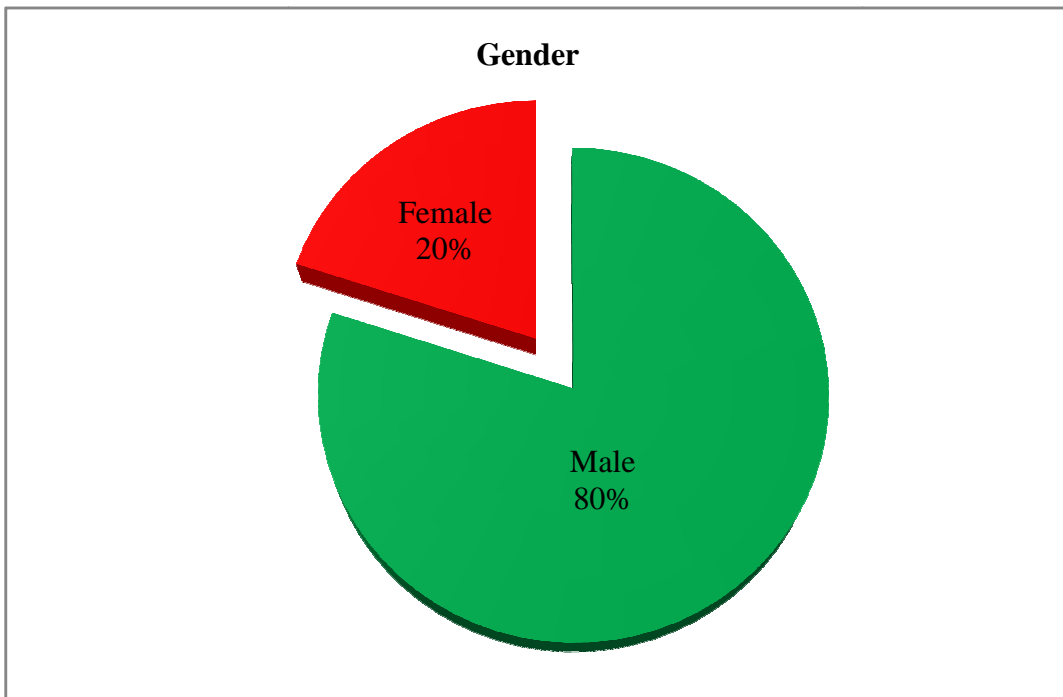


Figure-2: Sex of the participants.

Onset

About onset of stroke, n=7 (23.30%) participants were between 3-4 months, n= 8 (26.70%) participants were between 5-6 months, n= 6 (20%) in 7 months and n= 9 (30%) were in more than 7 month. Here mean is 6.50 (± 2.255).

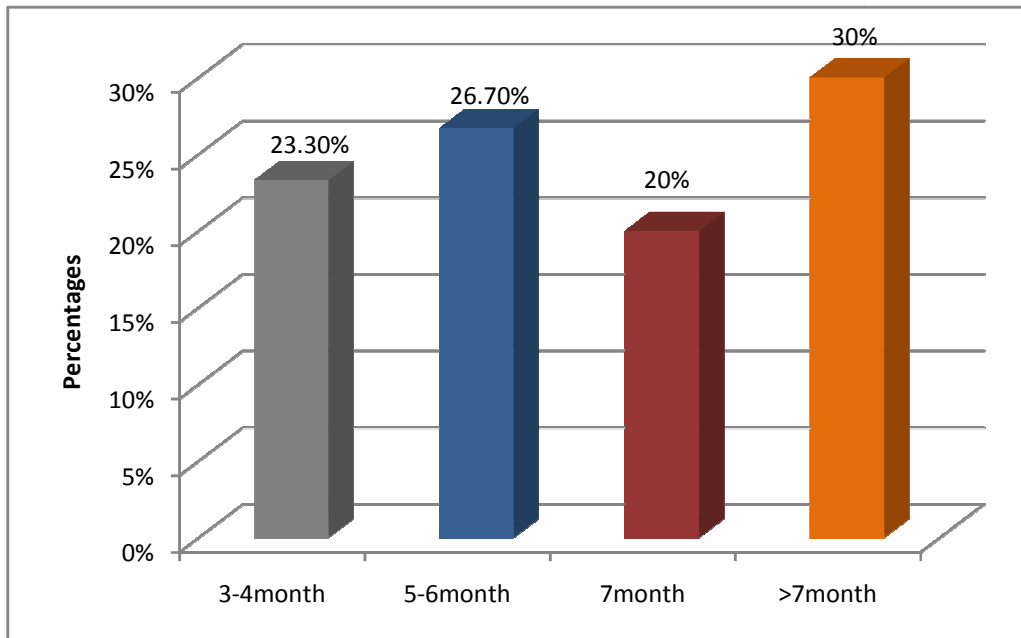


Figure-3: Onset of stroke.

Type of stroke

In type of strike, n=23 (76.70%) participants were in hemorrhagic stroke and n=7 (23.30%) participants were in ischemic stroke.

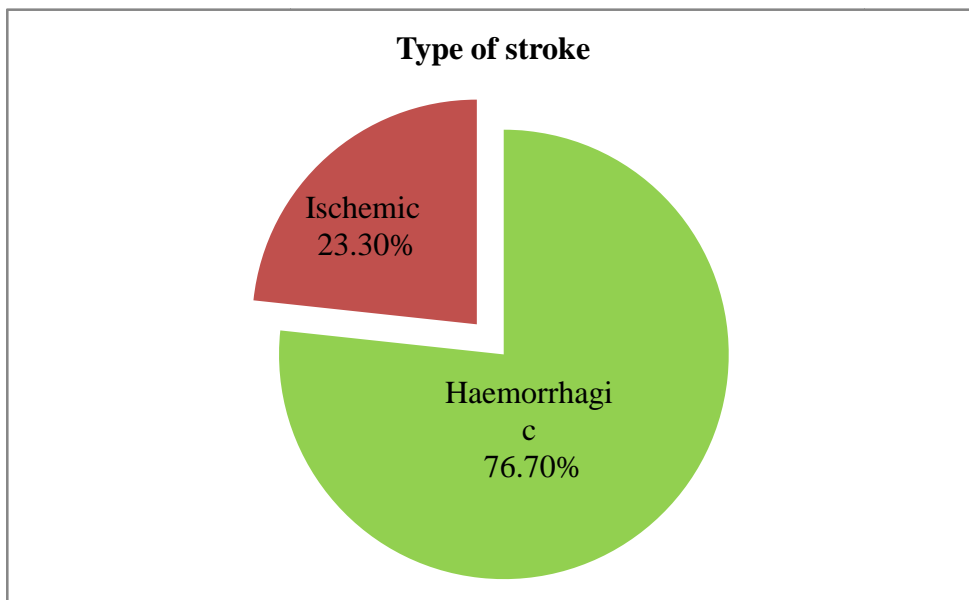


Figure-4: Type of stroke.

Affected side

In stroke, n=14(46.70%) participants were right sided hemiplegic and n=16 (53.30%) participants were left sided hemiplegic.

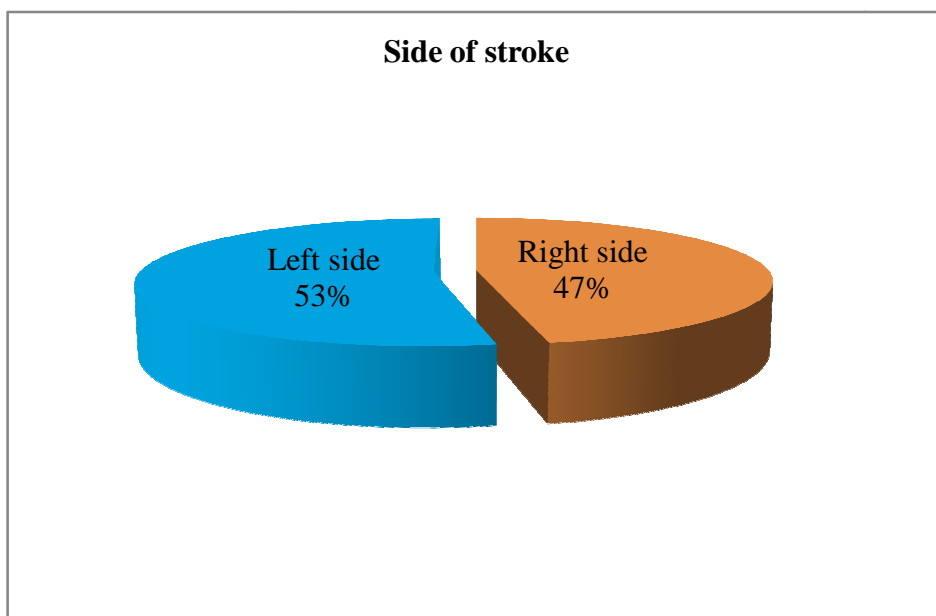


Figure-5: Side of stroke.

In stroke impact scale there are 8 domain-strength, memory, emotion, communication, activities of daily living, mobility, hand function, participation.

Strength

About strength of the participants, in the arm n=13 (43.30%) had little strength, n=5 (6.70%) had lot of strength in hand gripping and n=5 (16.70%) had lot of strength in ankle.

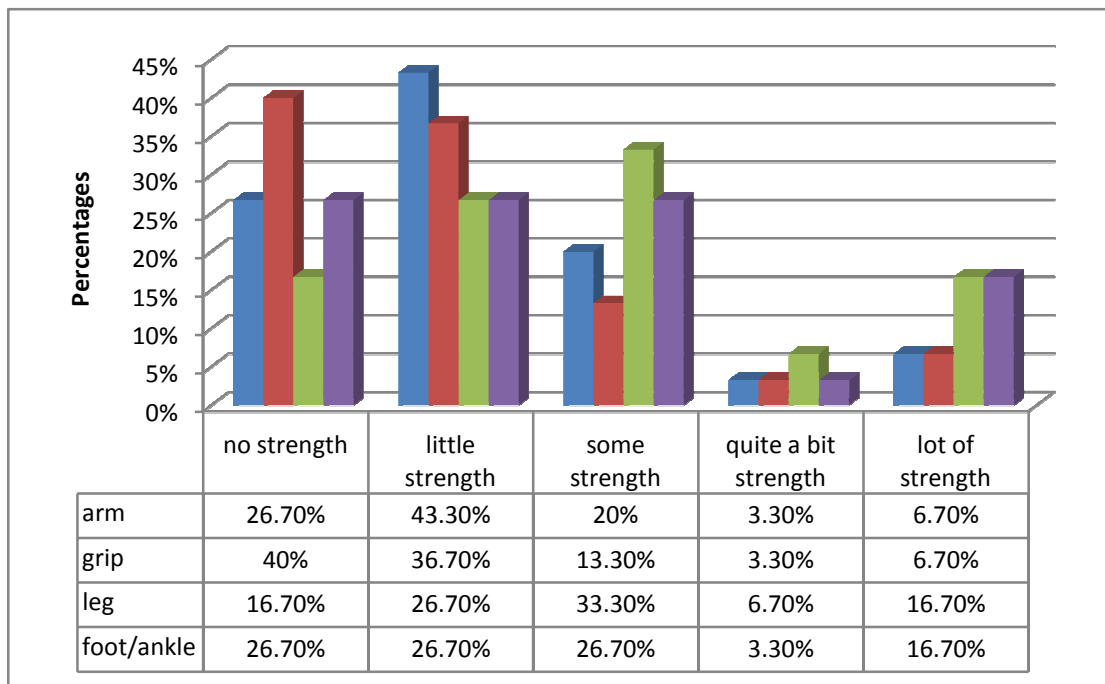


Figure-6: Strength.

Memory and thinking

About memory of the participants, n=5 (16.70%) had extremely difficulties in concentration, n=4 (13.30%) had a little difficult to think quickly and n=7 (23.30%) had very difficult to solve everyday problem.

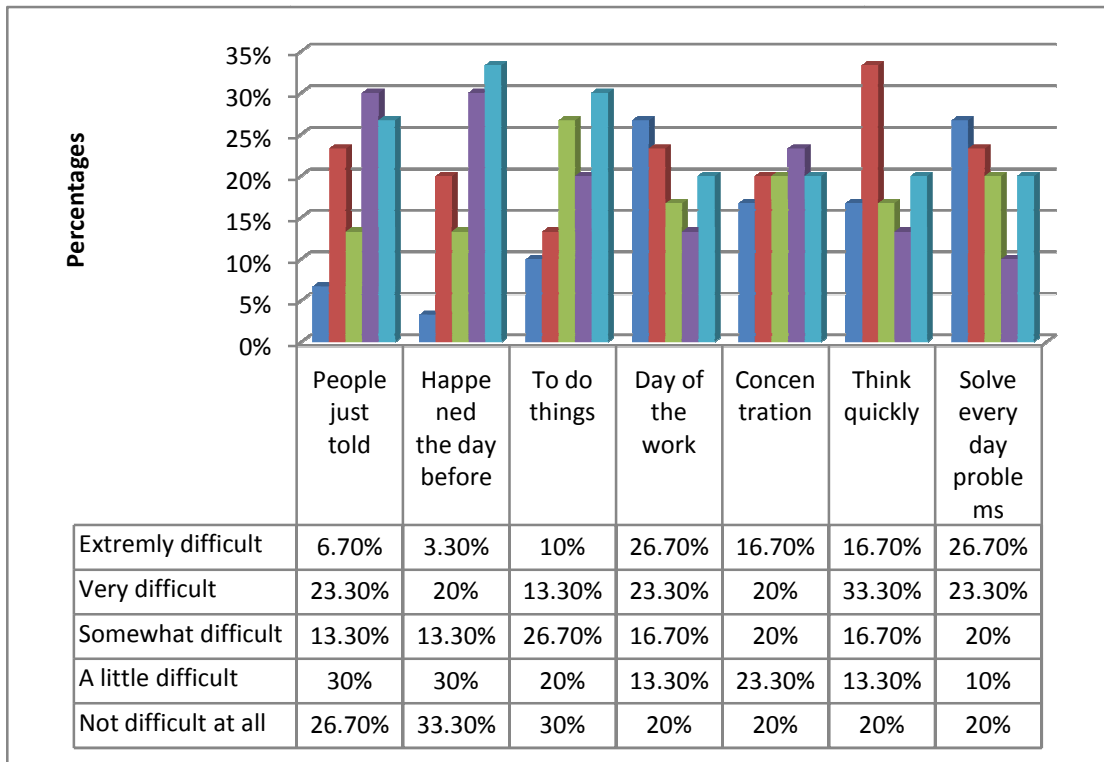


Figure-7: Memory and thinking

Emotion

About emotion of the stroke patient, n=4 (13.30%) participants felt sad all time, n=14 (46.70%) participants felt nervous most of the time and n=12 (40%) participants smile a little of the time.

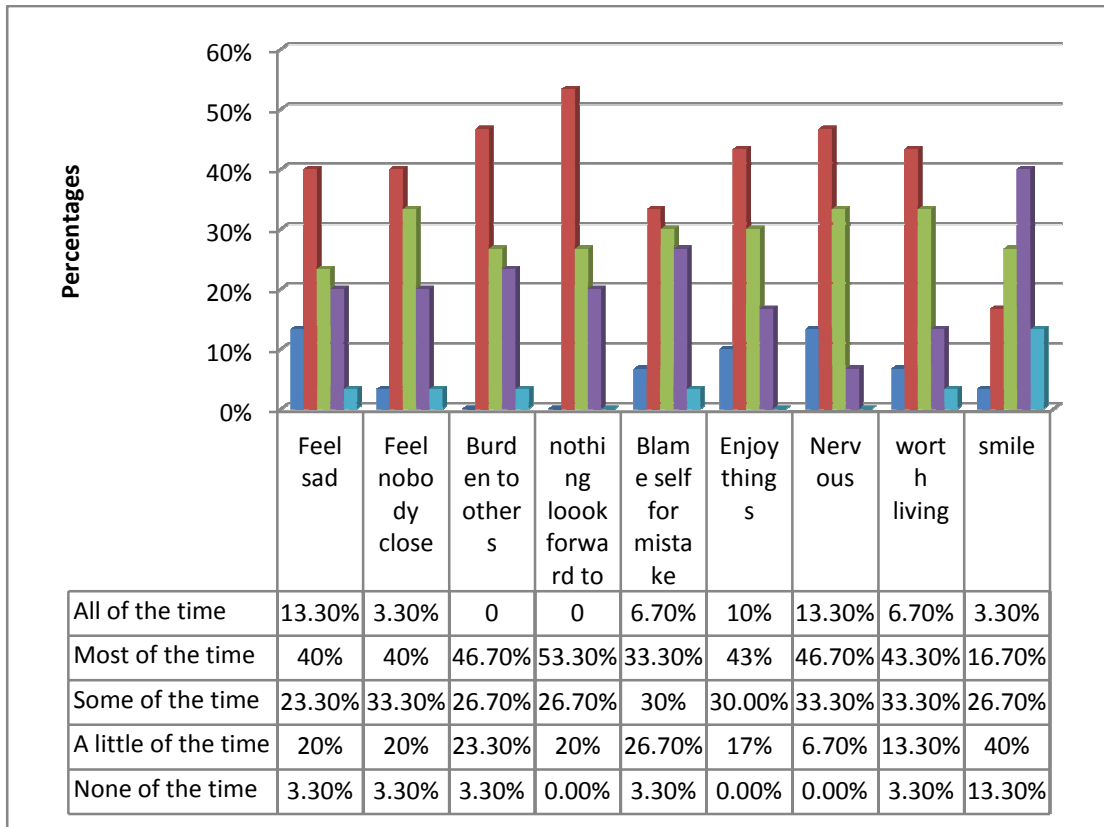


Figure- 8: Emotion

Communication

In this study, n=7 (23.30%) participants felt extremely difficult to answer any question, n=6 (20%) participant felt very difficult to participate in a conversion and n=3 (10%) participants felt a little difficult to talk in phone.

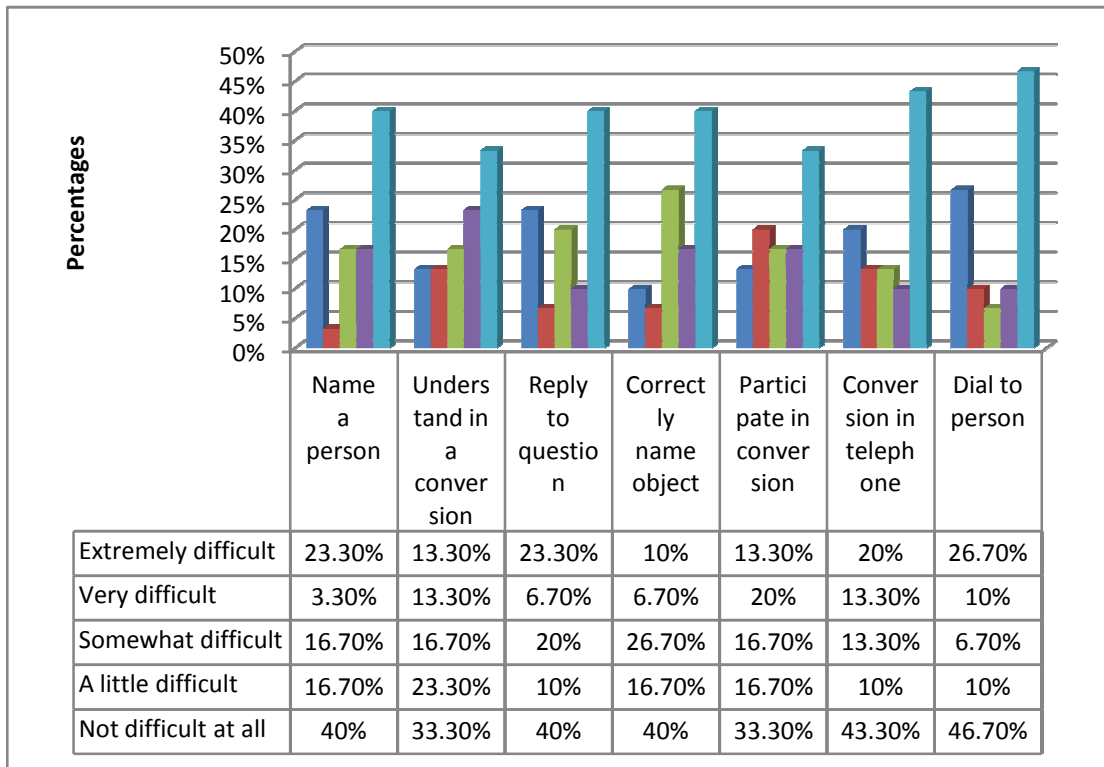


Figure-9: Communication.

Activities in daily living

In activities of daily living, n=5 (16.70%) participants felt very difficult to dress up, n=1 (3.30%) participants felt a little difficult to go to toilet and n=6 (20%) participants felt very difficult to go for shopping.

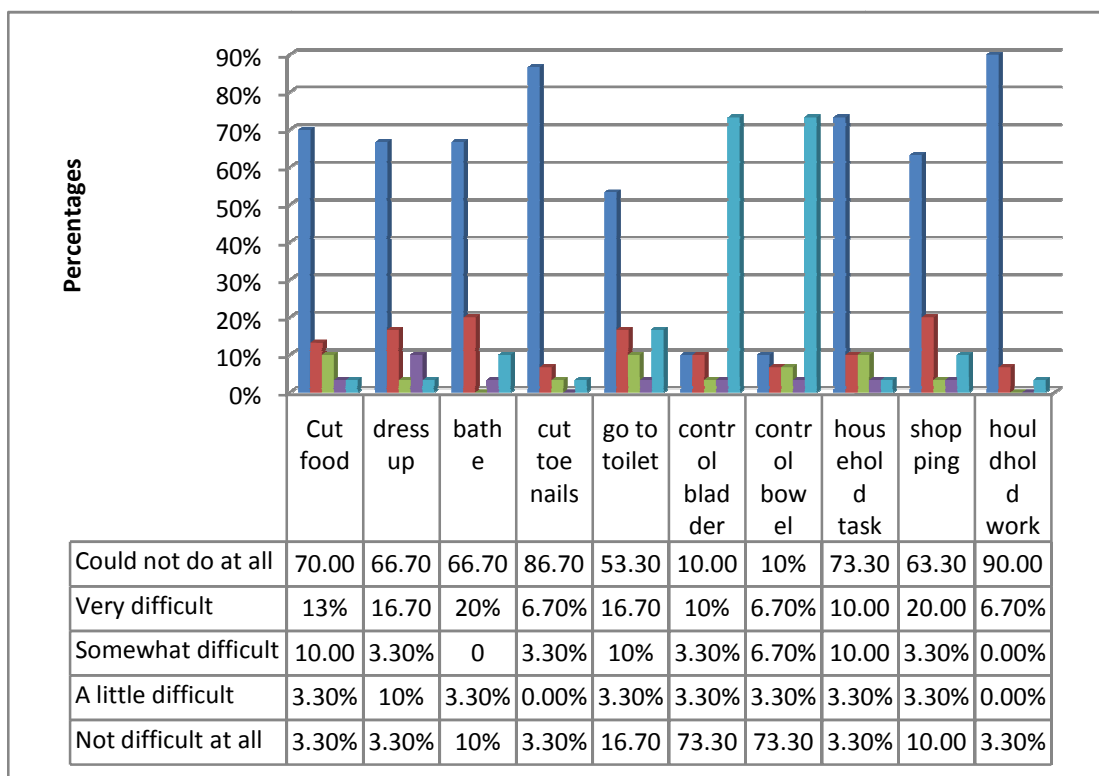


Figure-10: Activities in daily living.

Mobility

About mobility of the stroke patient, n=8 (26.70%) participants felt a little difficult in sitting in a bed, n=6 (20%) participants felt very difficult in transferring from bed to wheelchair and n=5 (16.70%) participant felt somewhat difficult for climbing stairs.

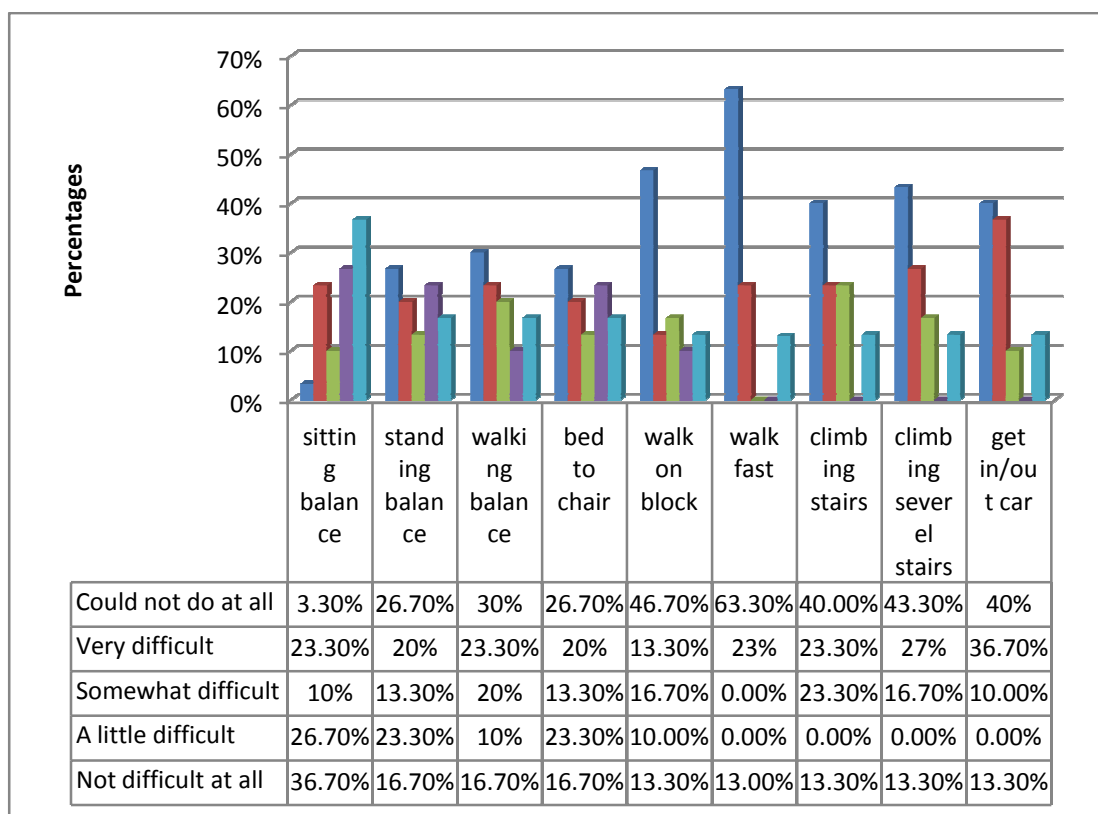


Figure-11: Mobility

Hand function

In hand function, n=26 (86.70%) participants could not carry heavy object, n=2 (6.70%) participants felt very difficult to open a jar.

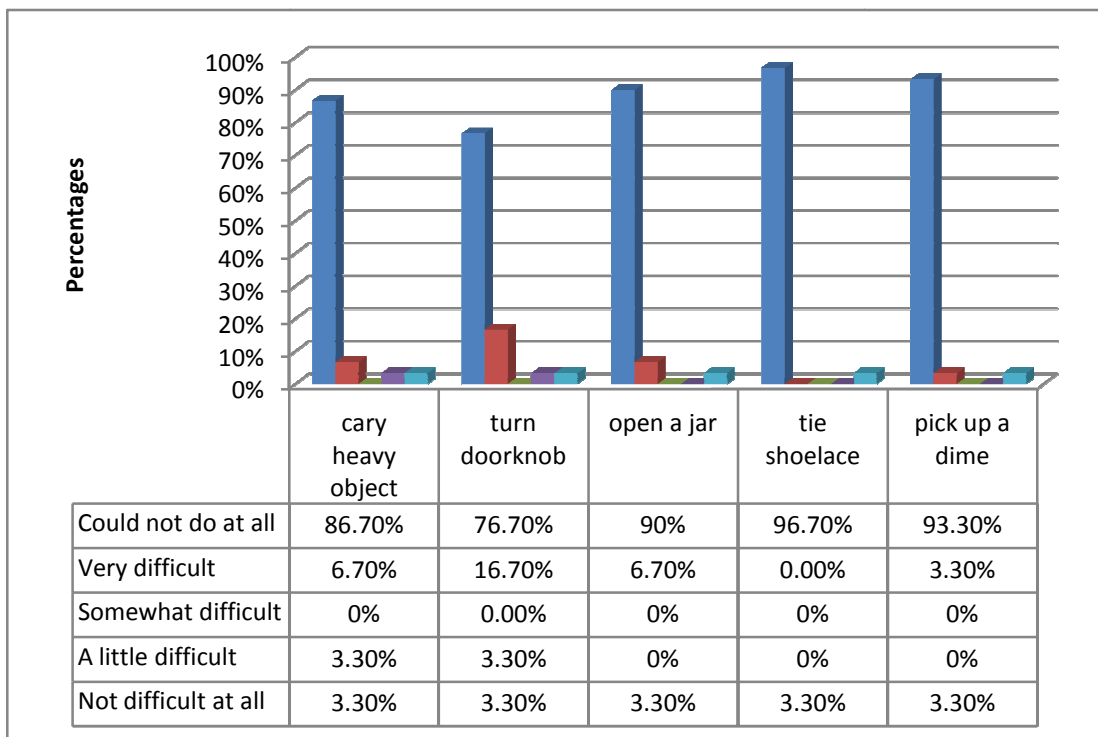


Figure-12: Hand function.

Participation

After analysis researcher found that, n=10 (33.40%) participants had limitation in quite recreation in most of the time, n=9 (30%) participants had no limitation time in religious activities.

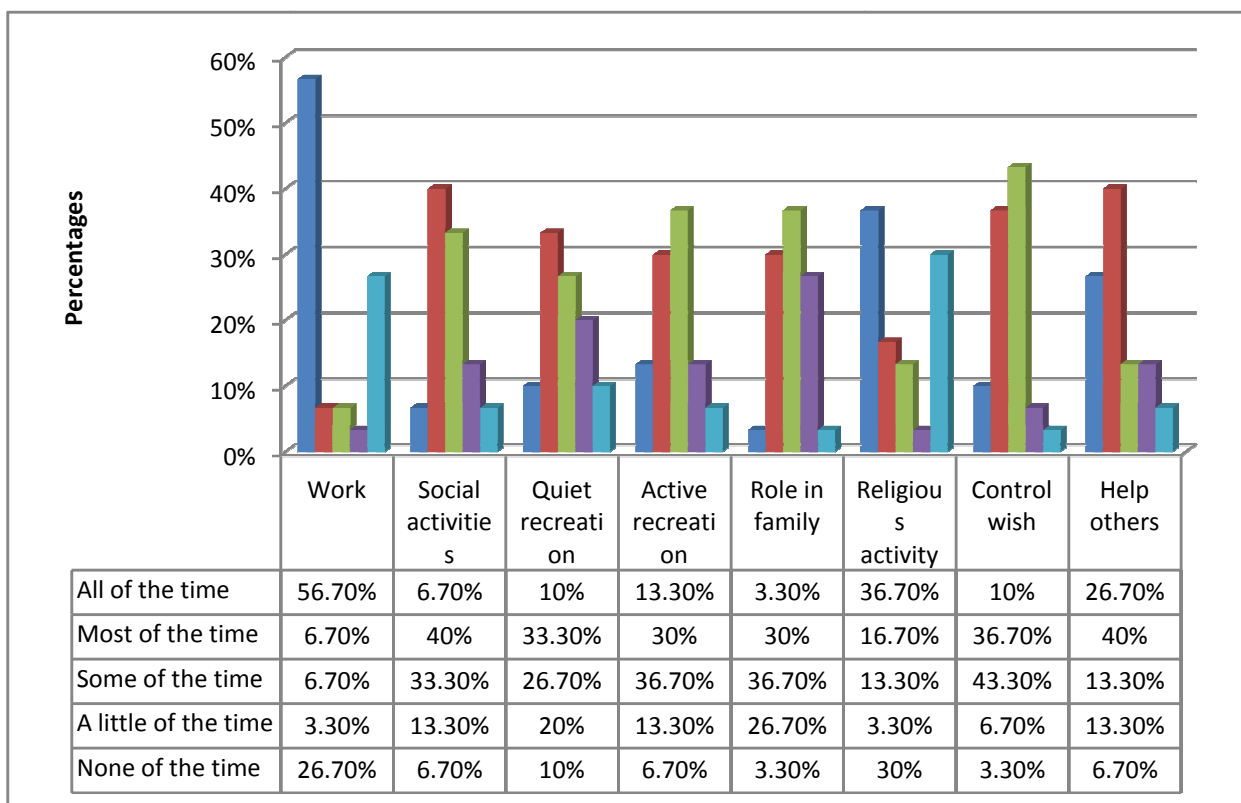


Figure-13: Participation

Stroke recovery

According to stroke recovery scale, n=8 (26.70%) participants were recovery about 40% and n=1 (3.30%) participants were recovery about 85%.

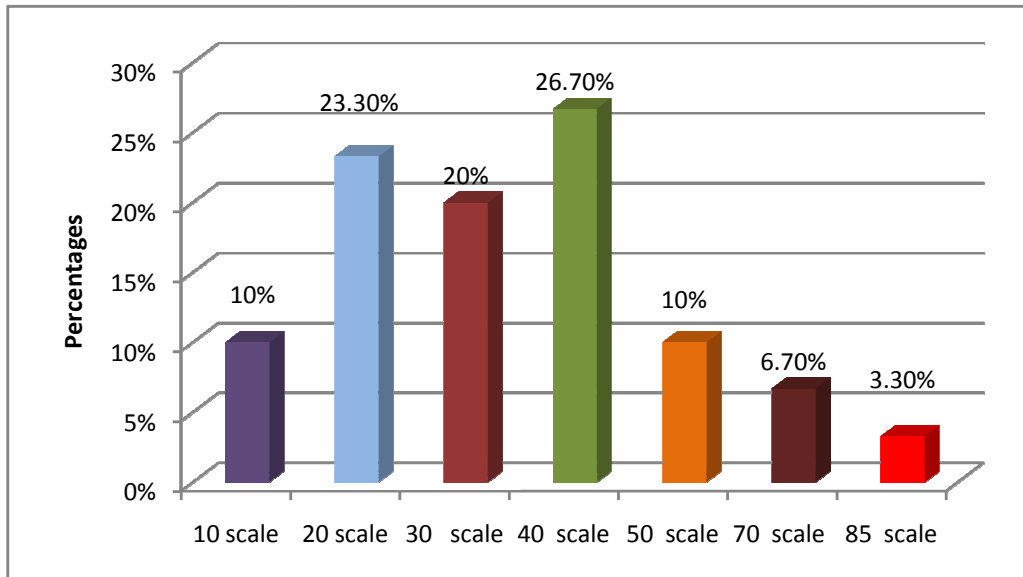


Figure-14: Stroke recovery.

The heterogeneity of stroke severity and symptoms has created many challenges to the assessment of stroke outcomes. Stroke impacts not only physical function but also emotion, memory and thinking, communication and role function (social participation) (Duncan, 1999).

In this study, researcher used SIS Version 2.0 to assess outcome in 30 patients with stroke. The validity of the SIS domains was supported by the analysis of convergent and discriminative analysis. In the current study, the SIS was sensitive in discriminating differences in health status between patients with varying severity of stroke.

From bar chart 1 shown that, stroke occurrence rate is high in more than 58 years of age and it is about 36.60%. Literature shows that, stroke occurs rarely in children, and the causes are different from those in adults (Gabris et al, 2002). Stroke is generally considered to be a condition that occurs in elderly individuals. For every 5 individuals who experience stroke 1 is under the age of 65 years (Graham et al, 2011). From bar chart 2 shown that, male are more affected than female. From Arteraine Medical, Men's stroke incidence rates are greater than women's. Based on studies from Western Europe, showed that stroke incidence was about 30% higher in men than in women (Appelros et al, 2009).

In the bar chart 4, percentages of hemorrhagic stroke were 76.70% and ischemic stroke was 23.30% but it could not reach a significant level. From Arterian Medical, all of strokes, 87% are ischemic, 10% are intracranial haemorrhage and 3% are subarachnoid haemorrhage. From International Task Force for prevention of coronary heart Disease, the the population from Europe, Australia and the United States compared in the International Stroke Incidence Collaboration (3.5 million person years, 5575 strokes) most strokes were of ischemic origin.

In the current study, we found that patients are changing significantly in all dimensions except memory, emotion and hand function. Duncan et al. found that the changing in their patients were in all dimensions of SIS except emotions.

Williams et al. demonstrated that SS-QOL domains were responsive to patient-reported change between 1 and 3 months except vision domain. Hopman and Verner using SF-36 HRQOL in 85 stroke patients, found that after one month there were improvements in all 8 domains of the SF-36, with 5 attaining statistical significance, and after 6 months, 4 domains continued to improve, with one attaining significant level. Lastly, QOL was assessed using the SIS in 93 stroke patients with therapeutic exercise, Studenski et al (2005) found that the patients with interventional exercise demonstrated improved more than usual care in strength, emotion, social participation, and physical function.

In this study, researcher found that, 40% stroke survivors were depressed, which affects quality of life. S. A. Abubakar¹, S. A. Isezuo found that about (29%) of stroke survivors was depressed using Zung Depression Self-rating Scale at 3 months. On the other hand, Hackett et al, found that 30% stroke survivors were depressed. Consistent with affection of QOL with depression, Moon et al. found that depression symptoms in acute phase of stroke were of importance in predicting low QOL 2 months after stroke. Furthermore, Haache et al. demonstrated that poststroke depression predicted the outcomes of HRQOL. In support, Jönsson et al. concluded that intervention targeting mood might improve QOL regardless of physical disability.

Maintenance of healthy social relationships may be one of the most important and salient influence of stroke on QOL. For patients, themes that related to social relationships include social support; especially lack of support from significant others, feelings of frustration resulting from increased dependence on others, and difficulty communicating. In the present study, we found significant correlations between social role participation and communication. In the present study, we found that 40% survivors have most limitation on social activities and 20% survivors have communication difficulties. Sue-Min Lai et al, found that 37% survivors had difficulties in social activities.

The needs of rehabilitation after having impairment are yet to be recognized by the mainstream health care strategies in Bangladesh. Very often, successful rehabilitation is excluded from the overall management of stroke patient. However the situation has been much more improving due to improving public health communication, raise health education through newspaper and electronic media. Information was obtained from those stroke survivors who attended at CRP. However, the main outcome of the research reveals that the physical strength of the upper limb is poor than lower limb, lack of concentration in ADL's. They are often depressed due to poor health and other social circumstances. They face challenges in effective communication. Their personal hygiene status is not satisfactory though feeling less problem over bowel and bladder control, standing balance is good than walking balance, transferring level was also poor and hand function is not satisfactory.

People in our country think physiotherapy treatment is some form of exercise. But it plays a great role in medical sector and many people become disable due to lack of awareness of physiotherapy. Physiotherapy is considered as an important treatment process in the developed countries. Stroke is a major cause of disability, and there is a need to identify effective physiotherapy intervention. The main aim of this study is to find out outcome of stroke survivors in stroke impact scale for the patients attend at CRP. Without proper physiotherapy treatment the proper recovery of stroke patient cannot achieve. Physiotherapy provides opportunities for an individual to regain optimal skilled performance to functional actions, increase level of strength and effective to improve functional independency.

REFERENCES

- Abubakar S. A, Isezuo S. A, 2012, Health Related Quality of Life of stroke survivors: Experience of a stroke unit, *International Journal of Biomedical Science*, 8(3): 186.
- Appelros P, Stegmayr B, Terent A, 2009, Sex differences in stroke epidemiology, a systematic review, *Stroke*, 40, : 1082.
- Bailey DM, 1997, *Research for the Health Professional: A Practical Guide*, 2nd edition, Philadelphia: F. A. Davis Company.
- Bellolio MF, Gilmore RM, Stead LG, 2011, Bellolio MF, Insulin for glycaemic control in acute ischaemic stroke, *Cochrane database of systematic reviews*, 9(9): CD005346, doi: 10.1002/14651858, CD005346, pub3, PMID 21901697.
- Davidson A and Waters K, 2000, Physiotherapist working with stroke patients-A national survey, *British Medical Journal*, 86(2): 69-89.
- Donnan GA, Fisher M, Macleod M, Davis SM, 2008, *Stroke*, *Lancet*, 371 (9624): 1612–23, doi:10.1016/S0140-6736(08)60694-7, PMID 18468545.
- Drake KW, Rothwell K, Boaden R, 2005, Feasibility of assessing the needs of stroke patients after six months using the GM-SAT, *Clinical Rehabilitation*, 60(4): 580-602.
- Drake RL, Vogl W, Mitchell A W M, 2005, *Anatomy for students*, 5th ed, An Imprint of Elsevier limited, Elsevier, Churchill, Livingstone, USA.
- Dubinsky R, Lai SM, 2006, Mortality of stroke patients treated with thrombolysis: analysis of nationwide inpatient sample, *Neurology*, 66 (11): 1742–1744, doi: 10.1212/01.wnl.0000218306.35681.38, PMID 16769953.
- Duncan PW, Wallace D, Lai SM, Johnson D, Embretson S, Laster LJ, 1999, The stroke impact scale version 2.0, evaluation of reliability, validity, and sensitivity to change, *Stroke*, 30: 2131-40.
- Durward BR, Salisbury LG, Rowe PJ, 1998, The development of quantifiable functional outcome measures for use in the evaluation of physiotherapy in stroke patients, *Physiotherapy*, 85(7): 370.

- Fregni F, Pascual-Leone A, 2007, Technology Insight: noninvasive brain stimulation in neurology—perspectives on the therapeutic potential of rTMS and tDCS, *Nature Clinical Practice Neurology*, 3(7): 383–393, doi:10.1038/ncpneuro0530, PMID 17611487.
- Gabris VL, Yangala R, Lean NJ, 2002, Time lag to diagnosis of stroke in children, *Paediatrics*, 110: 924.
- Gharam G, Mahon H, Staines E, Teasell R, Foley N, Salter K, 2011, The rehabilitation of younger stroke patients, *Stroke*, 22: 3.
- Grunwald IQ, Wakhloo AK, Walter S, 2011, Endovascular stroke treatment today, *AJNR Am J Neuroradiol*, 32(2): 238–43, doi:10.3174/ajnr.A2346. PMID 21233233.
- Haacke C, Althaus A, Spottke A, Siebert U, Back T, Dodel R, 2006, Long-term outcome after stroke: evaluating health-related quality of life using utility measurements, *Stroke*, 37: 193-8.
- Hackett ML and Anderson CS, 2005, Predictors of Depression after Stroke : A Systematic Review of Observational Studies, *Stroke*, 36: 2296-2301.
- Hicks CM, 2000, *Basic Principles of Research: Research Method for Clinical Therapist Applied Project Design and Analysis*, 3rd edition. Churchill Livingstone, New York.
- Hill MD, 2005, Diagnostic biomarkers for stroke: a stroke neurologist's perspective, *Clinical Chemistry*, 51(11): 20012, doi: 10.1373/clinchem.2005.056382, PMID16244286.
- Hopman WM, Verner J, 2003, Quality of life during and after inpatient stroke rehabilitation, *Stroke*, 34: 801-5.
- Jönsson AC, Lindgren I, Hallström B, Norrving B, Lindgren A, 2005, Determinants of quality of life in stroke survivors and their informal caregivers, *Stroke*, 36: 803-808.
- Kwakkel G, Kollen BWJ, Wagenaar RC, 1999, Therapy impact on functional recovery in stroke rehabilitation: A critical review of the literature, *British Medical Journal*, 319(7232):377-387.
- Lai SM, Perera S, Duncan PW, Bode R, 2003, Physical and social functioning after stroke: comparison of the stroke impact scale and short form-36, *Stroke*, 34: 488-93.
- Lange B, Flynn S & Rizzo A B, Flynn S, Rizzo A, 2009, Initial usability assessment of off-the-shelf video game consoles for clinical game-based motor rehabilitation, *Physical Therapy Reviews*, 14(5): 355–362, doi:10.1179/108331909X12488667117258.

- Lee M, Hong KS, Saver JL, 2010, Efficacy of intra-arterial fibrinolysis for acute ischemic stroke: meta-analysis of randomized controlled trials, *Stroke*, 41 (5): 932–7, doi: 10.1161/STROKEAHA.109.574335, PMID 20360549.
- Lynch EB, Butt Z, Heinemann A, Victorson D, Nowinski CJ, Perez L, 2008, A qualitative study of quality of life after stroke: the importance of social relationships, *J Rehabil Med*, 40: 518-23.
- Mondol D, 2004, Factors influencing to achieve the independence of the stroke patients in activities of daily living, BHPI, CRP, Savar, Dhaka.
- Moon YS, Kim SJ, Kim HC, Won MH, Kim DH. Correlates of quality of life after stroke, 2004, *J Neurol Sci*, 224 (1-2): 37-41.
- NINDS,2012, Stroke Rehabilitation Information, available: <http://www.ninds.nih.gov>, [viewed from 22 June].
- NSA, 2012,Types of stroke, available: <http://www.stroke.org>, [viewed from 22 June 2012].
- NSA,2012, Stroke survivors: Effects of Stroke, avaible: <http://www.stroke.org>, [viewed from 22 June 2012].
- O'Sullivan, Susan B, 2007, Stroke, In O'Sullivan S B and Schmitz T J, *Physical Rehabilitation*, Philadelphia: F A Davis Company: 719.
- Pan JH, Song XY, Lee SY, Kwok T,2008, Longitudinal analysis of quality of life for stroke survivors using latent curve models, *Stroke*, 39: 2795-802.
- Patel MD, McKeivitt C, Lawrence E, Rudd AG,Wolfe CD,2007, Clinical determinants of long-term quality of life after stroke, *Age Aging*, 36: 316-22.
- Reid A K and Staddon J E R, 1998, A dynamic route finder for the cognitive map, *Psychological Review*, 105: 585-601.
- Reid G, Chesson A, Rosemary, 1998, Goal attainment scaling, *NATIONAL LIBRARY OF AUSTRALIA*, 84(3): 136.
- Saver JL, 2006, Time is brain – quantified, *Stroke* 37(1): 263–6, doi:10.1161/01.STR.0000196957.55928.ab, PMID 16339467.
- Simard JM, Sahuquillo J, Sheth KN, Kahle KT, Walcott BP, 2011, Managing malignant cerebral infarction, *Curr Treat Options Neurol* 13(2): 217–29, doi:10.1007/s11940-010-0110-9, PMC 3243953, PMID 21190097.

- Studenski S, Duncan PW, Perera S, Reker D, Lai SM, Richards L, 2005, Daily functioning and quality of life in a randomized controlled trial of therapeutic exercise for subacute stroke survivors, *Stroke*, 36: 1764-70.
- Tenser, MS; Amar, AP; Mack, WJ, 2011, Mechanical thrombectomy for acute ischemic stroke using the MERCI retriever and penumbra aspiration systems, *World neurosurgery*, 76(6): 16-23, doi:10.1016/j.wneu.2011.07.003, PMID 22182267.
- The National Institute Of Neurological Disorders And Stroke Rt-Pa Stroke Study Group, 1995, Tissue plasminogen activator for acute ischemic stroke, The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group, *New England Journal of Medicine*, 333(24): 1581–7, doi: 10.1056/NEJM199512143332401, PMID 7477192.
- TISC ,2012 , Ischemic Stroke , available: <http://www.strokecenter.org>, [viewed from 22 June 2012] .
- TSC,2012,Risk Factors for Stroke, available: <http://www.theuniversityhospital.com>, [viewed from 22 June].
- Walton J, 1993, *Brain disease of nervous system*, 10th edition, Oxford university press, New York, 216.
- Wardlaw JM, Murray V, Berge E, Del ZG, 2009, Wardlaw JM, ed, Thrombolysis for acute ischaemic stroke, *Cochrane database of systematic reviews*, 4(3)doi: 10.1002/14651858.CD000213.pub2, PMID 19821269.
- Wardlaw JM, Murray V, Berge E, Del ZG, Sandercock P, Lindley RL, Cohen G, 2012, Recombinant tissue plasminogen activator for acute ischaemic stroke: an updated systematic review and meta-analysis, *Lancet*, doi: 10.1016/S0140-6736(12)60738-7, PMID 22632907.
- Williams LS, Weinberger M, Harris LE,1999, Development of stroke-specific quality of life scale, *Stroke*, 30: 1362-1369.

ANNEXURE

\$% " & ' (" \$) | ' * + , \$ -

“Outcome of stroke survivors in stroke impact scale for the patient attended at CRP”

" #) | # . - / \$ - 0 1% 2 34

|

\$ 5 + , " 5 " 6 7- " - \$ -
| # , ! \$ 6 ' 8 " / 49 #
0 4 ! \$ 6 ' 8 ' %: (- # ; ! : |

- < " " . + !; +
, = | >5 " 0) " 7- # +
7)? \$ | . # ,
1)@ ! A - 7)|

0 " 7- 1 , +< +<
- , & ' (, " \$% , " # , : , B -
CD&D |

. ; < 1)?

, . ; \$ - ?

- E----- ----- . ; > . -----

< (> . -----

VERBAL CONSENT STATEMENT

(Please read out to the participant)

Assalamualaikum/Namasker, my name is Md. Raihan Habib, I am a student of 4th year , B Sc in physiotherapy at BHPI,Savar ,Dhaka. According to the course curriculum , I have to conduct a research , titled “Outcome of stroke survivors in stroke impact scale for the patient attended at CRP” to partial fulfilment of degree .To accomplish the objective of the research , the participant have to fill up the questionare .

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 area (Neurology), so your participation in the research will have no impact on your present or future treatment in this area (Neurology). All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous. 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 Md. Raihan Habib, 4th year , BHPI, CRP, Savar, Dhaka-1343.

Do you have any questions before I start?

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

YES

NO

Signature of the Interviewer _____

: Outcome of stroke survivors in stroke impact scale for the patient attended at CRP

6 :

. ; :

:

F: (C) **G**((H)

I :

I 7 : (C) \$ (H) **J**

I : (C) **6** (H)

K :

I -L J

C. I + -)) 1-

| | | | | | |
|-----------------|---|--------------|--------|--------|--------|
| < , 9 4) ? | |) >: 9 |) 9 | M 9 | 9) |
| + I NO)? | P | & | D | H | C |
| + Q I NO) | P | & | D | H | C |
| + I NO) | P | & | D | H | C |
| + /<? I NO) | P | & | D | H | C |

H. R 9" #0 :) 1-

| | | | | | |
|--------------------------------|-------------|-------------|---------------|--------|--------|
| < , \$ - K) ? | M K) |) K) | % % K) | K) | K) |
| (+) | P | & | D | H | C |
| C <+ S) | P | & | D | H | C |
| + \$) () + - Q %(7 %) | P | & | D | H | C |
| , T | P | & | D | H | C |
| +< | P | & | D | H | C |
| U #0 : | P | & | D | H | C |
| - 7 | P | & | D | H | C |

D. I

" < V4 + ' "), / ') 1-

| | | | | | |
|---------------|---|---|---|-----|---|
| < , :) ? | | M |) | : < | |
|) ? | P | & | D | H | C |
|) !) | P | & | D | H | C |
| W G)) | P | & | D | H | C |
| \$ -) " < +% | P | & | D | H | C |
| 5 : \$ - \$ (| P | & | D | H | C |
|) < # ! .) ? | P | & | D | H | C |
|) : ') ? | P | & | D | H | C |
| [# X '() ? | P | & | D | H | C |
| o ") ? | P | & | D | H | C |

C/D

& . - + < + < . , +) ?) K W . " : Y #
 . / ') 1-

| | | | | | |
|---------------------|-------|-------|---------|-----|-----|
| < , Z9 \$2 \$ - K) | M K) |) K) | % % K) | K) | K) |
| +)) ? | P | & | D | H | C |
| : Y # +) W -) ? | P | & | D | H | C |
| 1 ! A \$ - K) ? | P | & | D | H | C |
| : Y \$ # \$ - K) ? | P | & | D | H | C |
| " o 4 # \$ - K) ? | P | & | D | H | C |
|) ? | P | & | D | H | C |
| " \$ Q ([) ? | P | & | D | H | C |

P. " 12) \$ ' / '+2 3' %) -

| | | | | | |
|------------------------------|----------|----------|------------------|--------|---|
| < X , Z9 \$2 \$ - K) ? | M K) |) K) | % % K) | K) | |
|) ? | P | & | D | H | C |
| ? 7 ? | P | & | D | H | C |
| \$ < ? | P | & | D | H | C |
| ? K +) ? | P | & | D | H | C |
| \ 7 ? | P | & | D | H | C |
| 7 ? | P | & | D | H | C |
| \$ ' ?(+ -) K , 7 -) | P | & | D | H | C |
| " + ? | P | & | D | H | C |
| : \$ ' ? + - 7 ,]) | P | & | D | H | C |

H'D

-. " \$# # . / ') 1-

| | | | | | |
|---------------------|-------------|-------------|------------------|--------|---|
| < X , Z9 \$2 K) | M K) |) K) | % % K) | K) | |
| - - " ? | P | & | D | H | C |
| - - ? ? | P | & | D | H | C |
| - - E ? | P | & | D | H | C |
|) # < ? | P | & | D | H | C |
| 7 N ? | P | & | D | H | C |
| U E ? | P | & | D | H | C |
| " 7 E? !K ? | P | & | D | H | C |
| 7 E? !K ? | P | & | D | H | C |
| < ? " < ? ? | P | & | D | H | C |

1. I a NO % .) 1-

| | | | | | |
|---------------------|-------------|-------------|---------------|--------|---|
| < X , NO - K) ? | M K) |) K) | % % K) | K) | |
| : \$ (+ - \$ -< | P | & | D | H | C |
| \$ - b 7 | P | & | D | H | C |
| - \$ < | P | & | D | H | C |
| \$ 7 | P | & | D | H | C |
| ? ? | P | & | D | H | C |

c. I : NO) i @ \$. ,+) ' " \$
! e - \$ +- -") 1

| | | | | | |
|--------------------|---|---|---|-----|---|
| < # ,) - | | M |) | : < | |
| \$(/voluntary :') | P | & | D | H | C |
| \$ ' f | P | & | D | H | C |
| (+ - ?) | P | & | D | H | C |
| (+ - 7 ,S ,g) | P | & | D | H | C |
| -/ h : 3 - | P | & | D | H | C |
| 7 ' . 0 | P | & | D | H | C |
| \$ 52 V4 . | P | & | D | H | C |
| - +- . | P | & | D | H | C |

D/D

I

<- :) ?

Ci i

J i

ci

i

_i

Pi

&i

Di

Hi

Ci

0

Questionnaire

Title: Outcome of stroke survivors in stroke impact scale for the patient attended at CRP.

Code No: Date:

Name:

Age:

Sex: (1) Male (2)Female

Onset of stroke:

Type of stroke: (1) Hemorrhagic (2) Ischemic

Affected Site: (1)Right (2) Left

Address:

Stroke Impact Scale

These questions are about the physical problems which may have occurred as a result of your stroke.

| 1. In the past week, how would you rate the strength of your | A lot of strength | Quite a bit of strength | Some strength | A little strength | No strength at all |
|---|--------------------------|--------------------------------|----------------------|--------------------------|---------------------------|
| a. Arm that was most affected by your stroke? | 5 | 4 | 3 | 2 | 1 |
| b. Grip of your hand that was most affected by your stroke? | 5 | 4 | 3 | 2 | 1 |
| c. Leg that was most affected by your stroke? | 5 | 4 | 3 | 2 | 1 |
| d. Foot/ankle that was most affected by your stroke? | 5 | 4 | 3 | 2 | 1 |

These questions are about your memory and thinking.

| 2. In the past week, how difficult was it for you to... | Not difficult at all | A little difficult | Somewhat difficult | Very difficult | Extremely difficult |
|---|-----------------------------|---------------------------|---------------------------|-----------------------|----------------------------|
| a. Remember things that people just told you? | 5 | 4 | 3 | 2 | 1 |
| b. Remember things that happened the day before? | 5 | 4 | 3 | 2 | 1 |
| c. Remember to do things (e.g. keep scheduled appointments or take medication)? | 5 | 4 | 3 | 2 | 1 |
| d. Remember the day of the week? | 5 | 4 | 3 | 2 | 1 |
| e. Concentrate? | 5 | 4 | 3 | 2 | 1 |
| f. Think quickly? | 5 | 4 | 3 | 2 | 1 |
| g. Solve everyday problems? | 5 | 4 | 3 | 2 | 1 |

These questions are about how you feel, about changes in your mood and about your ability to control your emotions since your stroke.

| 3. In the past week, how often did you... | None of the time | A little of the time | Some of the time | Most of the time | All of the time |
|---|-------------------------|-----------------------------|-------------------------|-------------------------|------------------------|
| a. Feel sad? | 5 | 4 | 3 | 2 | 1 |
| b. Feel that there is nobody you are close to? | 5 | 4 | 3 | 2 | 1 |
| c. Feel that you are a burden to others? | 5 | 4 | 3 | 2 | 1 |
| d. Feel that you have nothing to look forward to? | 5 | 4 | 3 | 2 | 1 |
| e. Blame yourself for mistakes that you made? | 5 | 4 | 3 | 2 | 1 |
| f. Enjoy things as much as ever? | 5 | 4 | 3 | 2 | 1 |
| g. Feel quite nervous? | 5 | 4 | 3 | 2 | 1 |
| h. Feel that life is worth living? | 5 | 4 | 3 | 2 | 1 |
| i. Smile and laugh at least once a day? | 5 | 4 | 3 | 2 | 1 |

The following questions are about your ability to communicate with other people, as well as your ability to understand what you read and what you hear in a conversation.

| 4. In the past week, how difficult was it to... | Not difficult at all | A little difficult | Somewhat difficult | Very difficult | Extremely difficult |
|--|-----------------------------|---------------------------|---------------------------|-----------------------|----------------------------|
| a. Say the name of someone who was in front of you? | 5 | 4 | 3 | 2 | 1 |
| b. Understand what was being said to you in a conversation? | 5 | 4 | 3 | 2 | 1 |
| c. Reply to questions? | 5 | 4 | 3 | 2 | 1 |
| d. Correctly name objects? | 5 | 4 | 3 | 2 | 1 |
| e. Participate in a conversation with a group of people? | 5 | 4 | 3 | 2 | 1 |
| f. Have a conversation on the telephone? | 5 | 4 | 3 | 2 | 1 |
| g. Call another person on the telephone, including selecting the correct phone number and dialing? | 5 | 4 | 3 | 2 | 1 |

The following questions ask about activities you might do during a typical day.

| 5. In the past 2 weeks, how difficult was it to... | Not difficult at all | A little difficult | Somewhat difficult | Very difficult | Could not do at all |
|--|-----------------------------|---------------------------|---------------------------|-----------------------|----------------------------|
| a. Cut your food with a knife and fork? | 5 | 4 | 3 | 2 | 1 |
| b. Dress the top part of your body? | 5 | 4 | 3 | 2 | 1 |
| c. Bathe yourself? | 5 | 4 | 3 | 2 | 1 |
| d. Clip your toenails? | 5 | 4 | 3 | 2 | 1 |
| e. Get to the toilet on time? | 5 | 4 | 3 | 2 | 1 |
| f. Control your bladder (not have an accident)? | 5 | 4 | 3 | 2 | 1 |
| g. Control your bowels (not have an accident)? | 5 | 4 | 3 | 2 | 1 |
| h. Do light household tasks/chores (e.g. dust, make a bed, take out garbage, do the dishes)? | 5 | 4 | 3 | 2 | 1 |
| i. Go shopping? | 5 | 4 | 3 | 2 | 1 |
| j. Do heavy household chores (e.g. vacuum, laundry or yard work)? | 5 | 4 | 3 | 2 | 1 |

The following questions are about your ability to be mobile, at home and in the community.

| 6. In the past 2 weeks, how difficult was it to... | Not difficult at all | A little difficult | Somewhat difficult | Very difficult | Could not do at all |
|---|-----------------------------|---------------------------|---------------------------|-----------------------|----------------------------|
| a. Stay sitting without losing your balance? | 5 | 4 | 3 | 2 | 1 |
| b. Stay standing without losing your balance? | 5 | 4 | 3 | 2 | 1 |
| c. Walk without losing your balance? | 5 | 4 | 3 | 2 | 1 |
| d. Move from a bed to a chair? | 5 | 4 | 3 | 2 | 1 |
| e. Walk one block? | 5 | 4 | 3 | 2 | 1 |
| f. Walk fast? | 5 | 4 | 3 | 2 | 1 |
| g. Climb one flight of stairs? | 5 | 4 | 3 | 2 | 1 |
| h. Climb several flights of stairs? | 5 | 4 | 3 | 2 | 1 |
| i. Get in and out of a car? | 5 | 4 | 3 | 2 | 1 |

The following questions are about your ability to use your hand that was most affected by your stroke.

| 7. In the past 2 weeks, how difficult was it to use your hand that was most affected by your stroke to... | Not difficult at all | A little difficult | Somewhat difficult | Very difficult | Could not do at all |
|--|-----------------------------|---------------------------|---------------------------|-----------------------|----------------------------|
| a. Carry heavy objects (e.g. bag of groceries)? | 5 | 4 | 3 | 2 | 1 |
| b. Turn a doorknob? | 5 | 4 | 3 | 2 | 1 |
| c. Open a can or jar? | 5 | 4 | 3 | 2 | 1 |
| d. Tie a shoe lace? | 5 | 4 | 3 | 2 | 1 |
| e. Pick up a dime? | 5 | 4 | 3 | 2 | 1 |

The following questions are about how stroke has affected your ability to participate in the activities that you usually do, things that are meaningful to you and help you to find purpose in life.

| 8. During the past 4 weeks, how much of the time have you been limited in... | None of the time | A little of the time | Some of the time | Most of the time | All of the time |
|---|-------------------------|-----------------------------|-------------------------|-------------------------|------------------------|
| a. Your work (paid, voluntary or other) | 5 | 4 | 3 | 2 | 1 |
| b. Your social activities? | 5 | 4 | 3 | 2 | 1 |
| c. Quiet recreation (crafts, reading)? | 5 | 4 | 3 | 2 | 1 |
| d. Active recreation (sports, outings, travel)? | 5 | 4 | 3 | 2 | 1 |
| e. Your role as a family member and/or friend? | 5 | 4 | 3 | 2 | 1 |
| f. Your participation in spiritual or religious activities? | 5 | 4 | 3 | 2 | 1 |
| g. Your ability to control your life as you wish? | 5 | 4 | 3 | 2 | 1 |
| h. Your ability to help others? | 5 | 4 | 3 | 2 | 1 |

9. Stroke Recovery

On a scale of 0 to 100, with 100 representing full recovery and 0 representing no recovery, how much have you recovered from your stroke?

_____ 100 Full Recovery

_____ 90

_____ 80

_____ 70

_____ 60

_____ 50

_____ 40

_____ 30

_____ 20

_____ 10

_____ 0 No Recovery

Permission letter

To

Date: 23.06.12

The Head of Department,

CRP, Savar, Dhaka.

Subject: Prayer for permission of data collection for research.

Sir,

I beg most respectfully to state that I am a student of 4th year, B Sc in Physiotherapy. I am doing research on "Outcome of stroke survivors in stroke impact scale for the patient attended at CRP" as part of our course curriculum, under supervision of Nasirul Islam, Assistant Professor, BHPI. I want to collect data from outdoor Neurology Department of CRP.

I therefore, pray and hope that you would be kind enough to grant me and thus oblige thereby.

Sincerely yours,

Md. Raihan Habib

Md, Raihan Habib

4th year, Roll-14,

Department of Physiotherapy,

BHPI, CRP, Savar, Dhaka.

Accepted,
Nasirul Islam
HPT

Nasirul Islam, MPT
PhD, Dip. Orthopedic Clinic (Belgium), MPT
Assistant Professor & Therapy A/B (UK)
Assistant Professor Physiotherapy, BHPI
Physiotherapy Department, CRP