FUNCTIONAL OUTCOME OF STROKE PATIENTS AFTER TWO WEEKS PHYSIOTHERAPY MANAGEMENT AT A SELECTED HOSPITAL

Parvin Sultana Shilpy

Part – II, M.Sc. in Rehabilitation Science

BHPI, CRP, Savar, Dhaka-1343

Session: 2016-2017

DU Registration No.: 4025

Submitted in Partial Fulfillment of the Requirements for the Degree of MSc in Rehabilitation Science

May 2018

Bangladesh Health Professions Institute

(BHPI) Faculty of Medicine

University of Dhaka

Supervisor's Statement

As supervisors of Prof. Dr. K. M. Shahidul Islam MSc in Rehabilitation science Thesis work, we certify that we consider her thesis **"Functional Outcome of Stroke Patients after Two Weeks Physiotherapy Management at a Selected Hospital"** to be suitable for examination.

Prof. Dr. K. M. Shahidul Islam Professor and Head Department of Microbiology Bardem General Hospital **(Supervisor)**	..... Date: ....24.05.2018.....

We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka for acceptance of this thesis entitled, "FUNCTIONAL OUTCOME OF STROKE PATIENTS AFTER TWO WEEKS PHYSIOTHERAPY MANAGEMENT AT A SELECTED HOSPITAL"

Submitted by **Parvin Sultana Shilpy**, for the partial fulfillment of the requirements for the degree of M. Sc. in Rehabilitation Science.

Professor (Dr.) KM Shahidul Islam
Head, Dept. of Microbiology,
BIRDEM General Hospital

Nasirul Islam
Associate Professor &
Vice Principal, BHPI

Prof. Dr. Md. Forhad Hossain
Professor
Department of Statistics
Jahangirnagar University, Dhaka

Shamima Islam Nipa
Lecturer, Rehabilitation Science
BHPI, CRP, Savar, Dhaka

Date of approval: ০৭/০৭/20১৪

Declaration Form

- This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.

- This dissertation is being submitted in partial fulfillment of the requirements for the degree of MSc in Rehabilitation Science.

- This dissertation is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by giving explicit references. A Bibliography is appended.

- I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority.

- I confirm that the electronic copy is identical to the bound copy of the Thesis.

Signature:……

Name:……..

Date: .....

Acknowledgement

In the name of ALLAH, most merciful and most gracious. It would not have been possible to complete this research without the help and support of kind people around me, only some of whom it is possible to give particular mention here.

First and foremost I am intensely grateful to my honorable supervisor Prof. Dr. K. M. Shahidul Islam, Professor and Head, Department of Microbiology, BIRDEM General Hospital for his dedicated supervision and guidance without which I could not be able to complete this study.

Also, it's my honor to mention Associate Professor Nasirul Islam for the good advice, support and guide to conduct this research.

In addition, I gratefully acknowledge to Abu Taleb, Senior Statistician & Head of Data Management, Center for Injury Prevention & Research Bangladesh.

I would like to express my gratitude to the patients with stroke who gave me their evaluable time and provided the information, related to my study and helped me to make my work successful.

Finally, I would like to give thanks to IBNSINA HOSPITAL authority to permitted me for data collection and for providing me with unfailing support and continuous encouragement through my study and through the process of researching and writing this thesis.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

ADL	Activities of Daily Living
BHPI	Bangladesh Health Professions Institute
BMRC	Bangladesh Medical Research Council
BTx-A	Botulinum Toxin Type A
CRP	Centre for the Rehabilitation of the Paralysed
CRPS-I	Complex Regional Pain Syndrome-Type I
CT	Computerized Tomography
CVA	Cerebrovascular Accident
FIM	Functional independence measurement scale
HS	Haemorrhagic Stroke
HSP	Hemiplegic Shoulder Pain
ICH	Intracerebral Hemorrhage
IRB	Institution Review Board
IS	Ischemic Stroke
MRI	Magnetic Resonance Imaging
OQL	Overall Quality of Life
PSD	Post Stroke Depression
RTT	Repetitive Task Training
SIDS	Stroke Induced Immunedepression Syndrome
SPSS	Statistical Package for the Social Sciences
UK	United Kingdom
UTI	Urinary Tract Infection
WHO	World Health Organization
ICU	intensive Care Unit

Abstract

Introduction: Stroke is the second leading cause of global death including Southeast Asia region**.** Most of the stroke patients affected between 6-9 months and 5 years after stroke have been suffering with disability which could be prevented by appropriate rehabilitation procedure. **Objective:** To assess the functional outcome of stroke patients after two weeks physiotherapy management. **Methodology:** A hospital based cross-sectional study was conducted at IBN SINA hospital, Dhaka. Total 105 patients were recruited for this study followed by purposive sampling technique. Data was collected by using a structured questionnaire and functional independence measurement scale followed by face to face interview and observation of the activities of the patients. **Results:** Study shows that minimum age of the respondents were 32 years and maximum were 79 years. Among the total respondents 48.60% were male and female counter part were 51.40%. Comparing the sex distribution of the respondents, the proportion was higher for female (51.40%) than male (48.60%). Residential distribution of the respondents shows that proportion were higher from urban area (53.30%) than rural area (46.70%). According to classification of stroke, 70% were under ischemic and 30% were hemorrhagic stroke. Majority (91.4) of the respondents were attending 6 to 10 physiotherapy session. Functional outcomes of the patients were measured followed by different indicators. Among those significant ($p < 0.05$) association was found on bed mobility, lying to sitting and transferred for bed to wheel chair. **Conclusion:** The result of this cross sectional study have identified the functional outcome of after 2 weeks physiotherapy treatment & provide association between some factors and functional outcome which will be helpful to facilitate in rehabilitation and enhance functional activities.

Key words: Functional Outcome, Physiotherapy Management.

CHAPTER-I: INTRODUCTION

1.1 Background

Stroke is one of the most important causes of death, along with harmful tumors and disease of the heart and blood vessels; however stroke is an avoidable and curable disease (Aydin et al., 2016). Among the chief public health problems, stroke is the most common (Srivastava et al., 2010). It is the vital reason for grown-up handicap and the second driving reason for death (Van et al., 2015).

According to the World Health Organization, every year 15 million people suffer from stroke, of which 5 million expire and 5 million become completely disable (Aydin et al., 2016). The occurrence of disability among stroke survivor is between 24–54% (Srivastava et al., 2010). In developing countries, over two-third of stroke patients die (Liu et al., 2007). The number of stroke-related burdens is expected to increase worldwide over the next two decades, but there is an impressive development in the medical management of stroke to combat the situation (Langhorne et al., 2011). Within 2050 year, there is a possibility of huge increase of stroke patients, of which 50 % patients will need special help for their daily living activity within 12 months (Van et al., 2015).

Stroke in the UK is also a major cause of disease and death. About 110,000 strokes occur in England.In two studies between 2002-2004, incidence was reported as 1.36 / 1000 / year and 1.62 / 1000 /year (Lee et al., 2011).In Singapore, the incidence of stroke is 1.8/1000 person per year with a prevalence 4.03% in residents above the age of 50 (Venketasubramanian& Chen, 2008).Approximately 40% of stroke survivors had

moderate to severe disability with a corresponding huge impact on societal and healthcare burdens (Ng et al., 2013).

In Bangladesh there are 162·2 million people, 26% live in urban areas and the majority (74%) lives in rural areas. In Bangladesh, stroke has been ranked as the third leading cause of death after coronary heart disease and infectious diseases. The mortality rate of stroke has increased from 6·00% (in 2006) to 8·57% (in 2011) with an age-adjusted mortality rate of 108·31 per 100,000 people (in 2011) (Islam et al., 2013).

In most stroke patients, between 6-9 months and 5 years after stroke, disability is stabilized. In Framingham studies, the following obstructions occurred among the elderly patients within 6 months after stroke: 50% had some hemiparesis, 30% could not walk without some assistance, 26% were dependent on ADL, 19% had aphasia, 35% had depression symptoms and 26% were existing in a nursing home (Carod and Egido, 2009).

Multidisciplinary early inpatient rehabilitation improves functional outcomes following a stroke, with reduced likelihood of institutionalization and mortality (Katherine et al., 2006). The most frequent diagnosis among patients treated by rehabilitation therapists is stroke. There are 2 main types of stroke- Ischemic & Hemorrhagic. An important long term problem of post stroke is presence of motor and sensory deficits that are directly associated with balance impairment. Balance problems are very common after stroke, and it is related with the poor recovery of activities of daily living (ADL) and mobility and an increased risk of falls(Tyson et al., 2006).

Evaluation of the severity of the stroke measuring balance is important for clinicians for giving the most appropriate therapy and assessing treatment outcome for people with stroke (Chien et al., 2007). Reduction of balance among stroke patients includes

lessening of postural stability, lessening inequality of weight distribution in standing and lessening in dynamic standing balance. In addition, stroke patients also decrease their range of stability, which is defined as the maximum distance that a person can transfer his weight to his weight without balancing. After the results of stroke, the risk of fall increased and in decreased functional independence due to inadequate balance or postural control (Tung et al., 2010).

Outcome in patients with ischemic stroke has improved, but mortality and morbidity remain high. The individual outcome depends on age, gender, stroke severity and comorbidity (Kwan & Hand, 2007). Infections such as urinary tract infection and especially pneumonia are serious complications after stroke (Ersoz et al., 2007).

After stroke for the recovery of stroke patients a variety of therapeutic methods have been invented. The most common is neurophysiological method, which increase motor functions and orthopedic procedures which increase the performance of the affected limb strength and motor relearning system (Chan et al., 2006). Several systemic reviews have shown that the recovery is improved for high-intensity therapies. Although there is no clear guidance at the best stage of the practice, the importance of increasing the training of knowledge is widely accepted. Rehabilitation should begin as soon as possible after stroke. After the formal rehabilitation period, recovery may continue for months or even years after stroke. In recent years there has been increased focus on improved outcomes after acute stroke. This interest is inspired by advances in knowledge of the mechanisms of recovery and the role of neuronal plasticity (Van et al., 2015).Optimal rehabilitation of stroke is based on the analysis of factors influencing the rehabilitation potential of the patient. These factors include the extent of disablement, other diseases, the level of

cognitive functions, limitation of daily life activities, barriers in the neighborhood, and social integration (Tarasova et al., 2008).

The results of the patient's progress and rehabilitation are evaluated by various functional status steps; The FIM (Effective Independent Measurement) score among them is the most common. These scores can be managed easily for a reliable measurement and periodic evaluation of patient performance changes (Appelros et al., 2009). FIM was developed in collaboration with American Congress rehabilitation and American Academy of Physical Medicine and Rehabilitation in 1983 lead by Carl Ganger and Byron Hamilton (Aydin et al., 2016).It was developed more than 20 years ago, and has been widely used since today because of its applicability in multiple diseases, including stroke, severe brain injury, cancer, and back injury. Physical rehabilitation, including physical therapy, occupational therapy and speech therapy, was shown to improve the effective results of patients who had stroke (Douglas et al., 2010).

1.2 Rationale

Stroke is a serious condition, which creates disturbance in functional activities. Literature suggests that changes in sensation, co-ordination problems, weakness, altered muscle power, changes in muscle tone and hand dysfunction is very common in stroke which can interfere with the person's ability to function at work & recreation and imposes a financial cost on the community. So it is very important to manage the cases with stroke properly in time. In Bangladesh, stroke represents a challenge to the clinician, because considering the context of our country patients often struggle to follow the evidence based treatment recommended for stroke.Stroke rehabilitation is not available in Bangladesh like other developed countries. Most of the patients taking only medical treatment. But rehabilitation is important for stroke patient to improve their life style. It is important to know that after rehabilitation how much it improves their functional ability, balance and quality of life. Stroke rehabilitation mainly completed by multi-disciplinary team. Physiotherapy is a significant part of this multi-disciplinary team and Physiotherapy is the best treatment protocol for stroke rehabilitation and prevention of complications associated with stroke. As the physiotherapy intervention is newly introduced in Bangladesh, many people are not aware of its purpose. But it is an important part of health care to prevent complications as well as to improve or maximize independence in people with disabilities. There were many research articles published about stroke rehabilitation for stroke but functional outcome after physiotherapy treatment is not so focused among them.Therefore, physiotherapy can play an absolute role in the management of the people with stroke. There are many physical therapy techniques exist for the treatment and rehabilitation of stroke and some researchers

suggest that functional status is necessary for the rehabilitation of stroke patient. The purpose of this study is to find out thefunctional outcome of stroke patients after two weeks physiotherapy management at a selected hospital. The results of the study may help to guide the physiotherapists which will be beneficial for both stroke patients and for developing the field of physiotherapy profession.

1.3 Research Question

What is the functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital?

1.4 Objectives

General objectives:

- To find out the functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital.

Specific objectives:

- To explore functional outcome of the stroke patients after physiotherapy in terms of rolling, bridging, supine to sit, sit to supine, sitting static balance, sitting dynamic balance, standing static balance, standing dynamic balance, transfer bed/chair/wheel chair and gait.
- To find out factors affecting outcome of the patients.
- To state the socio-demography status of the respondents

1.5 List of Variables

Dependent variable

-Function outcomes of stroke patients

Independent variables

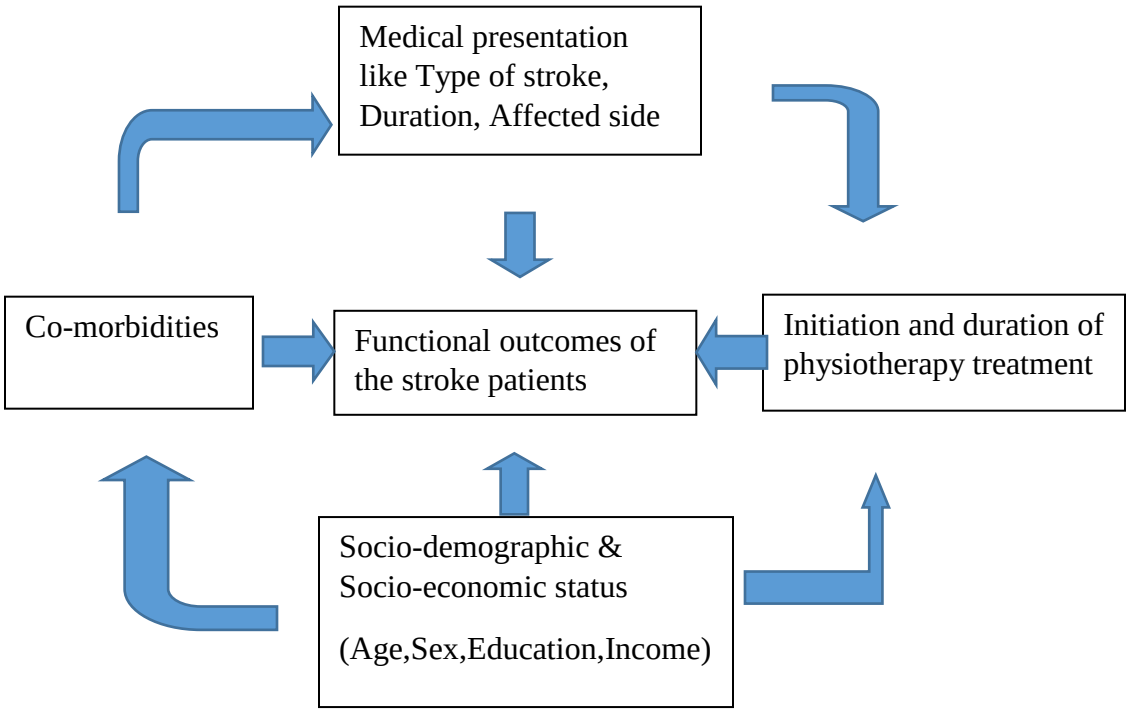
-Sociodemographic: age, sex, occupation, education

-Medical presentation: type of stroke, duration, affected side

-Co-morbidities: medical, musculoskeletal and neurological complications

-Initiation and duration of physiotherapy treatments

Conceptual framework



1.6 Operational definitions

Stroke

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

Stroke Rehabilitation

Stroke Rehabilitation is a progressive, dynamic, goal orientated process aimed at enabling a person with impairment to reach their optimal physical, cognitive, emotional, communicative, and social functional level.

Functional Outcomes of stroke patients

Functional outcome is a measurable goal in rehabilitation therapy that helps a patient performs specific activities of daily living. I started out functional outcome initial and after taking two weeks of physiotherapy by use FLM scale.The FIM score ranges from 1 to 7 with 1 (Total Assistance) being the lowest possible score and 7 (Complete Independence) being the best possible score.

Ischemic stroke

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

Haemorrhagic Stroke

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

CHAPTER-II LIERATURE REVIEW

2.1 Stroke

Stroke is the main cause of long-term disability in Western countries, and functional results depend on the severity of the stroke. The number of stroke survivors with estimated incomplete recovery is estimated to be 460 / 100,000 and one-third will take care of at least one of the daily living (ADL) activities. Between 50 and 70% stroke survive functional independence regain, but 15-30% are permanently disabled, and 20% begin attaining institutional care after 3 months. 85% of stroke patients have upper limb function loss at the start of stroke (Carod&Egido, 2009).

The father of Western Medicine Hippocrates, more than 2400 years ago was first described stroke is a neurological condition which characterized by the sudden onset of paralysis muscle on one side or both side of the body.Stroke is defined by the World Health Organization as ‘a clinical syndrome consisting of rapidly developing clinical signs of focal disturbance of cerebral lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin.’ (Hossain et al., 2011). Stroke is one of the leading vital of death and disability worldwide and more so in backward Countries like, where expected treatment is available including rehabilitation The primary initiative of the rehabilitation approach may be able to make a return on the nervous function and improve long-term results and quality of life (Hossain et al., 2011).

Risk factors of stroke can be divided into two factors. They are modifiable or reversible and non-modifiable or irreversible factor. Non- modifiable factors are; age, gender (male

> female except in the very young and very old) previous vascular event, e.g. myocardial infarction, stroke or peripheral embolism, (Hossain et al., 2011) high fibrinogen, race (Afro-Caribean> Asian > European), heredity, (Boon et al., 2004). Modifiable factors like hypertension, diabetes mellitus, heart disease (atrial fibrillation, heart failure, and endocarditis), hyperlipidaemia, smoking, excessive alcohol drinking, polycythaemia and oral contraceptive (Hossain et al., 2011). Major risk factors for stroke are cigarette smoking and alcohol drinking which have long been recognized. Their pathophysiological effects are multifactorial, involving both systemic vasculature and blood rheology (Zhang et al., 2011).

2.2 Prevalence of stroke

Early stroke case fatality has decreased in high, low, and middle-income countries. Despite increased stroke incidence, reduced mortality rates have led to an increase in people living with disabilities. Therefore, stroke constitutes the leading cause of serious, complex, and long-term adult disability. According to the World Health Organization, 15 million people suffer stroke worldwide annually. Of these, five million die and another five million are permanently disabled (Luvizutto et al., 2015).

WHO estimates for 2001 indicate that death from stroke in low-income and middle-income countries accounted for 85.5% of stroke deaths worldwide, and the disability adjusted life years (DALYs) lost in these countries was almost seven times those lost in high-income countries (Mathers et al., 2006). Evidence from developed countries suggests that one in 20 adults (aged >14 years) is affected by stroke, including clinically covert strokes (Hachinski, 2007) and the incidence of acute cerebrovascular events (stroke and transient ischaemic attack combined) currently exceeds the incidence of acute

coronary heart disease (Rothwell et al., 2005). Although rates of stroke mortality and burden vary greatly among countries, low-income countries are the most affected. Current measures of the prevalence of cardiovascular risk factors at the population level poorly predict overall stroke mortality and burden and do not explain the greater burden in low-income countries (Johnston et al., 2009).

Stroke is a major cause of death in the United States, third for female and fourth for men. Stroke rates are slightly higher in man, but women's higher stroke death rates are overall (68 vs 44 per 100 000 in 2002) due to high average age of women. Many studies have found that women who have stroke have less positive results than male patients. Women have more physical impairments and limitations in activities of daily living (ADL), or basic components of self-care. Women face more mental impairment, depression, and fatigue and lower overall quality of life (QOL) than men after stroke (Gargano et al., 2007).

Cerebrovascular accidents (CVAs), or strokes, remain a major healthcare problem in terms of their human and economic toll. There are more than 700,000 strokes in the United States every year, resulting in more than 4.8 million stroke survivors today due to more than 160,000 deaths a year. From 1988 to 1997, the age-adjusted stroke hospital increased by 18.6 percent, the total stroke hospital increased by 38.6 percent. In 2004, stroke prices were estimated at $ 53.6 billion, with an average life expectancy of $ 140,048. Because stroke is also a leading cause of functional impairments, 3 months and 15 to 30 percent of the organisms need organisms after being permanently disabled 20 percent (Douglas et al., 2010).

Every year, 200,000 people in Germany maintain their first stroke, and another 60,000 strokes after one or more of the pre-stroke; in almost five years almost a person can get a stroke at any time of his or her life. About 80% of stroke is ischemic and 20% is hemorrhagic. Under the age of 65 more than one-fourth of stroke patients are below Risk factors (Hypertension, smoking, lack of exercise, weights and other risk factors) are essential for the underlying stroke of vascular diseases. Medicines, and Lifestyle help with the necessary changes. Regular mortality statistics indicate that there are several differences in stroke deaths among European countries, which are much lower than most east European countries. European region's projections are 65-year-old population ratio, which can lead to most stroke incidents, up to 35% in 2050 from 20% to 2000, and middle-aged between 2000 to 37.7 years to 47.7 years in 2050 (Truelsen et al., 2006).

In Thailand, stroke is the third major cause of death. Despite the initial resistance to progress, many consequences of stroke have deteriorated for survivors: About 50% of the 12-month stroke survivors depend on others for self-care and personal activity in daily life. It keeps a significant demand for healthcare through hospital readmissions, community support needs and rehabilitation organizations. Stroke patient’s lives with not only the problem of strokes, but also their functional impairments and their reduced social interactions (Van et al., 2015).

The estimated number of stroke outbreaks in India is 44 to 843 per 100,000 populations. Most of Pakistan's data come from hospital based case series. Annual stroke incidence in Pakistan is 250 per 100,000 populations, which is projected in a guess of 350,000 new cases every year. A recent study conducted in Karachi's urban slum estimates the prevalence of life expectancy of 21.8% of stroke and transient ischemic attack among

people 35 years and older. Another population-based study showed 4.8% stroke outbreak using interviews with an elected ethnic group in northwestern Pakistan and Afghanistan, the average age of 45 years of stroke. In Pakistan, there is a female stroke of stroke, and the age of stroke in the stroke than the male is even smaller. In these two demographic studies, very high trends in stroke can be confusing and confusing due to case-specific problems. With the population of nearly 20 million people, the proportion of stroke in Sri Lanka, 9% of every 1000 population. Limited information is available in Bangladesh with stroke prevalence: A study shows a total outbreak of 3 people per 1,000 people. The estimated stroke of stroke shows slight changes across all South Asian countries. No information is available from Afghanistan, Nepal, Bhutan and Maldives (Bhowmik et al., 2016).

According to World Health Organization estimates, 86% of worldwide stroke deaths occur in developing countries globally. South Asia is considered to be the largest contributor to stroke deaths in the world, possibly accounting for more than 40% of world stroke deaths. In this region, heart disease may be higher for stroke, and stroke and heart disease are affected more than 10 years before the rest of the world. South Asian countries have a very large stroke population and on the other hand, limited by human resources (neuroscientists and stroke specialists) and financial resources (Bhowmik et al., 2016).

In Bangladesh the occurrence of stroke has been estimated 0·20%, 0·30%, 0·20%, 1·00%, and 1·00% for the age groups 40–49 years, 50–59 years, 60–69 years, 70–79 years, and 80 years and above, respectively. The overall prevalence for stroke was 0·30%, and the ratio of male: female patients was 3·44: 2·41 (Islam et al., 2013).

Patients with chronic stroke are hospitalized during the acute or sub-acute phase, and then receive rehabilitation treatment. However, after their discharge, they often do not receive continuous rehabilitation treatment in their community. The number of stroke survivors using community-based public health rehabilitation services is also low (Yi et al., 2015).The mortality rate progressively decreases in the last few decades, and residual impairments and disabilities are subsequent increase and decrease functional outcome and quality of life. The strongest impact of poor quality of life among stroke patients is Depression. Post-stroke depression (PSD) is one of the common emotional complaints affecting stroke patient (Srivastava et al., 2010).

2.3 Hemorrhagic & Ischemic Stroke

Due to multifarious anatomy of the brain and its vasculature the clinical manifestations of stroke are highly variable (Boon et al., 1999). There are 2 main types of stroke-Ischemic stroke are the most common type of stroke and it is responsible for about 80% of all first ever in a life time stroke. This occurs due to reduction in blood supply; brain cells die from lack of oxygen results a clot blocks blood vessels or become too narrow for blood to flow within the brain. Haemorrhagic stroke are due to the rupture of an artery within the brain triggering an intracerebralhaemorrhage about 15% of strokes or to the rupture of aneurysm or AVM entailing subarachnoid haemorrhage about 5% of strokes. The main pathological types of stroke are cerebral infarction, primary intra-cerebral haemorrhage and subarachnoid haemorrhage (Amanullah et al., 2009). Ischemic stroke is different from that of hemorrhagic stroke due to pathogenesis and their clinical factors would not be the same and incidence rate of ischemic stroke in East China was obviously higher than that of hemorrhagic stroke (Zhang et al., 2011). Infarction from hemorrhage can be

differentiated by the pathophysiological terms. About 80% of all stroke patients suffer from an infraction, and it is most common, whereas 20% of all stroke patients are struck by a hemorrhage. According to the location and the size of the brain lesion, clinical presentation varies from minor neurological symptoms to severe deficits (Hendricks, 2003).

Comparisons between hemorrhagic (HS) and ischemic stroke (IS) in respect to prognostic determinants are hampered by the disproportionate distribution of the 2 types of stroke, with IS being 10-times more frequent than HS in Western countries. HS are considered to have a higher mortality risk than IS (Andersen et al., 2009).Some risk factors are common for both HS and IS (Ferro, 2006). The association of atrial fibrillation, ischemic heart disease, and diabetes with IS seems well-established in comparative studies, but the relative role of risk factors such as hypertension, smoking, and alcohol consumption remains controversial (Liu &Bogousslavsky, 2005).Most South Asian studies compared to Western countries have reported a high percentage of hemorrhagic stroke (19-46%). This discovery may be related to the high prevalence of high blood pressure in South Asia and poor control. The prevalence of intracerebral hemorrhage (ICH) is particularly high in younger patients (15-45 years of age) with stroke (32-43%). The high frequency of ICH reported in Bangladesh (31-33%). Cardio embolic Stroke is less common in South Asia compared to Western countries (Bhowmik et al., 2016).

2.4 Complications after stroke

Medical complications are frequent among individuals who have had a stroke, increasing the length of hospitalization as well as the costs of care. These complications are a major cause of death in the acute and sub-acute stroke phases (Hong et al., 2008). Pre-existing

medical conditions, advanced age, and pre-stroke disability can affect an individual's risk for developing these events. Patients with severe, disabling strokes are particularly vulnerable (Hong et al., 2008).Medical complications can hinder functional recovery and are associated with poorer functional outcome after adjusting for stroke severity and age The explanation for this association is unclear but these events probably interfere with rehabilitative therapies. Furthermore, fever, hyperglycaemia, systemic inflammatory response, hypoxia, or medications used to treat some of these complications might have a directly damaging physiological effect on an injured brain or might compromise its capability for plastic change (Kumar et al., 2010).

Most medical complications develop within the first few weeks of stroke (Indredavik et al., 2008). Some events, such as cardiac abnormalities, dysphagia, and pneumonia, are often apparent early after stroke onset whereas others, such as bed sores, venous thrombosis, and falls, can occur after several days. Many complications are preventable or, when this is not possible, early recognition and treatment can be effective in ameliorating these events early in their course. Therapeutic dilemmas can arise when treatment of a systemic complication poses a potentially harmful effect on the stroke-injured brain. These situations require appropriate tailoring of management strategies after considering the risks and benefits of different treatment approaches (Kumar et al., 2010).

Among the most common medical complications are infections, including pneumonia and urinary tract infection (UTI) (Poisson et al., 2010). UTIs occur frequently after stroke and are associated with poorer outcomes with increased odds of decline in neurological status during hospitalization, death or disability at 3 months as well as

increased length of hospital stay (Kumar et al., 2010). UTI is a common cause of morbidity in the general medical population, but patients with stroke are at an even higher risk of infection than other patients and may have more significant consequences resulting from infection. Foley catheters are a well-described risk factor for health care-associated UTI, and their inappropriate use may be more common in patients with stroke, thereby further increasing the risk of UTI. Most UTI studies have involved general medical populations, so the incidence of UTI and its relationship to the use of Foley catheters after stroke is not clear. This may be an area in which easily implemented modifications of standard post stroke hospital care could improve stroke outcomes and substantially reduce cost (Poisson et al., 2010).

Factors claimed to predict increased risk of UTI include stroke severity, depressed conscious level increased post-void residual urine volume and diabetes mellitus. UTI is associated with morbidity and as a consequence may interfere with rehabilitation. It has been claimed that there is an independent association between UTI and poor stroke outcome.4 Therefore, prevention and prompt treatment of UTI in stroke patients might improve outcome (Kumar et al., 2010).

Infections complicating acute ischemic stroke contribute to mortality and poor functional outcome after stroke in most clinical studies (Hong et al., 2008). Pneumonia occurs in 5–22% and is the most common cause of death in stroke patients (Sellars et al., 2007). The risk of infection is highest in the acute phase after stroke which may be attributed to stroke-induced immunodepression syndrome (SIDS). SIDS is characterized by loss of lymphocytes through apoptosis, shift of T-helper cell 1 to 2 cytokine production, decreased monocyte count and function, and interferon γ deficiency which begins a few

hours after ischemia and lasts for several weeks. These effects are associated with infection after stroke (Dirnagl et al., 2007). Biomarkers may facilitate an early diagnosis of infection in patients with acute ischemic stroke (Wartenberg et al., 2011).

Stroke is a serious disease. The quality of life in stroke is given not only by local neurological symptoms, such as motor and sensory deficits of neurological functions and aphasia, but also by the presence of negativity, depression, fatigue, vascular dementia, and frequent falls with injuries and bone fractures (Tarasova et al., 2008).

After a CVA individual may show sensitive and cognitive impairments, the motor impairments such as muscular weakness, hypertonia, abnormal movement patterns and physical deconditioning are the most common. Individuals with CVA have some musculoskeletal disorders which are considered as important impairments and usually determine limitations in performing functional activities and activities of daily living like gait, stair ascent and descent (Nascimento et al., 2012).

At onset of stroke other deficits may be present such as loss of consciousness, dysfunction of the cranial nerves, postural imbalance, coordination disorders and loss of sphincter control. In the sub-acute and chronic phase some complications secondary to the initial neurological deficits may develop. These consist of shoulder-hand syndrome due to multiple traumatizations in patients with paralysis of the upper extremity and hemi neglect or contractures resulting from severe spasticity (Hendricks, 2003).

Depending on the part of the brain injured the severity of the injury and the person's general health consequence of stroke may differ from man to man. One of the most prominent features in the acute phase is hemiparesis (Flansbjer et al., 2005) which is occurs in 80-90% of all stroke patients and may be accompanied by hemi hyperesthesia.

Other remarkable features are represented by cognitive deficits such as aphasia, apraxia and hemi neglect (Hendricks, 2003). Motor impairment is the most common and widely recognized impairment following stroke and mostly focus of stroke rehabilitation is on the recovery of impaired movements and related functions (Galvin et al., 2012). Muscle weakness, pain, spasticity and poor balance can lead to a reduced tolerance to activity and further sedentary lifestyle which occurs due to impairments resulting from stroke. Community-dwelling individuals with stroke undertake extremely low levels of physical activity (Eng& Tang, 2007).

Hemiparesis is the most frequent neurological deficit after stroke (Oliveira et al., 2008). Hemiparetic stroke patients frequently present balance abnormalities. Balance impairments increase fall risk, resulting in high economic costs and social problems (Belgen et al., 2006). Tailoring efficient therapeutic approaches depends on appropriate evaluation of specific needs, but the best tools for balance evaluation in patients with stroke are still under debate (Geurts et al., 2005).

Depression is considered as the strongest predictor of poor quality of life among stroke survivors (Srivastava et al., 2010). Post-stroke depression (PSD) is one of the common emotional disorders afflicting stroke survivors. Previous studies have reported prevalence rates that have ranged from 18% to 61%, depending upon patient selection and criteria used (Kong & Yang, 2006). Diagnosis of PSD is challenging; therefore, it often remains unrecognized and/or undertreated. PSD is associated with cognitive impairment, increased mortality and risk of falls, increased disability, and worse rehabilitation outcome (Srivastava et al., 2010).

Although the importance of post stroke psychiatric comorbidity is currently well documented, it had been previously underestimated (Carson, 2012). In the 1970s, the identification of mood disorders, especially depression, as specific complications following stroke introduced the concept that clinical depression after stroke could be an organic consequence of the brain damage rather than an understandable psychological reaction to motor disability (Bartoli, et al., 2013).

Shoulder pain is a common problem after stroke and estimated rates of prevalence vary from 5 to 84%. The onset of hemiplegia can adversely affect the normal mechanics of the shoulder complex through three mechanisms including loss of motor control and the development of abnormal movement patterns, secondary changes to surrounding soft tissue and glenohumeral joint subluxation. These changes affect the stability of the shoulder complex and place joints at risk. A number of disorders have been proposed in the literature as being major causes of hemiplegic shoulder pain (HSP). These include glenohumeral subluxation, spasticity of shoulder muscles, impingement syndrome, complex regional pain syndrome-type I (CRPS-I), adhesive capsulitis and rotator cuff tears (Barlak et al., 2009).Chronic HSP may develop over time and is thought to be due to treatment-resistant structural injury, abnormal posture of the hemiplegic shoulder that damages the surrounding tissues or periarticular muscle spasticity (Kalichman&Ratmansky, 2011).

Stroke may also resulting activity limitations which sometimes referred to as disabilities are manifested by reduced ability to perform daily functions, such as dressing, bathing or walking. The level of activity limitation is generally related to but not completely dependent on the level of body impairment such as severity of stroke (Gordon et al.,

2004). Balance disturbances may occurs due to decreased muscle strength, range of movement, abnormal muscle tone, motor coordination, sensory organization, cognition and multisensory integration (Oliviera et al., 2008).

2.5 Diagnosis of Stroke

A detailed history and thorough clinical examination is compulsory to make a diagnosis of stroke. Computerized tomography (CT) scan of the brain is an uncomplicated, non-invasive and accurate investigation in distinguishing cerebral infarction from hemorrhage. CT scan is most preferable to magnetic resonance imaging (MRI) in the acute stage because MRI does not easily identify intracranial haemorrhage within the first 48 hours after a bleeding episode (Amanullah et al., 2009).

An emergency requiring imperative investigation and treatment are needed for stroke (Amanullah et al., 2009). There is no cure in management of stroke. By early detection and reducing the modifiable risk factors prevention of stroke is possible. This is very much important in the concept of our country where medical facilities and resources are limited and most of the people lives below poverty level (Hossain et al., 2011). A variety of biological and environmental factors are responsible for recovery after stroke and recovery profiles shows a high inter individual variability (Hendricks, 2003).Adjustment of multiple risk factors throughout a combination of inclusive lifestyle interventions and proper pharmacological therapy is now accepted as the keystone of initiatives aimed at the avoidance of frequent stroke and acute cardiac events in stroke survivors (Gordon et al., 2004). The physical management process aims to maximize functional ability and prevent secondary complications to enable the patient to resume all aspects of life in his or her own environment. After stroke restoring functions is a complex process involving

spontaneous recovery and the effects of therapeutic interventions. Actually, some interaction between the stage of motor recovery and the therapeutic intervention must be noticed (Belda-Lois et al., 2011).

2.6 Rehabilitation of Stroke Patients

Stroke rehabilitation usually involves a cyclical process by evaluation, patient identification and measurement; setting goals, setting real and progressive goals for improvement; intervention, help achieve goals; and reassessment, to assess progress against agreed goals. The most recognizable frustration caused by the motor impairment, in which the function muscle movement is restricted. Other common weaknesses include speech and language, swearing, sight, sensation, and consciousness (Langhorne et al., 2011).

The objective of rehabilitations to return the patient to home and to exploit recovery by providing a safe, progressive treatment which is appropriate to the individual patient and suggesting that physical therapy can employ unused neural pathways. Rehabilitation of stroke patient include the comprehensive assessment of medical problems, impairments and disabilities, active physiological management, early mobilization and avoidance of bed rest, skilled nursing care, early setting of rehabilitation plans involving carers and early assessment and planning for discharge needs (Van et al.,2004). To deliver rehabilitation effectively, predictions need to be made about the patients' expected degree of recovery to set suitable therapeutic goals, develop effective treatment plans and facilitate discharge planning (Carson, 2012).

Our brains cannot grow new cells to replace the ones that have been damaged after a stroke, so recovery depends on brain's ability to reorganize its undamaged cells and make

up for what has been lost. This is called neuroplasticity. Physiotherapy can give an expert practical guidance to prevent this condition. Physiotherapists are frequently work with other members of the stroke team to make sure that they can help with the range of problems that stroke can cause. The team may consist of occupational therapists, speech and language therapists, doctors, nurses and social workers and also other specialists. This team is called the multidisciplinary stroke rehabilitation team (Stroke association, 2012). Usually, concepts of physiotherapy were focused on restoring and reduced motor control of the affected limb as well as postural control (Outermans et al., 2010).

Early accurate prediction of outcome for stroke is essential in order to establish realistic rehabilitation goals, to facilitate proper discharge planning and to anticipate the need for home arrangements and community support. Recent data from the literature have identified many important factors useful to predict outcome even early after stroke. Among them, stroke severity and trunk movements are by far the most important predictors for outcome (Gialanella et al., 2011).

However, as most patients with stroke survive the initial injury, the biggest effect on patients and families is usually through long-term impairment, limitation of activities (disability), and reduced participation (handicap). The most common and widely recognised impairment caused by stroke is motor impairment, which can be regarded as a loss or limitation of function in muscle control or movement or a limitation in mobility. Motor impairment after stroke typically affects the control of movement of the face, arm, and leg of one side of the body1 and affects about 80% of patients. Therefore, much of the focus of stroke rehabilitation, and in particular the work of physiotherapists and occupational therapists, is on the recovery of impaired movement and the associated

functions. There seems to be a direct relation between motor impairment and function; for example, independence in walking (function) has been correlated with lower-limb strength (impairment) ((Langhorne et al., 2011).

Motor impairment can be caused by ischaemic or haemorrhagic injury to the motor cortex, premotor cortex, motor tracts, or associated pathways in the cerebrum or cerebellum. Such impairments affect an individual's ability to complete everyday activities (disability) and affect participation in everyday life situations (Warlow et al., 2008).Stroke recovery is heterogeneous in terms of outcome, and it is estimated that 25% to 74% of the 50 million stroke survivors worldwide require some assistance or are fully dependent on caregivers for activities of daily living (ADL) after stroke. In addition to medical management after acute stroke to prevent further cerebral damage, stroke rehabilitation is initiated early with the ultimate goal of achieving better recovery in the first months after stroke and reducing disability during the years that follow (Hachinsk et al., 2010). The current trend to shorten the length of stay in hospital stroke units and the increasing demand for efficiency in the continuum of stroke care imply that knowledge about the prognosis for outcome in terms of basic ADL, such as dressing, mobility, and bathing is crucial to optimize stroke management in the first months (Kwakke et al., 2006).The functional recovery of the upper extremity in hemiplegic patients is crucial for safe balance (sitting and standing), for transfer activities in the use of a wheelchair and self-care activities. After the onset of HSP, functional gains and timely discharge after stroke may be compromised (McKenna, 2001). Patients with HSP remain hospitalized longer, and the shoulder pain complicates the rehabilitation process (Barlak et al., 2009). In a study performed by Roy et al. (1994), it was identified that HSP affected stroke

outcome in a negative way. They showed that the presence of HSP is strongly associated with prolonged hospital stay and poor recovery of the arm function in the first 12 weeks after stroke. Another study, however, showed no relationship between shoulder pain and the Barthel Index scores (Gamble et al., 2002).

With such a variety of possible etiologies, it is no surprise that interventions are equally varied. Current management includes physiotherapy, massage therapy, strapping, slings and other supports to minimize glenohumeral subluxation, intraarticular or subacromial corticosteroid injections, suprascapular nerve blocks, percutaneous or superficial electrical muscle stimulation, and botulinum toxin type A (BTx-A) intramuscular injections. Early management focuses on prevention with proper positioning and range of motion activities or on treatment in the acute or sub-acute stages post stroke (Viana et al., 2012).Impaired motor control of the upper extremity is one of the most frequent consequences of stroke. Only 13% of the subjects examined in the first two weeks did not suffer arm paralysis and six months after the injury, severe motor deficits remain in 30%–66% of stroke survivors. In order to improve arm function, standard therapeutic interventions are used, such as Bobath therapy, constraint-induced therapy and task specific motor relearning program (Mangold et al., 2009).

After suffering a stroke, the patients show spasticity, cognitive dysfunction, impaired balance and sensorimotor deficit, also insufficiency of strength or tone in trunk muscles may be present (Oliveira et al., 2011). The trunk muscle weakness and the loss of proprioception concerning the affected side can interfere with balance, stability, and functional disability and may reduce ability to control posture (Geurts et al., 2005). These patients have an increased risk of falling toward the paretic side and limited functional

abilities (Benson, 2016)). Ability to distribute body weight evenly (postural symmetry) and to shift weight according to the task requirements, is essential to normal balance. This ability is commonly disturbed in individuals with stroke. They frequently show an increased posture sway, a decreased dynamic stability, and impaired weight-shifting ability onto the paretic lower limb both when sitting and standing (Cabanas et al., 2013). As a consequence, all these effects can bring to difficulties in leading an independent life (Shumway-Cook et al., 2007). Balance impairment in sitting and poor sitting ability are common clinical problems after stroke (Cabanas et al., 2013). The stroke patients show a significantly reduced level of trunk performance compared to healthy individuals of the same age and sex, and a remarkable asymmetry of the trunk and pelvis (Verheyden et al., 2005). Sitting involves the ability to reach for a variety of objects located both within and beyond arm's length as personal daily tasks; it also entails activities such as showering, toileting and dressing. Self-triggered arm movements were associated with anticipatory postural adjustments in muscles of the trunk and lower limbs, indicating that postural adjustments always precede active movement (Cabanas et al., 2013). Anticipatory control might be disturbed in stroke subjects. Trunk seems particularly important for balance as it stabilizes the pelvis and the spinal column (Behm et al., 2010). Several authors assert the importance of assessing trunk function in order to predict the functional status at discharge of the patients (Verheyden et al., 2005). The variance reported of functional recovery after stroke explained by trunk control ranges from 45% to 71%. The recovery of sitting balance is commonly assumed to be essential to obtain independence in other vital functions such as reaching, rising to stand, and sitting down (Mandi´c&Ranˇci´c, 2010). Some studies have demonstrated that, in general, any kind of exercise can improve

mobility (Ada et al., 2006) and functional balance (Pang et al., 2005) in adults with chronic stroke, but it is unclear what the advantages of specific and focused exercise programs are and the mechanisms that underlie the improvements in patient's conditions. Kim reported that trunk stabilizing exercises, using appropriate proprioceptive neuromuscular facilitation (PNF), is effective in improving the implementation of tasks in the daily life of stroke patients (Kim et al., 2012). Furthermore, Dean showed that sitting balance is effectively improved by the task of reaching while sitting. There is some evidence that well-designed exercise programs can enhance functional abilities after stroke (Rose et al., 2011) but the influence of trunk training exercises is still not well documented. In addition, the relationship between balance impairment and asymmetry of weight distribution is still unclear (Van Peppen et al., 2006).

Postural disturbances in patients with hemiplegia are common and limit the recovery of gait and functional independence (Veerbeek et al., 2011). Many approaches include balance training using visual feedback, task-oriented exercises and treadmill training6 to retrain postural control because a key to successful rehabilitation includes regaining adaptive truncal stability. Relationship between trunk performance and measures of balance, gait, and functional ability after stroke. Muscles of the trunk have a supportive role both during bilateral stance and when seated. They stabilize proximal body segments during voluntary movements of the extremities (Saeys et al., 2012).

During daily living, an individual must change various postures while reacting to external disturbance to maintain balance. Balance is defined as postural stability and viewed as the ability of maintaining the center of mass within the base of support. Symmetry, steadiness and dynamic stability are three elements of postural control. Decreasing

balance ability in stroke patients includes decrease in postural stability, asymmetry of weight-bearing distribution in standing and decrease in dynamic standing balance. In addition, stroke patients also have a reduction in their limits of stability, which is defined as the maximal distance that an individual can shift his or her weight in any direction without losing balance. Insufficient balance or postural control after stroke results in decreased functional independence and increased risk of falls. Sit-to-stand is the most commonly performed functional activity in daily life and consists of transferring the center of mass from a low position centered within a support base to a high position over a shallow support base. Such a move requires postural control abilities and extensor strength in the lower limbs. The time taken to perform sit-to-stand activity is moderately correlated with symmetry in standing, postural sway and directional control. The directional control is a measure of how smoothly one can shift weight towards a certain direction without losing balance. A shorter duration of time taken to perform sit-to-stand indicated better symmetry of standing position, less postural sway and better directional control. Previous studies have also noted that stroke patients are slower in performing sit-to-stand tasks than age-matched controls. Impaired postural control often occurs following stroke and leads to asymmetrical weight bearing during functional tasks such as sit-to-stand. Stroke patients who had a history of falls put less weight on their paretic limb during sit-to-stand than those with stroke that did not have a fall history. With regard to sit-to-stand training, Stroke patients demonstrated better symmetrical weight bearing on both legs during sit to-stand after sit-to-stand training. Subjects move their center of mass less during sit-to stand after receiving regular physical therapy combined with sit-to-stand training (Tung et al., 2010).

Stroke is a major cause of long-term neurological disability in adults, with approximately half of all stroke survivors left with severe functional problems in the acute stage of stroke. Prevalence rates vary depending on the cohort studied, but up to 20% of people with initial impairment have no functional use of the arm at 6 months and 15% are unable to walk independently indoors. Only 18% regain unrestricted walking ability. Exercise programmes in which movement related to functional activity is directly trained (referred to as task-related training) have shown better results than impairment-focussedprogrammes. More intensive therapy has been shown to improve the rate of recovery in activities of daily living (ADL), particularly if a functional approach is adopted. One way of increasing intensity is to include task repetition. Repetitive task training (RTT) therefore combines elements of both relevance to functional activity, and intensity of practice (French et al., 2010).

2.7Functional Independence Measure

Effective Independence measurement (FIM) was designed to provide a consistent data collection tool compared to the rehabilitation results in continued health care. In addition, an FIM attempts to establish a way to collectively rehabilitate information. Designers were designed to do FIM so that they could track the effectiveness of their patients through rehabilitation care and follow-up. FIM result management equipment is widely used in such nursing facilities as settings; acute, sub-acute, and rehabilitation hospitals (Douglas et al., 2010).18 items of FIM assess patient's degree and care burden. 13 items disqualify the motor function and set restrictions on 5 cognitive functions. Each item is rated on a 7-point scale, 1 = Total Support (<25% independence) and 7 = Total independence (100% independence). Ratings are deposited across all items and are used

to determine the degree required to complete the patient's original, routine daily work. The degree of dependency from a helper depends on the dependency of a helper. The FIM is regularly measured first at admission to the rehabilitative care and then at discharge from the care (Douglas et al., 2010).

CHAPTER-III METHODOLOGY

3.1 Study design

Cross-sectional hospital based study.

3.2 Study place

Ibn sina Hospital, Dhaka was selected as study place where stroke patient was admitted and received physiotherapy management. Ibn sina Hospital, Dhanmondi is 312 bed modern Hospital. There are stroke ICU and 150 beds for stroke patients. Stroke patients are admitted to the hospital until the medical stable.

3.3 Study population

Stroke patients from indoor settingsin Ibn sina Hospital were recruited as study population.

3.4 Sample size

Total 105 stroke patients were employed for this study. This sample size was determined due time constraint of the researcher.

3.5 Sampling technique

Purposive sampling technique was followed to select the sample.

3.6 Inclusion criteria

- Stroke patients who were admitted in IBN SINA hospital
- Voluntary participation.
- Both ischemic and hemorrhagic types of stroke were included.
- Age not more than 80 years

3.7 Exclusion criteria

- Duration of stroke more than 3 months.
- Who had history of previous stroke
- Who had any psychiatric disorders
- Unconscious patients.

3.8 Data collection tools

A pre-tested structured questionnaire and a recognized standard scale-FLM scale were used as data collection instrument.

3.9 Data processing and analysis

Data were processed and analyzed by using SPSS version 20. Data were cleaned edited by running frequency, cross tabulation and logical checks. Data processing was done by coding, sorting and computing etc. Both descriptive and inferential statistical analysis was followed for analyzed the data.

3.10 Data collection technique

Data were collected before and after intervention by using structured questionnaire and FLM scale.

3.11 Ethical considerations

The whole process of this research project was done by following the Bangladesh Medical Research Council (BMRC) guidelines, Institution Review Board (IRB) and World Health Organization (WHO) Research guidelines. The proposal of the dissertation including methodology was approved by Institutional Review Board and obtained permission from the concerned authority of ethical committee of Bangladesh Health Professions Institute (BHPI). Again before the beginning of the data collection, the researcher obtained the permission ensuring the safety of the participants from the concerned authorities of the clinical setting and was allotted with a witness from the authority for the verification of the collected data. The researcher strictly maintained the confidentiality regarding participant's condition and treatment.

CHAPTER-IV RESULTS

4.1 Socio demographic characteristics of the respondents

4.1.1 Distribution of the respondents by their age

In this study the minimum age of a participant was 32 year and maximum age was 79 year. The maximum numbers of patients (35/33.30%) were in age group 60-69 year and minimum numbers were in age group 30-39 years (5/4.8%).

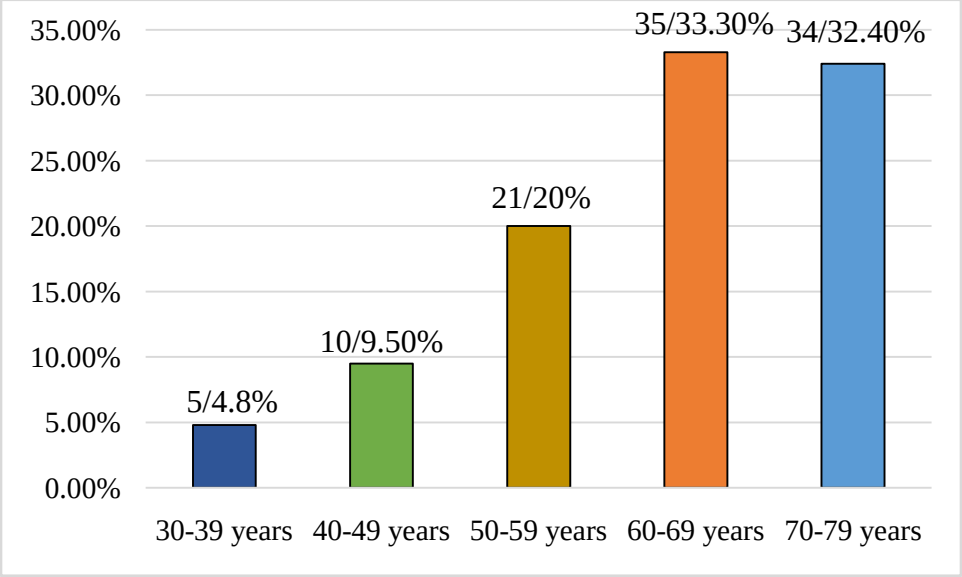


Figure-4.1: Distribution of the respondents by their age

4.1.2 Distribution of the respondents by their sex

Among the total respondents female were higher 54 (51.40%) than male 51 (48.60%).

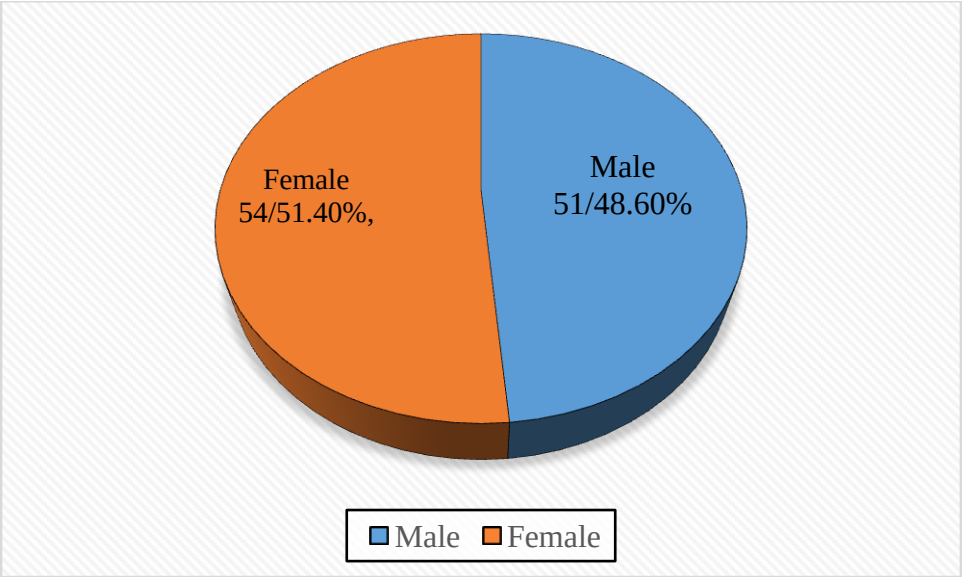


Figure-4.2: Distribution of the respondents by their age

4.1.3 Distribution of the respondents by BMI

The figure shows that majority of the respondents were in normal (75.20%) according to BMI classification. Very few respondents were in underweight (1.90%).

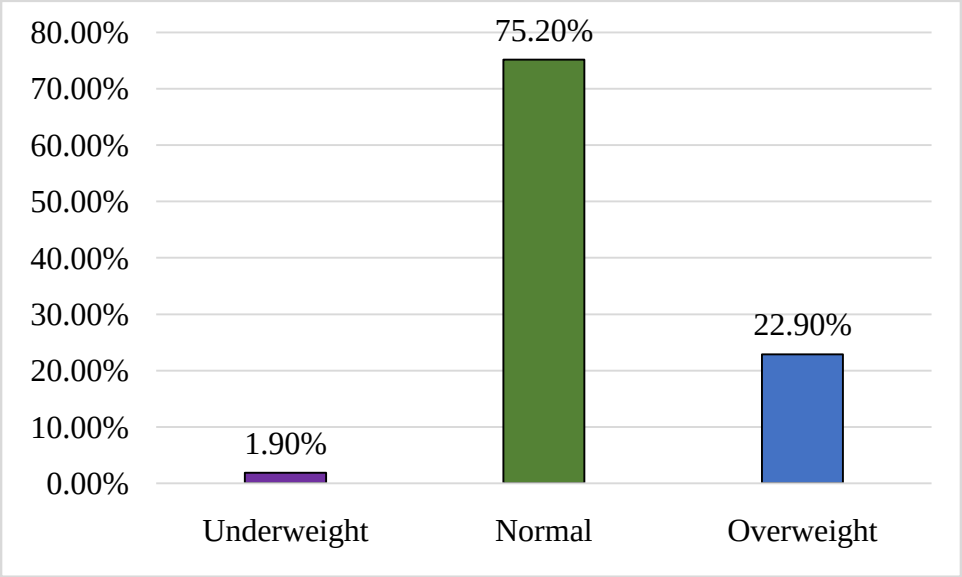


Figure-4.3: Distribution of the respondents by BMI

4.1.4 Distribution of the respondents according to their level of education

Figure (4.4) shows that about31% of the respondents were under the category of below S.S.C level education where as the second highest (25.7) level was graduated.

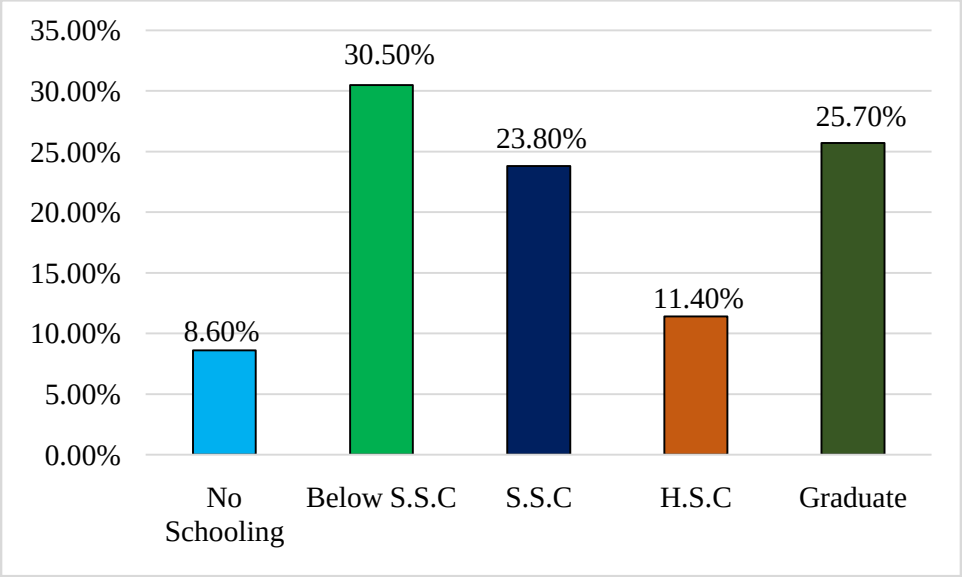


Figure-4.4: Distribution of the respondents according to their level of education

4.1.5 Distribution of the respondents by their occupations

Study shows that (fig 4.5) among the total respondents 36.20, were housewives and only about 2% were bay laborer.

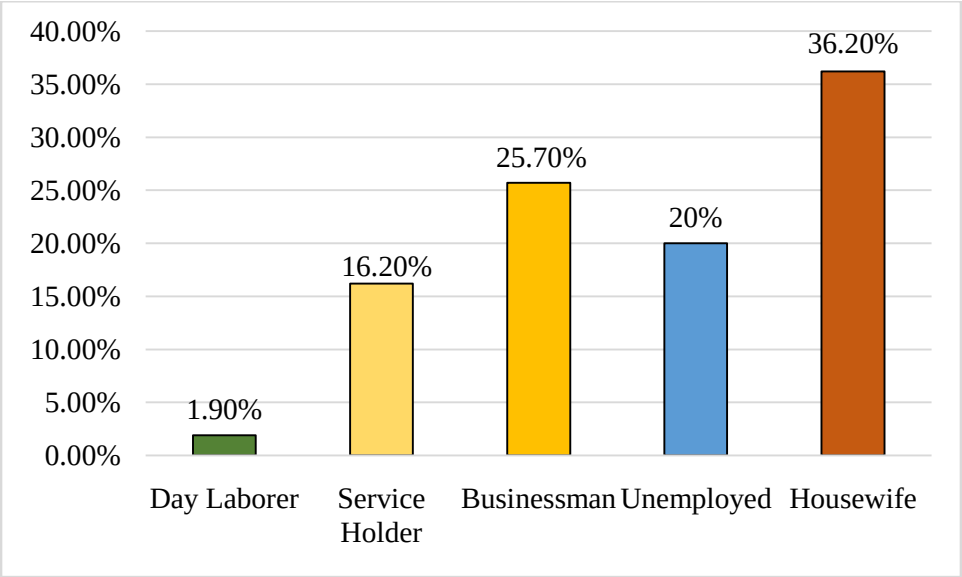


Figure-4.5: Distribution of the respondents by their occupatons

4.1.6 Distribution of the respondents by their residence

The respondents were come from both urban and rural settings. More than fifty percent (53.30%) of the respondents were resided in urban area.

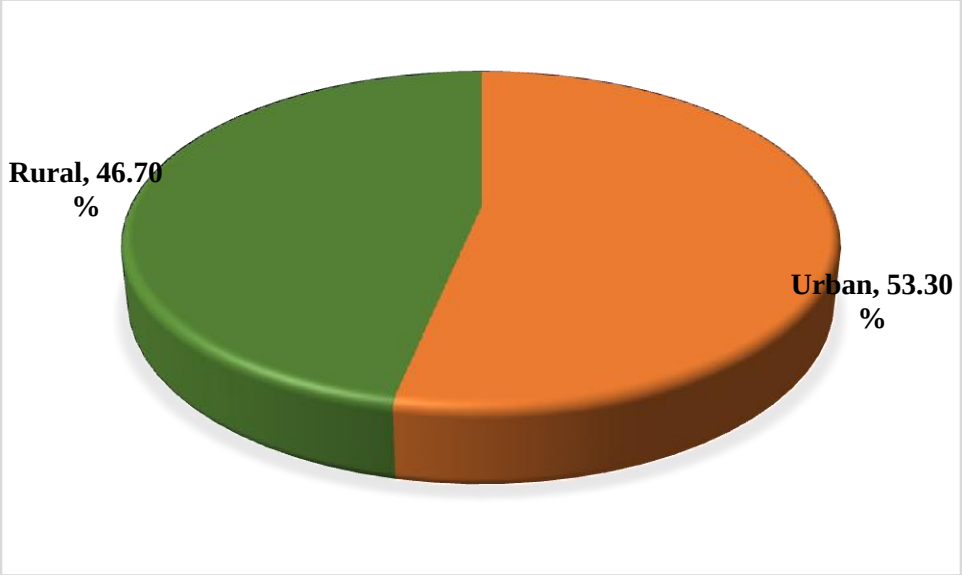


Figure-4.6: Distribution of the respondents by their residence

4.2 Information related to stroke

4.2.1 Distribution of the respondents according to duration of attack by stroke

The respondents were categorized by the duration of attack by stroke. Among the total respondents 78.10% were under the category of 1 to 7 days.

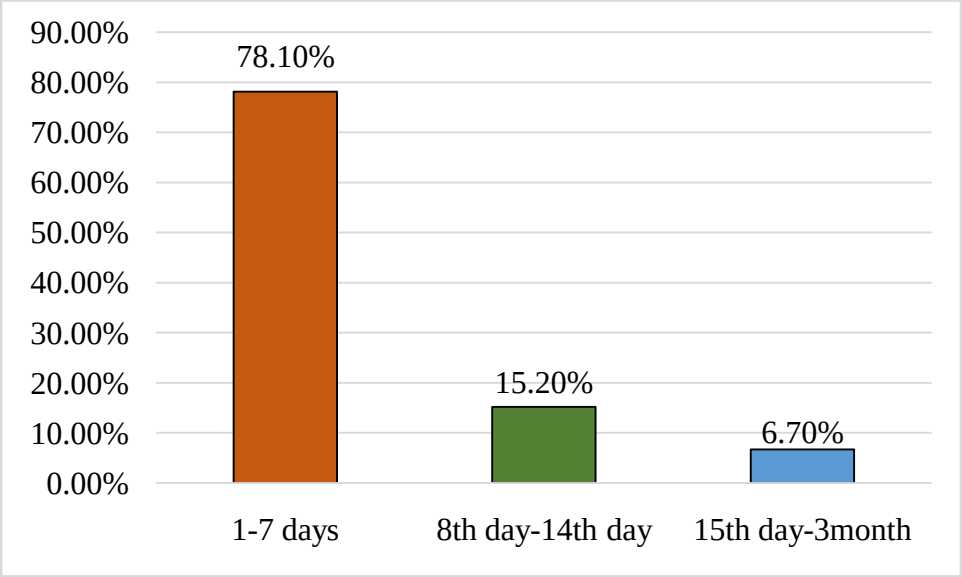


Figure-4.7: Distribution of the respondents according to duration of attack by stroke

4.2.2 Distribution of the respondents by type of stroke they were diagnosed

Among the total respondents 51.40% (n=54) were attacked by ischemic stroke and48.60 %(n=51) were attacked by haemorrhagic stroke.

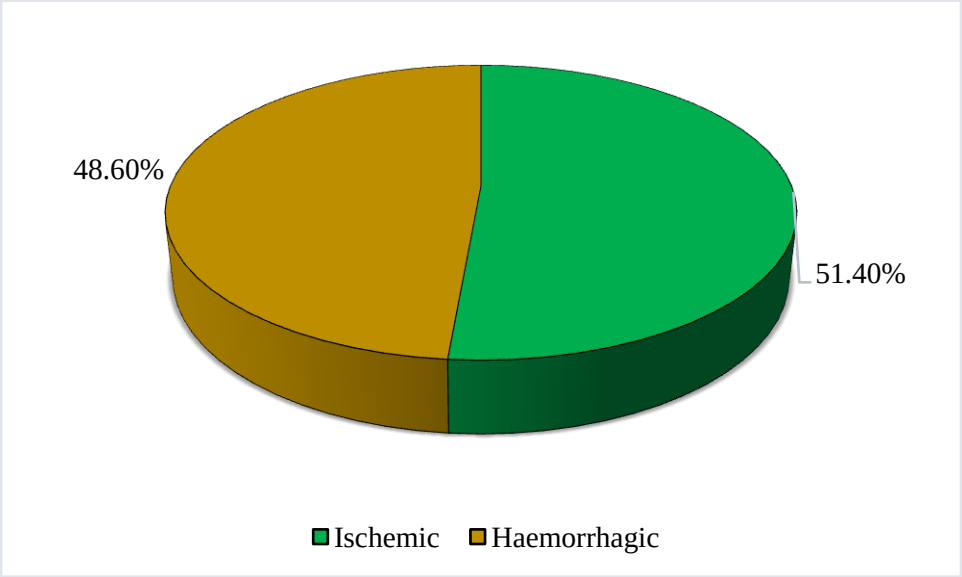


Figure-4.8: Distribution of the respondents by type of stroke they were diagnosed

4.2.3 Distribution of the respondents by the pattern of hemiplegic side

Among 69% of the respondents were under left side hemiplegic and 31% were right side hemiplegic.

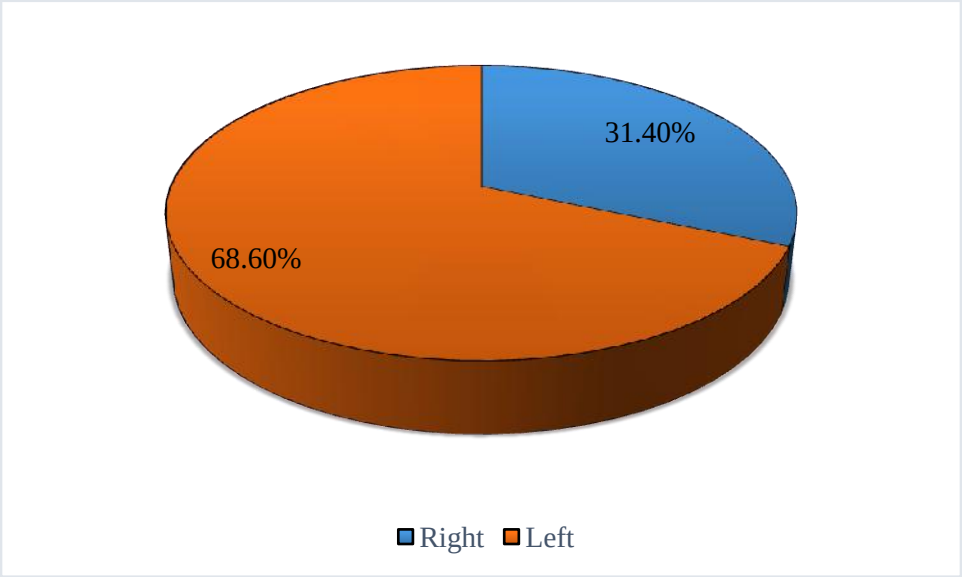


Figure-4.9: Distribution of the respondents by the pattern of hemiplegic side

4.2.4 Distribution of the respondents by their complications during initial assessment

The respondents were suffered by different types of complications. Among those urine retention was highest (23%).

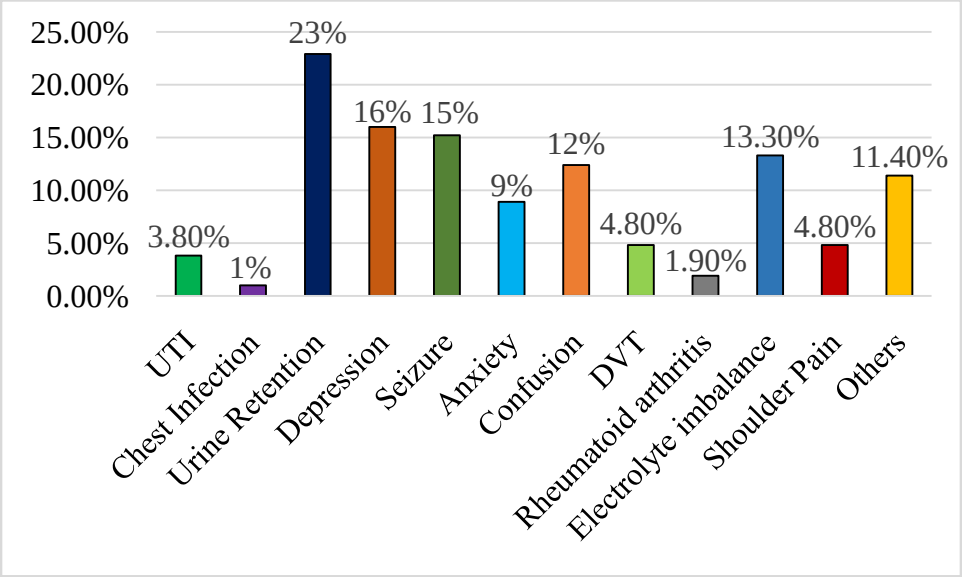


Figure-4.10:

Distribution of the respondents by their complications during initial assessment

4.2.5 Distribution of the respondents by history of physical exercise before stroke

Among the participants 73.30% (n= 28) had past history of physical exercise and 26.7% (n=77) had no past history of physical exercise.

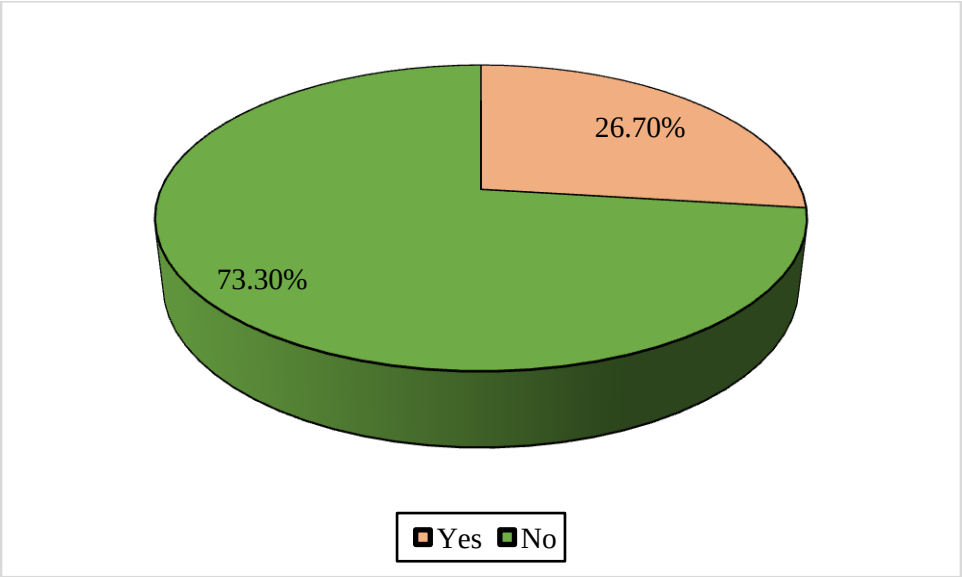


Figure-4.11: Distribution of the respondents by history of physical exercise before stroke

4.2.6 Treatment before coming IBN SINA

Among the participants 66.7% (n= 70) took treatment before coming IBN SINA and 33.3% (n=35) took no treatment before coming IBN SINA.

Table I: Treatment before coming IBN SINA

Treatment	Number	Percentage
Yes	70	66.7
No	35	33.3

4.2.7 Type of Intervention

Among the participants 50.5% (n= 53) took traditional intervention and 49.5% (n=52) took modern intervention.

Table II Type of Intervention

Intervention	Number	Percentage
Traditional	53	50.5
Modern	52	49.5

4.2.8 Distribution of the respondents by attending physiotherapy session

The respondents were attending different number of physiotherapy session. Majority of the respondents (91.4) were attended 6 to 10 session.

Table III: Received Physiotherapy Session

Physiotherapy Session	Number	Percentage
1-5 Session	4	3.8
6-10 Session	96	91.4
11-15 Session	5	4.8

4.3 Information related to functional outcome

Table IV Functional Outcome Related Information

Functional Outcome	Initial				After 2 Weeks			
	N	%	Mean	SD	N	%	Mean	SD
Rolling affected Side to Unaffected side			**2.21**	**±1.13**			**4.01**	**±1.22**
Complete Independent	2	1.9			7	6.7		
Modified Independent	1	1.0			3	2.9		
Supervision	2	1.9			21	20.0		
Minimal Assist	3	2.9			33	31.4		
Moderate Assist	19	18.1			35	33.3		
Maximum	55	52.4			6	5.7		

Assist								
Total Assist	23	21.9			-	-		
Rolling Unaffected side to affected Side			**2.91**	**±1.30**			**4.86**	**±1.21**
Complete Independent	3	2.9			9	8.6		
Modified Independent	4	3.8			27	25.7		
Supervision	3	2.9			25	23.8		
Minimal Assist	13	12.4			28	26.7		
Moderate Assist	38	36.2			16	15.2		
Maximum Assist	36	34.3			-	-		
Total Assist	8	7.6			-	-		
Bridging			**2.47**	**±.98**			**4.53**	**±1.20**

Complete Independent	1	1.0			6	5.7		
Modified Independent	-	-			18	17.1		
Supervision	2	1.9			27	25.7		
Minimal Assist	9	8.6			30	28.6		
Moderate Assist	32	30.5			23	21.9		
Maximum Assist	49	46.7			1	1.0		
Total Assist	12	11.4			-	-		
Supine to sit			**2.17**	**±.89**			**4.10**	**±1.16**
Complete Independent	-	-			5	4.8		
Modified Independent	1	1.0			8	7.6		
Supervision					20	19.0		
Minimal	5	4.8			33	31.4		

Assist								
Moderate Assist	27	25.7			37	35.2		
Maximum Assist	49	46.7			2	1.9		
Total Assist	23	21.9			-	-		
Sit to supine			**2.75**	**±.97**			**4.89**	**±1.15**
Complete Independent	-	-			10	9.5		
Modified Independent	2	1.9			22	21.0		
Supervision	2	1.9			30	28.6		
Minimal Assist	14	13.3			33	31.4		
Moderate Assist	45	42.9			9	8.6		
Maximum Assist	34	32.4			1	1.0		
Total Assist	8	7.6			-	-		

Sitting static balance			**2.59**	**±1.00**			**4.86**	**±1.18**
Complete Independent	1	1.0			12	11.4		
Modified Independent	1	1.0			17	16.2		
Supervision	3	2.9			33	31.4		
Minimal Assist	7	6.7			31	29.5		
Moderate Assist	38	36.2			11	10.5		
Maximum Assist	47	44.8			1	1.0		
Total Assist	8	7.6			-	-		
Sitting dynamic balance			**2.06**	**±.79**			**3.79**	**±1.06**
Complete Independent	-	-			3	2.9		
Modified	-	-			4	3.8		

Independent								
Supervision	2	1.9			14	13.3		
Minimal Assist	2	1.9			37	35.2		
Moderate Assist	18	17.1			41	39.0		
Maximum Assist	61	58.1			6	5.7		
Total Assist	22	21.0			-	-		
Standing static balance			**2.04**	**±.73**			**3.78**	**±.99**
Complete Independent	-	-			3	2.9		
Modified Independent	1	1.0			3	2.9		
Supervision	-	-			11	10.5		
Minimal Assist	1	1.0			43	41.0		

Moderate Assist	17	16.2			41	39.0		
Maximum Assist	67	63.8			4	3.8		
Total Assist	19	18.1			-	-		
Standing dynamic balance			**1.71**	**±.73**			**3.17**	**±1.04**
Complete Independent	-	-			2	1.9		
Modified Independent	-	-			2	1.9		
Supervision	1	1.0			5	4.8		
Minimal Assist	-	-			19	18.1		
Moderate Assist	11	10.5			53	50.5		
Maximum Assist	49	46.7			23	21.9		
Total Assist	44	41.9			1	1.0		

Transfer bed, chair ,w/c			**2.11**	**±.71**			**3.87**	**±.98**
Complete Independent	-	-			2	1.9		
Modified Independent	-	-			3	2.9		
Supervision	2	1.9			17	16.2		
Minimal Assist	1	1.0			45	42.9		
Moderate Assist	18	17.1			34	32.4		
Maximum Assist	70	66.7			3	2.9		
Total Assist	14	13.3			1	1.0		
Gait			**1.26**	**±.51**			**2.66**	**±1.01**
Complete Independent	-	-			1	1.0		
Modified Independent	-	-			1	1.0		

Supervision	-	-			3	2.9		
Minimal Assist	-	-			9	8.6		
Moderate Assist	4	3.8			38	36.2		
Maximum Assist	19	18.1			45	42.9		
Total Assist	82	78.1			7	6.7		

4.3.1 Distribution of the respondents by association between age and functional outcomes after 2 weeks Physiotherapy Session

Table V Distribution of the respondents by association between age and functional outcomes after 2 weeks Physiotherapy Session

Functions	Chi-Square	Significant Level
Rolling affected Side to Unaffected side	31.19	.05*
Rolling Unaffected side to affected Side	30.00	.01*
Bridging	28.73	.09
Supine to sit	23.87	.24
Sit to supine	31.86	.04*
Sitting static balance	25.05	.19
Sitting dynamic balance	30.21	.06
Standing static balance	23.54	.26
Standing dynamic balance	33.64	.09
Transfer bed, chair ,w/c	26.65	.32
Gait	49.78	.00*

*Significant

In rolling affected side to unaffected side the calculated x^2 was 31.19 at 5% level of significant p=.05 which was significantly associated with age of the stroke patients.In rolling unaffected side to affected side the calculated x^2 was 30.00 at 5% level of significant p=.01 which was significantly associated with age of the stroke patients. In sit to supine the calculated x^2 was 31.86 at 5% level of significant p=.04 which was significantly associated with age of the stroke patients. In gait the calculated x^2 was 49.78 at 5% level of significant p=.00 which was significantly associated with age of the stroke patients.

4.3.2 Distribution of the respondents by association between Duration of stroke and functional outcomes after 2 weeks Physiotherapy Session

Table VIDistribution of the respondents by association between Duration of stroke and functional outcomes after 2 weeks Physiotherapy Session

Functions	Chi-Square	Significant Level
Rolling affected Side to Unaffected side	24.89	.05*
Rolling Unaffected side to affected Side	27.69	.00*
Bridging	8.83	.88
Supine to sit	26.92	.02*
Sit to supine	40.51	.00*
Sitting static balance	18.49	.23
Sitting dynamic balance	21.74	.11
Standing static balance	19.97	.17
Standing dynamic balance	24.48	.14
Transfer bed, chair ,w/c	56.98	.00*
Gait	45.93	.00*

*Significant

In rolling affected side to unaffected side the calculated x^2 was 24.89 at 5% level of significant p=.05 which was significantly associated with duration of stroke.In rolling unaffected side to affected side the calculated x^2 was 27.69 at 5% level of significant p=.00 which was significantly associated with duration of stroke. In supine to sit the calculated x^2 was 26.92 at 5% level of significant p=.02 which was significantly associated with duration of stroke.In sit to supine the calculated x^2 was 40.51 at 5% level of significant p=.00 which was significantly associated with duration of the stroke.In transfer bed, chair, w/c the calculated x^2 was 56.98 at 5% level of significant p=.00 which was significantly associated with duration of the stroke.In gait the calculated x^2 was 45.93 at 5% level of significant p=.00 which was significantly associated with duration of the stroke.

4.3.3Distribution of the respondents by association between Type of stroke and functional outcomes after 2 weeks Physiotherapy Session

Table VIIDistribution of the respondents by association between Type of stroke and functional outcomes after 2 weeks Physiotherapy Session

Functions	Chi-Square	Significant Level
Rolling affected Side to Unaffected side	7.87	.16
Rolling Unaffected side to affected Side	10.89	.02*
Bridging	9.62	.08
Supine to sit	5.29	.38
Sit to supine	2.58	.76
Sitting static balance	2.19	.82
Sitting dynamic balance	8.25	.14
Standing static balance	2.49	.77
Standing dynamic balance	9.85	.13
Transfer bed, chair ,w/c	11.22	.08
Gait	11.16	.08

*Significant

In rolling unaffected side to affected side the calculated x^2 was 10.89 at 5% level of significant p=.02 which was significantly associated with type of stroke.

4.3.4Distribution of the respondents by association between affected side and functional outcomes after 2 weeks Physiotherapy Session

Table VIIIDistribution of the respondents by association between affected side and functional outcomes after 2 weeks Physiotherapy Session

Functions	Chi-Square	Significant Level
Rolling affected Side to Unaffected side	11.42	.04*
Rolling Unaffected side to affected Side	2.29	.68
Bridging	8.26	.14
Supine to sit	7.81	.16
Sit to supine	5.38	.37
Sitting static balance	4.32	.50
Sitting dynamic balance	4.45	.48
Standing static balance	2.28	.80
Standing dynamic balance	3.14	.79
Transfer bed, chair ,w/c	1.37	.96
Gait	2.29	.89

*Significant

In rolling affected side to unaffected side the calculated x^2 was 11.42 at 5% level of significant p=.04 which was significantly associated with affected side.

4.3.5Distribution of the respondents by association between medical, musculoskeletal and neurological complications of the participants and functional outcomes after 2 weeks Physiotherapy Session

Table IXDistribution of the respondents by association between medical, musculoskeletal and neurological complications of the participants and functional outcomes after 2 weeks Physiotherapy Session

Functions	Chi-Square	Significant Level
Rolling affected Side to Unaffected side	65.13	.07
Rolling Unaffected side to affected Side	60.59	.01*
Bridging	69.15	.03*
Supine to sit	79.73	.00*
Sit to supine	72.76	.01*
Sitting static balance	80.32	.00*
Sitting dynamic balance	90.88	.00*
Standing static balance	100.23	.00*
Standing dynamic balance	122.74	.00*
Transfer bed, chair ,w/c	109.13	.00*
Gait	142.71	.00*

*Significant

In rolling unaffected side to affected side the calculated x^2 was 60.59 at 5% level of significant p=.01 which was significantly associated with medical, musculoskeletal and neurological complications. In bridging the calculated x^2 was 69.15 at 5% level of significant p=.03 which was significantly associated with medical, musculoskeletal and neurological complications. In supine to sit the calculated x^2 was 79.73 at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In sit to supine the calculated x^2 was 72.76 at 5% level of significant p=.01 which was significantly associated with medical, musculoskeletal and neurological complications. In sitting static balance the calculated x^2 was 80.32 at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In sitting dynamic balance the calculated x^2 was 90.88 at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications.In standing static balance the calculated x^2 was 100.23 at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In standing dynamic balance the calculated x^2 was 122.74 at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications.In transfer bed, chair, w/c the calculated x^2 was 109.13 at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications.In gait the calculated x^2 was 142.71 at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications.

4.4 Two-Way ANOVA test

4.4.1 Gender

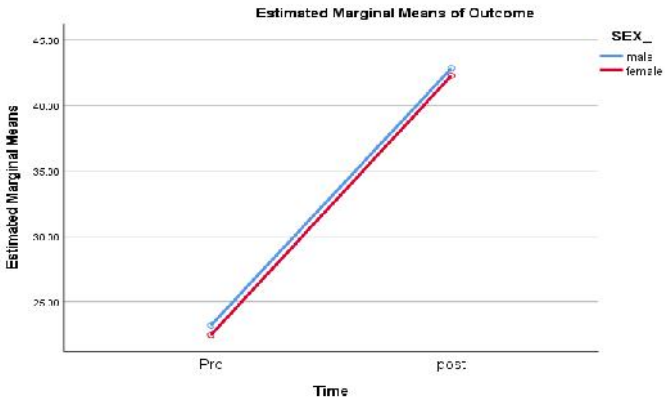
Table XUnivariate Tests

Dependent Variable: Outcome						
	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	22.11	1	22.11	.37	.54	.00
Error	12089.04	206	58.68			

4.4.2 Time

Table XIUnivariate Tests

Dependent Variable: Outcome						
	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	20422.08	1	20422.08	347.10	.00	.628
Error	12089.04	206	58.69			



4.4.3 Age

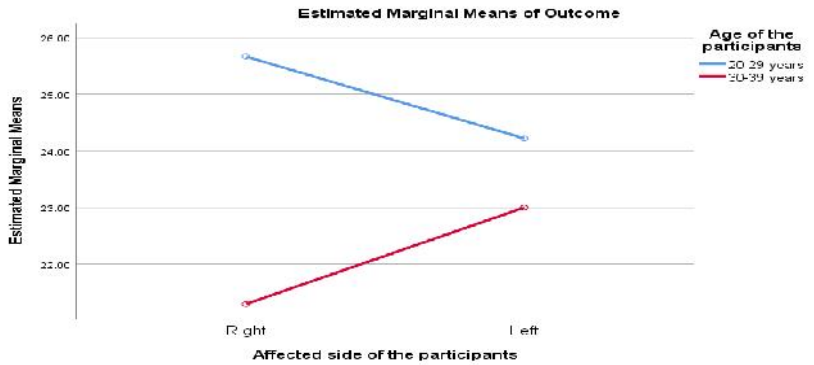
Table XIIUnivariate Tests

Dependent Variable: Outcome						
	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	94.58	1	94.58	2.59	.11	.02
Error	3690.52	101	36.54			

4.4.4 Affected Side of the Participants

Table XIIIUnivariate Tests

Dependent Variable: Outcome						
	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	.20	1	.20	.01	.94	.00
Error	3690.52	101	36.54			



CHAPTER-V DISCUSSION

The aim of this study was to find out the functional outcome of stroke patient after two weeks physiotherapy management at a selected hospital. The examiner took 105 samples and tried to find out functional outcome of stroke patients.

Age is one of variable in this study. In this study the minimum age of a participant was 32 year, maximum age was 79 year and mean age was 55 year. The maximum numbers of patients (35/33.30%) were in age group 60-69 year and minimum numbers were in age group 30-39 years (5/4.8%). Other study in France mean age was 53.3 with SD 13.7 (Pradon et al., 2013). In Brazil (Sousa et al., 2011) showed that mean age 53.2 (SD, 7.52) and mean age was 58 (±6.4) in Sweden (Flansbjer et al., 2005),

In this study, male participants were 51/48.60%% and female participants were 54/51.40%. In Bangladesh, another study showed that, male was 74% and female were 25% (Hossain et al., 2011). In Sweden, study showed that male 76% and female 24% (Flansbjer et al., 2005), in Netherland male 77.78% and female 22.22% (Wevers et al., 2011), in Brazil male participants were 71.42% and female 28.57% (Nascioment et al., 2011).

Study showed that 53.30% participants were from urban and 46.70% participants were from rural area. In Bangladesh, another study showed that 54% urban patient and 46% rural patient (Hossain et al., 2011). Another study (Sergeev, 2011) 85.6% were from urban and 14.4% were from rural, in this study also reported that rural stroke increased

with age. In China, 53.65% lived in urban and 46.34% lived in rural, in India, 50.15% were urban and 49.85% were from rural (Ferri et al., 2011).

In this study, (36.30%) were housewife followed by businessmen (25.70%), Unemployed were (20%), Service holder were (16.20%), and Day laborer were (1.90%). In Bangladesh, another study showed that, Service holder 28%, businessman 17%, housewife 16%, retired 21%, agriculture 9%, others 9% (Hossain et al., 2011). In India, 2% were students, 34% were housewife, and 32% were farmer / laborer, 16.5% were retired, 15.5% were service holder/ businessmen (Dev & Joshi, 2012).

In this study, educational level of the participants were shown Maximum (30.50%) were below S.S.C level and minimum (8.60%) were no schooling. In Cuba, none 2.5%, minimal 22.3%, primary 33.3%, secondary 24.8%, tertiary 17%, in Dominican Republic, none 19.6%, minimal 51.3%, primary 18.5%, secondary 6.3%, tertiary 3.6% (Ferri et al., 2011). In India, Primary (standard I to X) were 66% and Higher (standard XI and higher) were 34% (Das et al., 2007).

In this study among the participants 68.60% were affected in left side and 31.40% were affected in right side. In Netherland, 12 were left sided hemiplegia, 13 were right sided hemiplegia and 2 were bilateral stroke (Wevers et al., 2011). In Brazil, side of hemiparesis, right 43% and left 57% (Nascimento et al., 2011). Lesion said left 55.35% and right 44.64% (Peurala et al., 2009) in Finland.

This study showed 51.40% were ischaemic and 48.60% were haemorrhagic stroke among participants. Other study (Zhang et al., 2011) in East China showed that 78% ischemic and 22% hemorrhagic stroke. In USA, participants of stroke survivors categorized as 89% ischemic and 11% hemorrhagic (O' Brien et al., 2011) and another study in Netherland reported that 24 ischemic and 3 hemorrhagic (Wevers et al., 2011). In France,

(Pradon et al., 2013) indicated 75% ischemic and 25% hemorrhagic.In Naigeria (38%) had ischemic type stroke and (62%) had hemorrhagic type of stroke (Olagun et al., 2011). In USA, participants of stroke survivors categorized as 89% ischemic and 11% hemorrhagic (O' Brien et al., 2011).

In this study among the participants 1% were chest infection, 23% were urine retention, 16% were depression, 15% were seizure, 9% were anxiety, 12% were confusion, 4.80% were deep venous thrombosis, 1.90% were rheumatoid arthritis, 13.30% were electrolyte imbalance, 4.80% were shoulder pain& 11.40% were other complications.

In this study among the participants 3.8% were received 1-5 session and 91.4% were received 6-10 session & 4.8 % were received 11-15 session. In UK, another study showed that among stroke patient received physiotherapy session on average 13.6 days, average number of physical therapy session per day was 1.5 and average time of per session was 38.1 minutes (Jette et al, 2005).

In this study among the participants initial score of rolling affected side to unaffected side on FIM scale was mean 2.21 with SD 1.13, among them 1.9% was complete independent, 1% was modified independent, 1.9% need supervision, 2.9% need minimal assist, 18.1% need moderate assist, 52.4% need maximum assist & 21.9% need total assist. After 2 weeks the score of rolling affected side to unaffected side on FIM scale was mean 4.01 with SD 1.22, among them 6.7% was complete independent, 2.9% was modified independent, 20% need supervision, 31.4% need minimal assist, 33.3% need moderate assist, 5.7% need maximum assist.

In this study among the participants initial score of rolling unaffected side to affected side on FIM scale was mean 2.91 with SD 1.30, among them 2.9% was complete independent,

3.% was modified independent, 2.9% need supervision, 12.4% need minimal assist, 36.2% need moderate assist, 34.3% need maximum assist & 7.6% need total assist. After 2 weeks the score of rolling affected side to unaffected side on FIM scale was mean 4.86 with SD 1.21, among them 8.6% was complete independent, 25.7% was modified independent, 23.4% need supervision, 26.7% need minimal assist, 15.2% need moderate assist.

In this study among the participants initial score of bridging on FIM scale was mean 2.47 with SD .98, among them 1% was complete independent, 1.9% need supervision, 8.6% need minimal assist, 30.5% need moderate assist, 46.7% need maximum assist & 11.4% need total assist. After 2 weeks the score of bridging on FIM scale was mean 4.53 with SD 1.20, among them 5.7% was complete independent, 17.1% was modified independent, 25.7% need supervision, 28.6% need minimal assist, 21.9% need moderate assist, 1% need maximum assist.

In this study among the participants initial score of supine to sit on FIM scale was mean 2.17 with SD .89, among them 1% was modified independent, 4.8% need minimal assist, 25.7% need moderate assist, 46.7% need maximum assist & 21.9% need total assist. After 2 weeks the score of supine to sit on FIM scale was mean 4.10 with SD 1.16, among them 4.8% was complete independent, 7.6% was modified independent, 19% need supervision, 31.4% need minimal assist, 35.2% need moderate assist, 1.9% need maximum assist.

In this study among the participants initial score of sit to supine on FIM scale was mean 2.75 with SD .97, among them 1.9% was modified independent, 1.9% need supervision, 13.3% need minimal assist, 42.9% need moderate assist, 32.4% need maximum assist

&7.6% need total assist. After 2 weeks the score of sit to supine on FIM scale was mean 4.89 with SD 1.15, among them 9.5% was complete independent, 21.% was modified independent, 28.6% need supervision, 31.4% need minimal assist, 8.6% need moderate assist, 1% need maximum assist.

In this study among the participants initial score of sitting static balance on FIM scale was mean 2.59 with SD 1, among them 1% was complete independent, 1% was modified independent, 2.9% need supervision, 6.9% need minimal assist, 36.2% need moderate assist, 44.8% need maximum assist & 7.6% need total assist. After 2 weeks the score of sitting static balance on FIM scale was mean 4.86 with SD 1.18, among them 11.4% was complete independent, 16.2% was modified independent, 31.4% need supervision, 29.5% need minimal assist, 10.5% need moderate assist, 1% need maximum assist.

In this study among the participants initial score of sitting dynamic balance on FIM scale was mean 2.06 with SD .79, among them, 1.9% need supervision, 1.9% need minimal assist, 17.1% need moderate assist, 58.1% need maximum assist & 21.0% need total assist. After 2 weeks the score of sitting dynamic balance on FIM scale was mean 3.79 with SD 1.06, among them 2.9% was complete independent, 3.8% was modified independent, 13.3% need supervision, 35.2% need minimal assist, 39% need moderate assist, 5.7% need maximum assist.

In this study among the participants initial score of standing static balance on FIM scale was mean 2.04 with SD .73, among them 1% was modified independent, 1% need minimal assist, 16.2% need moderate assist, 63.8 need maximum assist & 18.1% need total assist. After 2 weeks the score of standing static balance on FIM scale was mean 3.78 with SD .99, among them 2.9% was complete independent, 2.9% was modified

independent, 10.5% need supervision, 41% need minimal assist, 39% need moderate assist, 3.8% need maximum assist.

In this study among the participants initial score of standing dynamic balance on FIM scale was mean 1.71 with SD .73, among them 1% need supervision, 10.5% need moderate assist, 46.7% need maximum assist & 41.9% need total assist. After 2 weeks the score of standing dynamic balance on FIM scale was mean 3.17 with SD 1.04, among them 1.9% was complete independent, 1.9% was modified independent, 4.8% need supervision, 18.1% need minimal assist, 50.5% need moderate assist, 21.9% need maximum assist & 1% need total assist.

In this study among the participants initial score of transfer bed, chair, w/c on FIM scale was mean 2.11 with SD .71, among them 1.9% need supervision, 1% need minimal assist, 17.1% need moderate assist, 66.7% need maximum assist & 13.3% need total assist. After 2 weeks the score of transfer bed, chair, w/c on FIM scale was mean 3.87 with SD .98, among them 1.9% was complete independent, 2.9% was modified independent, 16.2% need supervision, 42.9% need minimal assist, 32.4% need moderate assist, 2.9% need maximum assist & 1% need total assist.

In this study among the participants initial score of gait on FIM scale was mean 1.26 with SD .51, among them 3.8% need moderate assist, 18.1% need maximum assist & 78.1% need total assist. After 2 weeks the score of gait on FIM scale was mean 2.66 with SD 1.01, among them 1% was complete independent, 1% was modified independent, 2.9% need supervision, 8.6% need minimal assist, 36.2% need moderate assist, 42.9% need maximum assist & 6.7% need total assist.

This study shown association between some factors & functional outcomes. In association between age & rolling affected side to unaffected side calculated was 31.19 & P= .05 (at 5% level of significant). In association between age & rolling unaffected side to affected side the calculated was 30.00 & P=.01(at 5% level of significant). In association between age & sit to supine the calculated was 31.86 & P=.04 (at 5% level of significant). In association between age & gait the calculated was 49.78 & P=.00 (at 5% level of significant).

In this study the association between duration of stroke & rolling affected side to unaffected side calculated was 24.89 & P= .05 (at 5% level of significant). In association between duration of stroke & rolling unaffected side to affected side calculated was 27.69 & P= .00 (at 5% level of significant). In association between duration of stroke & supine to sit calculated was 26.92 & P= .02 (at 5% level of significant). In association between duration of stroke & sit to supine calculated was 40.51 & P= .00 (at 5% level of significant). The association between duration of stroke & transfer bed, chair, w/c calculated was 56.98 & P= .00 (at 5% level of significant). In association between duration of stroke & gait calculated was 45.93 & P= .00 (at 5% level of significant).

In this study the association between type of stroke & rolling unaffected side to affected side calculated was 10.89 & P= .02 (at 5% level of significant).

In this study the association between affected side of the stroke & rolling affected side to unaffected side calculated was 11.42 & P= .04 (at 5% level of significant).

In this study the association between medical, musculoskeletal and neurological complications & rolling unaffected side to affected side calculated was 60.59 & P= .01

(at 5% level of significant). In association between medical, musculoskeletal and neurological complications & bridging calculated was 69.15 & P= .03 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & supine to sit calculated was 79.73 & P=.00 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & sit to supine calculated was 72.76 & P=.01 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & sitting static balance calculated was 80.32 & P=.00 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & sitting dynamic balance calculated was 90.88 & P=.00 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & standing static balance calculated was 100.23 & P=.00 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & standing dynamic balance calculated was 122.74 & P= .00 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & transfer bed, chair, w/c calculated was 109.13 & P= .00 (at 5% level of significant). In association between medical, musculoskeletal and neurological complications & gait calculated was 142.71 & P= .00 (at 5% level of significant).

In two-way ANOVA test for gender calculated F = 0.37 & $p \leq .54$ at 5% level of significant that means the gender were not significant for functional outcome after 2 weeks physiotherapy treatment. For time calculated F = 347.10 & $p \leq .00$ at 5% level of significant that means time was significant for functional outcome after 2 weeks physiotherapy treatment. In age calculated F = 2.59 & $p \leq .11$ at 5% level of significant

that means age was not significant for functional outcome after 2 weeks physiotherapy treatment. In affected side of the participants calculated $F = 0.01$ & $p \leq .94$ at 5% level of significant that means affected side of the participants was not significant for functional outcome after 2 weeks physiotherapy treatment.

Limitations:

- Short duration of study
- Short course of treatment
- Small size of samples

CHAPTER VI CONCLUSION

Stroke is the second leading cause of global death and also leading causes of disability among adult, which can be minimized by appropriate physiotherapy management. The result of this cross sectional study have identified the functional outcomes after 2 weeks physiotherapy treatment & provide association between some factors and functional outcome which will be helpful to facilitate in rehabilitation and enhance functional activities.

CHAPTER VI I RECOMENDATION

This study tries to assess the efficacy of physiotherapy management on functional outcome of stroke patients. Results were quite encouraging. Based on study findings it is recommended that:

- To identify the functional outcome in stroke patients more clearly after physiotherapy intervention, should have a long term study where outcome should be assessed after 2 weeks, 4 weeks, 3 months and 6 months in same patients with same module of physiotherapy.
- To improve functional outcomes of stroke patients, every patient should receive physiotherapy management which helps to reduce their residual disability.
- A large scale interventional study should carried out with appropriate sample size.

REFERENCES

Ada, L., Dean, C. M., & Mackey, F. H. (2006). Increasing the amount of physical activity undertaken after stroke. *Physical therapy reviews*, *11*(2), 91-100.

Amanullah., Shah, N., Rehman, S.U., Ataullah, S., (2009). Frequency of cerebral infarction and haemorrhage in the patients of stroke. Journal of Ayub Medical College Abbottabad, 21(4): 102-105.

Hemorrhagic and ischemic strokes compared: stroke severity, mortality, and risk Andersen, K. K., Olsen, T. S., Dehlendorff, C., & Kammersgaard, L. P. (2009). factors. *Stroke*, *40*(6), 2068-2072.

Appelros, P., Stegmayr, B., & Terént, A. (2009). Sex differences in stroke epidemiology: a systematic review. *Stroke*, *40*(4), 1082-1090.

Aydin, T., Taspinar, O., Kepekci, M., Keskin, Y., Erten, B., Gunel, M & Mutluer, A. S. (2016). Functional independence measure scores of patients with hemiplegia followed up at home and in university hospitals. *Journal of physical therapy science*, *28*(2), 553-557.

Barlak, A., Unsal, S., Kaya, K., Sahin-Onat, S., & Ozel, S. (2009). Poststroke shoulder pain in Turkish stroke patients: relationship with clinical factors and functional outcomes. *International Journal of Rehabilitation Research*, *32*(4), 309-315.

Bartoli, F., Lillia, N., Lax, A., Crocamo, C., Mantero, V., Carrà, G & Clerici, M. (2013). Depression after stroke and risk of mortality: a systematic review and meta-analysis. *Stroke research and treatment*, *2013*.

Behm, D. G., Drinkwater, E. J., Willardson, J. M., & Cowley, P. M. (2010). The use of instability to train the core musculature. *Applied Physiology, Nutrition, and Metabolism*, *35*(1), 91-108.

Belda-Lois, J. M., Mena-del Horno, S., Bermejo-Bosch, I., Moreno, J. C., Pons, J. L., Farina, D & Caria, A. (2011). Rehabilitation of gait after stroke: a review towards a top-down approach. *Journal of neuroengineering and rehabilitation*, *8*(1), 66.

Belgen, B., Beninato, M., Sullivan, P. E., & Narielwalla, K. (2006).The association of balance capacity and falls self-efficacy with history of falling in community-dwelling people with chronic stroke. *Archives of physical medicine and rehabilitation*, *87*(4), 554-561.

Benson, L. C. (2016). *Identifying gait deficits in stroke patients using inertial sensors* (Doctoral dissertation, The University of Wisconsin-Milwaukee).

Bhowmik, N. B., Abbas, A., Saifuddin, M., Islam, M., Habib, R., Rahman, A., ...& Wasay, M. (2016). Ischemic strokes: Observations from a hospital based stroke registry in Bangladesh. *Stroke research and treatment*, *2016*.

Bonan, I. V., Colle, F. M., Guichard, J. P., Vicaut, E., Eisenfisz, M., Huy, P. T. B., & Yelnik, A. P. (2004). Reliance on visual information after stroke. Part I: balance on dynamic posturography1. *Archives of physical medicine and rehabilitation*, *85*(2), 268-273.

Cabanas-Valdés, R., Cuchi, G. U., & Bagur-Calafat, C. (2013). Trunk training exercises approaches for improving trunk performance and functional sitting balance in patients with stroke: a systematic review. *NeuroRehabilitation*, *33*(4), 575-592.

Carod-Artal, F. J., & Egido, J. A. (2009). Quality of life after stroke: the importance of a good recovery. *Cerebrovascular diseases*, *27*(Suppl. 1), 204-214.

Carson, A. J. (2012). Mood disorder as a specific complication of stroke.

Chan, D. Y., Chan, C. C., & Au, D. K. (2006). Motor relearning programme for stroke patients: a randomized controlled trial. *Clinical rehabilitation*, *20*(3), 191-200.

Chien, C. W., Lin, J. H., Wang, C. H., Hsueh, I. P., Sheu, C. F., & Hsieh, C. L. (2007). Developing a short form of the postural assessment scale for people with stroke. *Neurorehabilitation and neural repair*, *21*(1), 81-90.

Dirnagl, U., Klehmet, J., Braun, J. S., Harms, H., Meisel, C., Ziemssen, T & Meisel, A. (2007). Stroke-induced immunodepression: experimental evidence and clinical relevance. *Stroke*, *38*(2), 770-773.

Douglas Chumney DPT, P.T., Kristen Nollinger DPT, P.T., Kristina Shesko DPT, P.T., Karen Skop DPT, P.T., Madeleine Spencer DPT, P.T. and Newton, R.A., 2010. Ability of Functional Independence Measure to accurately predict functional outcome of stroke-specific population: systematic review. Journal of rehabilitation research and development, 47(1), p.17.

Eng, J. J., & Tang, P. F. (2007).Gait training strategies to optimize walking ability in people with stroke: a synthesis of the evidence. *Expert review of neurotherapeutics*, *7*(10), 1417-1436.

Ersoz, M., Ulusoy, H., Oktar, M. A., & Akyuz, M. (2007). Urinary tract infection and bacteriurua in stroke patients: frequencies, pathogen microorganisms, and risk factors. *American journal of physical medicine & rehabilitation*, *86*(9), 734-741.

Ferro, J. M. (2006). Update on intracerebral haemorrhage. *Journal of neurology*, *253*(8), 985-999.

Flansbjer, U. B., Holmbäck, A. M., Downham, D., Patten, C., & Lexell, J. (2005). Reliability of gait performance tests in men and women with hemiparesis after stroke. *Journal of rehabilitation medicine*, *37*(2), 75-82.

French, B., Thomas, L., Leathley, M., Sutton, C., McAdam, J., Forster, A & Watkins, C. (2010). Does repetitive task training improve functional activity after stroke? A Cochrane systematic review and meta-analysis. *Journal of rehabilitation medicine*, *42*(1), 9-15.

Galvin, R., Lennon, S., Murphy, B. T., Cusack, T., Horgan, F., & Stokes, E. K. (2012). Additional exercise therapy for the recovery of function after stroke. *The Cochrane Library*.

Gamble, G. E., Barberan, E., Laasch, H. U., Bowsher, D., Tyrrell, P. J., & Jones, A. K. (2002). Poststroke shoulder pain: a prospective study of the association and risk factors in 152 patients from a consecutive cohort of 205 patients presenting with stroke. *European journal of pain*, *6*(6), 467-474.

Gargano, J. W., & Reeves, M. J. (2007). Sex differences in stroke recovery and stroke-specific quality of life: results from a statewide stroke registry. *Stroke*, *38*(9), 2541-2548.

Geurts, A. C., de Haart, M., van Nes, I. J., & Duysens, J. (2005). A review of standing balance recovery from stroke. *Gait & posture*, *22*(3), 267-281.

Gialanella, B., Bertolinelli, M., Lissi, M., & Prometti, P. (2011).Predicting outcome after stroke: the role of aphasia. *Disability and rehabilitation*, *33*(2), 122-129.

Gordon, N. F., Gulanick, M., Costa, F., Fletcher, G., Franklin, B. A., Roth, E. J., & Shephard, T. (2004). Physical activity and exercise recommendations for stroke survivors: an American Heart Association scientific statement from the Council on Clinical Cardiology, Subcommittee on Exercise, Cardiac Rehabilitation, and Prevention; the Council on Cardiovascular Nursing; the Council on Nutrition, Physical Activity, and Metabolism; and the Stroke Council. *Stroke*, *35*(5), 1230-1240.

Hachinski, V. (2007).The 2005 Thomas Willis Lecture.Stroke and vascular cognitive impairment.A transdisciplinary, translational and transactional approach. *Stroke*.

Hachinski, V., Donnan, G. A., Gorelick, P. B., Hacke, W., Cramer, S. C., Kaste, M., ... & Skolnick, B. E. (2010). Stroke: working toward a prioritized world agenda. *International Journal of Stroke*, *5*(4), 238-256.

Hendricks, H. T. (2003). *Motor evoked potentials in predicting motor and functional outcome after stroke*. [Sl: sn].

Hong, K. S., Kang, D. W., Koo, J. S., Yu, K. H., Han, M. K., Cho, Y. J., ... & Lee, B. C. (2008). Impact of neurological and medical complications on 3-month outcomes in acute ischaemic stroke. *European Journal of Neurology*, *15*(12), 1324-1331.

Hossain, A. M., Ahmed, N. U., Rahman, M., Islam, M. R., Sadhya, G., & Fatema, K. (2011). Analysis of sociodemographic and clinical factors associated with hospitalized stroke patients of Bangladesh. *Faridpur Medical College Journal*, *6*(1), 19-23.

Indredavik, B., Rohweder, G., Naalsund, E., & Lydersen, S. (2008). Medical complications in a comprehensive stroke unit and an early supported discharge service. *Stroke*, *39*(2), 414-420.

Islam, M. N., Moniruzzaman, M., Khalil, M. I., Basri, R., Alam, M. K., Loo, K. W., & Gan, S. H. (2013).Burden of stroke in Bangladesh. *International journal of stroke*, *8*(3), 211-213.

Johnston, S. C., Mendis, S., & Mathers, C. D. (2009). Global variation in stroke burden and mortality: estimates from monitoring, surveillance, and modelling. *The Lancet Neurology*, *8*(4), 345-354.

Kalichman, L., & Ratmansky, M. (2011). Underlying pathology and associated factors of hemiplegic shoulder pain. *American journal of physical medicine & rehabilitation*, *90*(9), 768-780.

Katherine Salter, B., Mark Hartley, B., & Norine Foley, B. (2006). Impact of early vs delayed admission to rehabilitation on functional outcomes in persons with stroke. *J Rehabil Med*, *38*(113Á/117).

Kim, B. H., Lee, S. M., Bae, Y. H., Yu, J. H., & Kim, T. H. (2012).The effect of a task-oriented training on trunk control ability, balance and gait of stroke patients. *Journal of Physical Therapy Science*, *24*(6), 519-522.

Kong, K. H., & Yang, S. Y. (2006).Health-related quality of life among chronic stroke survivors attending a rehabilitation clinic. *Singapore medical journal*, *47*(3), 213.

Kumar, S., Selim, M. H., & Caplan, L. R. (2010).Medical complications after stroke. *The Lancet Neurology*, *9*(1), 105-118.

Kwakkel, G., Kollen, B., & Twisk, J. (2006).Impact of time on improvement of outcome after stroke. *Stroke*, *37*(9), 2348-2353.

Kwan, J., & Hand, P. (2007). Infection after acute stroke is associated with poor short-term outcome. *Acta neurologica scandinavica*, *115*(5), 331-338.

Langhorne, P., Bernhardt, J., & Kwakkel, G. (2011).Stroke rehabilitation. *The Lancet*, *377*(9778), 1693-1702.

Lee, S., Shafe, A. C., & Cowie, M. R. (2011). UK stroke incidence, mortality and cardiovascular risk management 1999–2008: time-trend analysis from the General Practice Research Database. *BMJ open*, *1*(2), e000269.

Liu, M., Wu, B., Wang, W. Z., Lee, L. M., Zhang, S. H., & Kong, L. Z. (2007). Stroke in China: epidemiology, prevention, and management strategies. *The Lancet Neurology*, *6*(5), 456-464.

Liu, X. F., & Bogousslavsky, J. (2005).Analysis of risk factors in 3901 patients with stroke. *Chinese medical sciences journal= Chung-kuo i hsueh k'o hsueh tsa chih*, *20*(1), 35-39.

Luvizutto, G. J., Gameiro, M. D. O. O., Schelp, A. O., Braga, G. P., Ribeiro, P. W., & Bazan, R. (2015). Characterization of patients treated by rehabilitation service after

establishing of an acute stroke unit in a Brazilian hospital. *Journal of physical therapy science*, *27*(8), 2533-2536.

Mandić, M., & Rančić, N. (2010).The Measure of Balance in Sitting in Patients at Post-Stroke Rehabilitation. *Acta Facultatis Medicae Naissensis*, *27*(1).

Mangold, S., Schuster, C., Keller, T., Zimmermann-Schlatter, A., & Ettlin, T. (2009).Motor training of upper extremity with functional electrical stimulation in early stroke rehabilitation. *Neurorehabilitation and Neural Repair*, *23*(2), 184-190.

Mathers, C. D., Lopez, A. D., & Murray, C. J. (2006). The burden of disease and mortality by condition: data, methods and results for 2001. *Global burden of disease and risk factors*, *45*, 88.

McKenna, L. B. K. (2001). Hemiplegic shoulder pain: defining the problem and its management. *Disability and rehabilitation*, *23*(16), 698-705.

Nascimento, L. R., Caetano, L. C., Freitas, D. C., Morais, T. M., Polese, J. C., & Teixeira-Salmela, L. F. (2012). Different instructions during the ten-meter walking test determined significant increases in maximum gait speed in individuals with chronic hemiparesis. *Brazilian Journal of Physical Therapy*, *16*(2), 122-127.

Ng, Y. S., Astrid, S., De Silva, D. A., Tan, M. L. D., Tan, Y. L., & Chew, E. (2013). Functional outcomes after inpatient rehabilitation in a prospective stroke cohort. *Proceedings of Singapore Healthcare*, *22*(3), 175-182.

OLIVEIRA, C. B. D., MEDEIROS, I. R. T. D., Frota, N. A. F., Greters, M. E., & Conforto, A. B. (2008). Balance control in hemiparetic stroke patients: main tools for evaluation. *Journal of rehabilitation research and development*, *45*(8), 1215-1226.

Outermans, J. C., van Peppen, R. P., Wittink, H., Takken, T., & Kwakkel, G. (2010). Effects of a high-intensity task-oriented training on gait performance early after stroke: a pilot study. *Clinical rehabilitation*, *24*(11), 979-987.

Pang, M. Y., Eng, J. J., Dawson, A. S., McKay, H. A., & Harris, J. E. (2005). A community-based fitness and mobility exercise program for older adults with chronic stroke: A randomized, controlled trial. *Journal of the American Geriatrics Society*, *53*(10), 1667-1674.

Poisson, S. N., Johnston, S. C., & Josephson, S. A. (2010).Urinary Tract Infections Complicating Stroke. *Stroke*, *41*(4), e180-e184.

Rose, D., Paris, T., Crews, E., Wu, S. S., Sun, A., Behrman, A. L., & Duncan, P. (2011).Feasibility and effectiveness of circuit training in acute stroke rehabilitation. *Neurorehabilitation and neural repair*, *25*(2), 140-148.

Rothwell, P. M., Coull, A. J., Silver, L. E., Fairhead, J. F., Giles, M. F., Lovelock, C. E., ... & Binney, L. E. (2005). Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford Vascular Study). *The Lancet*, *366*(9499), 1773-1783.

Saeys, W., Vereeck, L., Truijen, S., Lafosse, C., Wuyts, F. P., & Van de Heyning, P. (2012).Randomized controlled trial of truncal exercises early after stroke to improve balance and mobility. *Neurorehabilitation and neural repair*, *26*(3), 231-238.

Sellars, C., Bowie, L., Bagg, J., Sweeney, M. P., Miller, H., Tilston, J & Stott, D. J. (2007). Risk factors for chest infection in acute stroke: a prospective cohort study. *Stroke*, *38*(8), 2284-2291.

Shumway-Cook, A., Silver, I. F., LeMier, M., York, S., Cummings, P., & Koepsell, T. D. (2007). Effectiveness of a community-based multifactorial intervention on falls and fall risk factors in community-living older adults: a randomized, controlled trial. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, *62*(12), 1420-1427.

Srivastava, A., Taly, A. B., Gupta, A., & Murali, T. (2010). Post-stroke depression: prevalence and relationship with disability in chronic stroke survivors. *Annals of Indian Academy of Neurology*, *13*(2), 123.

TARASOVÁ, M., BáRTLOVá, B., NOSAVCOVOVá, E., AL FADHLI, A. K., POSPÍšIL, P., Konečný, L & Siegelová, J. (2008). Effectiveness of physiotherapy in acute phase of stroke. *Scripta Medica (BRNO)*, *81*(3), 185-194.

Truelsen, T., Piechowski-Jóźwiak, B., Bonita, R., Mathers, C., Bogousslavsky, J., & Boysen, G. (2006). Stroke incidence and prevalence in Europe: a review of available data. *European journal of neurology*, *13*(6), 581-598.

Tung, F. L., Yang, Y. R., Lee, C. C., & Wang, R. Y. (2010). Balance outcomes after additional sit-to-stand training in subjects with stroke: a randomized controlled trial. *Clinical rehabilitation*, *24*(6), 533-542.

Tyson, S. F., Hanley, M., Chillala, J., Selley, A., & Tallis, R. C. (2006). Balance disability after stroke. *Physical therapy*, *86*(1), 30-38.

Van der Riet, P., Maguire, J., Dedkhard, S., & Sibbritt, D. (2015). Are traditional Thai therapies better than conventional treatment for stroke rehabilitation? A quasi-experimental study. *European Journal of Integrative Medicine*, *7*(1), 16-22.

Van Peppen, R. P., Kortsmit, M., Lindeman, E., & Kwakkel, G. (2006). Effects of visual feedback therapy on postural control in bilateral standing after stroke: a systematic review.

Van Peppen, R. P., Kwakkel, G., Wood-Dauphinee, S., Hendriks, H. J., Van der Wees, P. J., & Dekker, J. (2004). The impact of physical therapy on functional outcomes after stroke: what's the evidence? *Clinical rehabilitation*, *18*(8), 833-862.

Van Peppen, R. P., Kwakkel, G., Wood-Dauphinee, S., Hendriks, H. J., Van der Wees, P. J., & Dekker, J. (2004). The impact of physical therapy on functional outcomes after stroke: what's the evidence?. *Clinical rehabilitation*, *18*(8), 833-862.

Veerbeek, J. M., Van Wegen, E. E. H., Harmeling–Van der Wel, B. C., Kwakkel, G., & EPOS Investigators. (2011). Is accurate prediction of gait in nonambulatory stroke patients possible within 72 hours poststroke? The EPOS study. *Neurorehabilitation and neural repair*, *25*(3), 268-274.

Venketasubramanian, N., & Chen, C. L. H. (2008).Burden of stroke in Singapore. *International Journal of Stroke*, *3*(1), 51-54.

Verheyden, G., Nieuwboer, A., Feys, H., Thijs, V., Vaes, K., & De Weerdt, W. (2005). Discriminant ability of the Trunk Impairment Scale: a comparison between stroke patients and healthy individuals. *Disability and rehabilitation*, *27*(17), 1023-1028.

Viana, R., Pereira, S., Mehta, S., Miller, T., & Teasell, R. (2012). Evidence for therapeutic interventions for hemiplegic shoulder pain during the chronic stage of stroke: a review. *Topics in stroke rehabilitation*, *19*(6), 514-522.

Warlow, C., Van Gijn, J., Dennis, M. S., Wardlaw, J. M., Sandercock, P. A., Rinkel, G., & Langhorne, P. (2008). Stroke: practical management.

Wartenberg, K. E., Stoll, A., Funk, A., Meyer, A., Schmidt, J. M., & Berrouschot, J. (2011). Infection after acute ischemic stroke: risk factors, biomarkers, and outcome. *Stroke Research and Treatment*, *2011*.

Yi, T. I., Han, J. S., Lee, K. E., & Ha, S. A. (2015). Participation in leisure activity and exercise of chronic stroke survivors using community-based rehabilitation services in seongnam city. *Annals of rehabilitation medicine*, *39*(2), 234-242.

Zhang, J., Wang, Y., Wang, G. N., Sun, H., Sun, T., Shi, J. Q., ... & Zhang, J. S. (2011). Clinical factors in patients with ischemic versus hemorrhagic stroke in East China. *World journal of emergency medicine*, *2*(1), 18.

APPENDICES

Consent Form

Assalamu-alaikum/ Namasker,

I amParvin Sultana Shilpy, student of Part-I M.Sc in Rehabilitation Scienceat Bangladesh Health Profession s Institute , under faculty of medicine, University of Dhaka. I am conducting a research and the title is- "Functional Outcome of Stroke Patients after Two Weeks Physiotherapy Management at a Selected Hospital"which is included my course.

For that I'm asking you to answer some questions, which will take 20-25 minutes. It also ensures that the information you provide will be kept confidential.

Participation here depends on your own will. If you want, you can skip your name from the list of participants at any time. In addition, if you have any questions as a participant in this study or if there is any problem, you can contactthe researcherParvin Sultana Shilpyor my Supervisor.

Do you have any questions before starting the research?

Can I start this interview with your permission?

Yes: ☐ No: ☐

Signature of the participant & Date…….

Signature of the researcher & Date……..

Signature of the witness & Date……..

সম্মতিপত্র

আসসালামুয়ালাইকুম/ নমস্কার,

আমিপারভিনসুলতানাশিল্পী, আমিঢাকাবিশ্ববিদ্যালয়েরচিকিৎসাঅনুষদেরঅধীনে ‘বাংলাদেশহেলথপ্রফেশন্সইনস্টিটিউট’ এরপূর্নবাসনবিজ্ঞানপর্ব-১স্নাতকোত্তরকোর্সেরএকজনছাত্রী৷আমিএকটিগবেষণাকরছিযারশিরোনামহল ‘‘একটিমনোনীতহাসপাতালেদুইসপ্তাহফিজিওথেরাপিচিকিৎসানেয়ারপরস্ট্রোকরোগীদেরকর্মক্ষমতা’’,যেটাআমার অধ্যয়নেরঅন্তর্গত৷এইজন্যআমিআপনারকাছেকিছুপ্রশ্নেরউত্তরজানতেচাচ্ছি, যেটাতেসর্বমোট২০-২৫মিনিটসময়লাগবে৷এটাওনিশ্চিতকরছিযেআপনিযেসবতথ্যপ্রধানকরবেনতারগোপনীয়তাবজায়থাকবে৷

এখানেঅংশগ্রহনআপনারনিজেরউপরনির্ভরকরে।আপনিচাইলেযেকোনসময়কোনফলাফলছাড়াইচলেযেতেপারেন।এছাড়াওযদিআপনারএইগবেষণায়অংশগ্রহনকারীহিসেবেকোনপ্রশ্নথাকেতাহলেআপনিগবেষকপারভিনসুলতানাশিল্পীঅথবাআমারসুপারভাইজারেরসহিতযোগাযোগকরতেপারেন

সাক্ষাৎকারশুরুকরারআগেকিআপনারকোনপ্রশ্নআছে?

সুতরাংআমিআপনারঅনুমতিতেএইসাক্ষাৎকারশুরুকরতেপারি?

হ্যাঁ ☐ না ☐

সাক্ষাৎকারপ্রদানকারীরস্বাক্ষর..... তারিখ.....

সাক্ষাৎকারগ্রহনকারীরস্বাক্ষর..... তারিখ.....

সাক্ষীরস্বাক্ষরওতারিখ..... তারিখ.....

English Questionnaire

Part- I: Personal details

ID no: Reg no:

1.1. Name of participant……..

1.2. Address:

Village/house no…….. Post office……..

Police Station…… District……

1.3. Contact number…….

1.4. Date of Admission on Hospital……

1.5. Date of occurrence of stroke interview……...

1.6. Date of first interview…….

1.7. Date of interview after 2 weeks of Physiotherapy……..

Part- II: Socio-demographic Information

2.1	Age	…..... years
2.2	Sex	1= Male 2= Female
2.3	Body Weight	…….. kg
2.4	Height in Meter	…… (1 foot = .3048 meter)
2.5	Body Type	1=Underweight 2=Acceptable 3 = Overweight 4 = Obese
2.6	Marital Status	1 =Married 2=Unmarried 3 =Divorced 4 =Separate 5= Widow
2.7	Educational level	1 = No schooling 2= Below S.S.C 3= S.S.C 4=H.S.C 5= Graduate/Post Graduate
2.8	Occupation	1= Day laborer 2= Service holder 3= Businessman 4= Unemployed 5= Housewife 6= Student
2.9	Living area	1= Urban 2= Rural

*****BMI below 18.5 = Underweight

* BMI 18.5-24.9 = Normal/Acceptable

* BMI 25.0-29.9 = Overweight

* BMI 30.0 and above = Obese

Part-III: Condition related information

3.1	Duration of stroke?	…… days
3.2	Type of stroke?	1= Ischemic 2= Hemorrhagic
3.3	Affected side?	1= Right 2 = Left
3.4	History of previous stroke?	1=Yes 2= No
3.5	Medical, musculoskeletal and neurological complications?	1=Deep venous thrombosis 2=Urinary tract infection 3=Chest infection 4=Urine retention 5=DVT 6= Osteoarthritis 7=Rheumatoid arthritis 8= Hand pain 9= Other pain 10=Depression 11=Seizure 12=Anxiety 13=Confusion 14=Shoulder pain 15=Electrolyte imbalance
3.6	Past history of physical exercise?	1= Yes 2= No
3.7	Treatment before coming to IBN SINA?	1= Yes 2=No
3.8	Type of intervention have you taken?	1=Traditional 2= Modern
3.9	Received physiotherapy session/time?	

		____session/ ____month

Part-IV: Functional Outcome related information

Q.N	Functions	FIM Scale Score	Initial	After 2 weeks
4.1	Rolling affected side to unaffected side	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.2	Rolling unaffected side to affected side	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25%		

		of task)		
4.3	Bridging	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.4	Supine to sit	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.5	Sit to supine	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing,		

		prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.6	Sitting static balance	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.7	Sitting dynamic balance	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task)		

		2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.8	Standing static balance	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.9	Standing dynamic balance	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.10	Transfer bed, chair	7=complete Independent(timely, safely)		

	,w/c	6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
4.11	Gait	7=complete Independent(timely, safely) 6=Modified Independent(Extra time, Device) 5=Supervision (Cuing. Coaxing, prompting) 4=Minimal Assist(performs 75% of more of task) 3=Moderate Assist(performs 50% to 74% of task) 2=Maximum Assist(performs 25% to 49% of task) 1=Total Assist(performs less than 25% of task)		
Total				

প্রশ্নপত্র

পর্ব-১: রোগীরসনাক্তকরন

কোডনং: **রেজিস্ট্রেসননং:**

১.১।অংশগ্রহণকারীরনাম.....

১.২।ঠিকানাঃ

বাড়ীনং/গ্রাম..... পোস্টঅফিস.....

থানা..... জেলা.....

১.৩।যোগাযোগনম্বর.....

১.৪।হাসপাতালেভর্তিরতারিখ.....

১.৫।স্ট্রোকেরতারিখ.....

১.৬।প্রাথমিকসাক্ষাতেরতারিখ.....

১.৭।দুইসপ্তাহফিজিওথেরাপিচিকিৎসানেয়ারপরসাক্ষাতেরতারিখ.....

পর্ব-২।রোগীরসামাজিকজনতাত্তিকতথ্যাবলী

২.১	বয়স	..... বছর
২.২	লিঙ্গ	১= পুরুষ২= মহিলা
২.৩	শরীরেরওজন	..... কেজি
২.৪	উচ্চতা	..... (১ফুট = .৩০৪৮মিটার)
২.৫	শরীরেরধরণ	১=স্বল্পওজন২=গ্রহণযোগ্যওজন৩=অতিরিক্তওজন৪= অতিরিক্তমোটা
২.৬	বৈবাহিকঅবস্থা	১ =বিবাহিত২ =অবিবাহিত৩ =তালাকপ্রাপ্ত৪ =পৃথকীকৃত৫= বিধবা
২.৭	শিক্ষাঅবস্থা	১= নিরক্ষর২=এস.এস.সিএরনিচে৩ = এস.এস.সি৪=এইচ.এস.সি৫= স্নাতক/স্নাতকোত্তর
২.৮	পেশা	১= দিনমজুর২= চাকরিজীবী৩= ব্যবসায়ী৪= বেকার৫= গৃহিনী৬=ছাত্র
২.৯	বসবাসেরএলাকা	১= শহর২= গ্রাম

*বিএমআই<১৮.৫ =স্বল্পওজন

*বিএমআই১৮.৫-২৪.৯ =গ্রহণযোগ্যওজন

*বিএমআই২৫.০-২৯.৯ =অতিরিক্তওজন

*বিএমআই৩০.০এবংতারউপর= অতিরিক্তমোটা

পর্ব-৩।স্ট্রোকসম্পর্কিততথ্য

৩.১	স্ট্রোকের ব্যাপ্তিকাল?	.....মাস
৩.২	স্ট্রোকেরধরন	১=ইস্চেমিক২= হেমোরেজিক
৩.৩	ক্ষতিগ্রস্তপাশ	১= ডান২=বাম
৩.৪	পূর্বেস্ট্রোকেরইতিহাসআছেকি?	১=হ্যাঁ২=না
৩.৫	মেডিকেল,মাংসপেশী-হাড়এবংস্নায়ুবিকজটিলতারয়েছে?	১=গভীরশিরাতেরক্তজমাটবাঁধা ২=মূত্রনালীতেসংক্রমণ ৩=বুকেসংক্রমণ ৪=প্রস্রাবধরেরাখতেনাপারা ৫=ডিভিটি ৬=হাড়েরগাঁটেবাত ৭=গাঁটফোলানোবাত ৮=কাঁধওহাতেব্যাথা ৯=অন্যান্যব্যাথা ১০=বিষণ্যতা ১১=খিঁচুনী ১২=উদ্বেগ ১৩=ধন্দ ১৪= কাঁধে ব্যথা ১৫=ইলেকট্রোলাইটেরঘাটতি
৩.৬	পূর্বেশারীরিকব্যয়মকরেছেনকি?	১=হ্যাঁ২=না
৩.৭	ইবনেসিনাতেআসারআগেকোনচিকিৎসানেয়াহয়েছে?	১=হ্যাঁ২=না
৩.৮	কোনধরনেরচিকিৎসানিয়েছিলেন?	১=প্রচলিত২= আধুনিক
৩.৯	ফিজিওথেরাপীগ্রহনেরসেশন/সময়?	_____ সেশন/ _____মাস

পর্ব-৪।কর্মক্ষমতাসম্পর্কিততথ্য

প্রশ্ননং	কাজসমূহ	ফিমস্কেলস্কোর	প্রাথমিক	২সপ্তাহপর
৪.১	রোলিং-আক্রান্তপাশহতেভালপাশে	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.২	রোলিং- ভালপাশহতেআক্রান্তপাশে	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.৩	ব্রিজিং	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.৪	চিৎহয়েশোয়াথেকেবসা	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে)		

		১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.৫	বসাথেকেচিৎহয়েশোয়া	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.৬	বসাঅবস্থায়স্থিরভারসাম্য	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.৭	বসাঅবস্থায়গতিভারসাম্য	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.৮	দাঁড়ানোঅবস্থায়স্থিরভারসাম্য	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		

৪.৯	দাঁড়ানোঅবস্থায়গতিভারসাম্য	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.১০	স্থানান্তরবেড,চেয়ার/হুইলচেয়ার	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
৪.১১	হাঁটা	৭=সম্পূর্ণস্বাধীন(সময়মত,নিরাপদে) ৬=সংশোধিতস্বাধীন (অতিরিক্তসময়,ডিভাইস) ৫=কার্যদর্শন (খোশামোদ,প্ররোচনা) ৪=নূন্যতমসহায়তা (৭৫% কাজকরতেপারে) ৩= মধ্যপন্থীসহায়তা (৫০থেকে৭৪% কাজকরতেপারে) ২=সর্বাধিকসহায়তা(২৫% থেকে৪৯% কাজকরতেপারে) ১=সম্পূর্ণসহায়তা (২৫% এরনিচেকাজকরতেপারে)		
সর্বমোট				

BANGLADESH HEALTH PROFESSIONS INSTITUTE

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref.

Date: 24/03/2018

CRP-BHPI/IRB/03/18/204

To
Parvin sultana shilpy
Part-II, M.SC in Rehabilitation Science
Session 2016-17, student ID-181160052
BHPT, CRP, Chapain, savar, Dhaka-1343, Bangladesh

Sub: Approval of thesis proposal **"Functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital"** by ethics committee.

Dear Parvin Sultana Shilpy,

Congratulations,
The Institution Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned thesis, with yourself, as the Principal Investigator. The following documents have been reviewed and approved:

S.N.	Name of Documents
1.	Thesis Proposal
2.	Questionnaire(English and Bangla version)
3.	Information sheet & consent form

Since the study involves use of a self-administered questionnaire to identify levels of functional outcomes achieved by stroke patients after two weeks physiotherapy management that may take 20 to 25 minutes and have no likelihood of any harm to the participants, the members of the ethical committee have approved the study to be conducted in the presented form at the meeting held at 09:00 AM on May08, 2017 at BHPI.

This institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information of informed consent and ask to be provided a copy of the final report. This Ethics committee is working is working accordance to Nuremberg code 1947, world Medical Association Declaration of Helsinki, 1964-2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, institutional Review Board (IBR)
BHPI, CRP, savar, Dhaka-1343. Bangladesh

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref.

Date: 24/03/2018

CRP-BHPI/MRS/03/18/109

To Whom It May Concern

This is to certify that Parvin Sultana Shilpy, a student of M.Sc in Rehabilitation Science at Bangladesh Health Institute (BHPI) under the faculty of Medicine, University of Dhaka has to conduct a research for fulfillment of her Master's degree. Her title is" Functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital", which is a self funded study. The research proposal has been approved by institutional Review Board (IRB) of this institute. To accomplish research objectives, she will need to collect data from indoor Neurological department of IBNSINA Hospital, Dhanmondi, Dhaka. We request you to provide her necessary support from your department.

I wish her for every success in order to accomplish her research.

Best regards

Millat Hossain

Muhammad Millat Hossain
Assistant Professor, Bangladesh Health Profession Institute (BHPI)
Project & Course coordinator, M.Sc in Rehabilitation Science
BHPI, CRP, Savar, Dhaka-1343, Bangladesh.

February 27, 2018

The chairman

Institutional Review Board (IRB)

Bangladesh Health Professions Institute (BHPI)

CRP-Savar, Dhaka-1343, Bangladesh

Subject: **Application for review and ethical approval.**

Sir,

With due respect I would like to draw your kind attention that I am a student of Masters of Science in Rehabilitation Science at Bangladesh Health Profession Institute(BHPI) under the faculty of Medicine of University of Dhaka(DU). For the requirement of my course curriculum I have to conduct a research entitled" **Functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital"** that will be supervised by Professor Dr.KM Shahidul Islam, Head of department Microbiology .The purpose of the study is to evaluate what levels functional outcomes are achieved by stroke patients after two weeks physiotherapy management? Self developed Questionnaire will be used by face to face and observational interview. That will take about 20-30 minutes. Related information will be collected data will be kept confidential.

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

Sincerely yours

Parvin Sultana Shilpy

Session: 2016-2017

Student ID: 181160052

Student of M.Sc. in Rehabilitation Science

BHPT, CRP, savar, Dhaka-1343, Bangladesh

Recommendation from the thesis supervisor:

Professor Dr.K M Shahidul Islam

Head of department Microbiology

Bardem General Hospital

Bangladesh Health Professions Institute (BHPI)
(An academic institute of CRP)
M.Sc. in Rehabilitation Science
Paper XII (Thesis)

Thesis Supervisor-student Contact (face to face) and guidance record

Name of student : Parvin Sultana Shilpy
Name & designation of the Thesis Supervisor: Prof. (Dr) KM Shahidu
Head, Department of Microbiology.

Appointment no.	Date	Place	Duration (hours; minutes)	Comment	Student's signature	Thesis Supervisor's Signature
1	5-10-2017	IBNSINA Hospital	3.00	Discuss about title and prepare objective		5/10/2017
2	26-11-17	BIRDEM	2.00	Collect necessary documents		26/11/2017
3	06-12-17	BIRDEM	3.00	Prepare sample questionnaire		6/12/2017
4	17-12-17	BIRDEM	3.00	Correction questionnaire		17/12/2017
5	31-12-17	BIRDEM	3.00	Finalization of questionnaire		31/12/2017
6	7-01-18	BIRDEM	3.00	Data collection related discussion		7/1/2018
7	20-01-18	BIRDEM	3.00	Data collection tools related discussion		20/1/2018
8	27-01-18	BIRDEM	3.00	Discuss about new topic		27/1
9	3-02-18	BIRDEM	2.00	Correction objectives		3/2/218
10	13-02-18	BIRDEM	3.00	Correction introduction		13/2/2018
11	24-02-18	BIRDEM	3.00	Discuss about questionnaire		24/2/18

12	8-03-18	BIRDEM	3.00	Introduction &methodology correction		8/3/2018
13	21-03-18	BIRDEM	3.00	Methodology correction		21/3/2018
14	24-03-18	BIRDEM	3.00	Questionnaire finalize		24/3/2018
15	7-04-18	BIRDEM	3.00	Checking data collection		7/4/2018
16	14-04-18	BIRDEM	3.00	Analysis of data		14/4/2018
17	21-04-18	BIRDEM	3.00	Checking ten data result		21/4/2018
18	28-04-18	BIRDEM	3.00	Discuss about graph and result		28/4/2018
19	5-05-18	BIRDEM	3.00	Checking and correction discussion part		5/5/2018
20	12-05-18	BIRDEM	3.00	Checking of result and discussion		12/5/2018
21	19-05-18	BIRDEM	3.00	Final first draft correction		19/5/2018

Note:

1. Appointment number will cover at least a total of 50 hours; applicable only for face to face contact with the thesis supervisors.
2. Do not forget to include your previous appointments with your thesis supervisors until now.
3. Please do not include travelling time. Please include more pages for appointment numbers if required.
4. Each student of the same thesis supervisor will require separate record.
5. Please use separate sheet for comment if required.
6. You will require to submit this completed record during submission of your "final thesis submission for defense" (please see academic calendar) .
7. This record is very important in evaluation of your work in Paper XII (Thesis).