

**FEAR OF FALLING AMONG STROKE SURVIVOR IN THE  
SELECTED COMMUNITY OF BANGLADESH- A CROSS  
SECTIONAL STUDY**



By

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*This thesis is submitted in total fulfillment of the requirements for the subject  
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## **Statement of Authorship**

Except where is made in the text of the thesis, this thesis contains no materials published elsewhere or extracted in whole or in part form a thesis presented by me for any other degree or diploma or seminar.

No others person's work has been used without due acknowledgement in the main text of the thesis.

This thesis has not been submitted for the aware of any other degree or diploma in any other tertiary institution.

The ethical issues of the study has been strictly considered and protected. In case of dissemination the finding of this project for future publication, research supervisor will highly concern and it will be duly acknowledged as undergraduate thesis.

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**Dedicated to  
My Beloved Parents.....**

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## Abstract

**Background:** Stroke is a neurological condition that affects person's whole life. Falling is one of the most common complications of the post-stroke.

**Objectives:** The purpose of this study was to investigate the fears of falling among stroke survivor in the selected community of Bangladesh

**Methodology:** The study conducted through quantitative study in cross-sectional design among 50 stroke survivor who were selected from occupational therapy outpatient and stroke rehabilitation unit of CRP, Savar. Participants were selected by using purposive sampling. Data were collected by conducting face to face interview in the community and using questionnaire fear of falling [Falls Efficacy Scale (FES)], Balance function [ Berg Balance Scale (BBS)], ADL performance level [ Modified Barthel Index (MBI)] and cognitive function [ Bangla Adapted Mini-Mental State Examination (BAMSE)].

**Result:** Fear of falling, balance function, ADLs performance level and cognition variable closely associated with socio-demographic variables of the participant of stroke patient. In this study, there is also association with fear of fall among stroke survivor in the community of Bangladesh. In this study 50 stroke patients were participants. In case of fear of falling measure through FES, 50% (25) were fairly concerned. Berg Balance Scale (BBS), it is found that highest participants 54% (n=27) were in low fall risk. Modified Barthel Index (MBI), it is found that 44% (n=22) were moderate dependence of participants. BAMSE, it is found that the highest number of participants 60% (n=30) were normal.

**Conclusion:** The study suggests that this result may be used basic data for developing rehabilitation programs for prevention of fear of falling and falls in stroke patients.

**Key words:** Fall, Fear of fall, Activities of daily living

## TABLE OF CONTENT

<i>Title page</i>	<i>i</i>
<i>Approval page</i>	<i>ii</i>
<i>Board of Examiners</i>	<i>iii</i>
<i>Statement of authorship</i>	<i>iv</i>
<i>Dedication</i>	<i>v</i>
<i>Acknowledgement</i>	<i>vi</i>
<i>Abstract</i>	<i>vii</i>
<i>Table of Contents</i>	<i>viii-ix</i>
<i>List of Tables, Figures and Appendixes</i>	<i>x</i>
<i>List of Acronyms</i>	<i>Xi</i>



<b>CHAPTER 1: INTRODUCTION</b>	
1.1 .Introduction	12-14
1.2.Justification of the study	14-15
1.3. Operational Definition	16
<b>CHAPTER 2: LITERATURE REVIEW</b>	17-21
<b>CHAPTER 3: METHODOLOGY</b>	
3.1. Research Question	22
3.2. Study aim and Specific objectives	22
3.3. Conceptual Framework	22
3.4. Study design	23
3.5. Study population	23
3.6. Study settings	24
3.7. Study period	24
3.8. Sample size	24
3.9. Inclusion and exclusion criteria	24-25
3.10. Sampling technique	25
3.11. Data collection tools/materials	25-26
3.12. Data collection methods	27
3.13. Data management and analysis	27
3.14. Quality control and quality assurance	27-28
3.15. Ethical consideration	28
<b>CHAPTER 4: RESULT</b>	29-45
<b>CHAPTER 5: DISCUSSION</b>	
5.1. Socio-demographic characteristics of patient	46-48
5.2. Association among FES, BBS, MBI and BAMM with socio-demographic	48-50
<b>CHAPTER 6: LIMITATION</b>	51
<b>CHAPTER 7: RECOMMENDATION</b>	52
<b>CHAPTER 8: CONCLUSION</b>	53
<b>List of References</b>	54-61
<b>Appendixes</b>	i-xxxv

### List of table

<i>S.N.</i>	<i>Table</i>	<i>Topic</i>	<i>Page No.</i>
<b>1</b>	Table-1	Socio-demographic characteristics of participants	29-31
<b>2</b>	Table-2	Test scores	40
<b>3</b>	Table-3	Association among FES, BBS, MBI and BAMM with socio-demographic	41-43

### List of Figures

<i>S.N.</i>	<i>Figure</i>	<i>Topic</i>	<i>Page No.</i>
1	Figure-1	Age group of participants	31
2	Figure-2	Stroke duration of participants	32
3	Figure-3	Sex of participant	33
4	Figure-4	Marital Status of participants	33
5	Figure-5	Occupational Status of Participants	34
6	Figure-6	Educational Status of Participants	35
7	Figure-7	Percentage of type of stroke	35
8	Figure-8	Percentage of affected side	36
9	Figure-9	Number of stroke of participants	37
10	Figure-10	Percentage of road in front of house of participants	38
11	Figure-11	Floor surface of the house of participants	38
12	Figure-12	Percentage of patient live with whom	39

### List of Appendixes

<i>S.N.</i>	<i>Appendix</i>	<i>Topic</i>	<i>Page No.</i>
1	Appendix-1	Permission letter for conducting study	I
2	Appendix-2	Permission letter for data collection	Ii
3	Appendix-3	Information sheet in English	Iii
4	Appendix-4	Information sheet in Bangla	Iv

5	Appendix-5	Consent form in English	V
6	Appendix-6	Consent form in Bangla	Vi
7	Appendix-7	Questionnaire in English	vii-xx
8	Appendix-8	Questionnaire in Bangla	xxi-xxxvi

## **List of Acronyms**

- CRP:** Centre for the Rehabilitation of the Paralysed
- BHPI:** Bangladesh Health Professions Institute
- ADL:** Activities of Daily Living
- CVA:** Cerebro Vascular Accident
- WHO:** World Health Organisation
- NGO:** Non-governmental Organisation
- USA:** United State of America
- FES:** Fall Efficacy Scale
- BBS:** Berg Balance Scale
- MBI:** Modified Barthel Index
- BAMSE:** Bangla Adapted Mini-mental State Examination

## CHAPTER 1 INTRODUCTION

### 1.1 Introduction:

According to World Health Organization (WHO) report (2013), every year, in the world people are affected by stroke about 15,000,000. In United State of America (USA), every year 795,000 people are affected by stroke. Those people have accomplished of first time or recurrent affected by stroke (International Stroke Center, 2014). The estimate of stroke in developing countries is higher than developed countries. In south Asian countries the estimate of stroke among people is 47-417 per 100,000 (Kulshreshtha *et al.*, 2012). Every year, in the world the amount of patients with stroke is rising. Bangladesh is no exception than other countries.

Bangladesh has a population of 162.2 million people. 26% of whom live in urban areas and the majority of whom (74%) live in rural areas. This population space an area of 147 570 km<sup>2</sup>, resulting in a population density of 966 people per km<sup>2</sup>. In Bangladesh the male: female ratio is 1.003: 1 (WHO, 2012).

In Bangladesh, Prevalence of stroke is 0.3 amongst men over the age of 40 years. These prevalence expansions to 1% amongst individual aged 70 years or more with common and age are tow important factors affecting stroke prevalence in Bangladesh (Mohammad *et al.*, 2011). The incidence of stroke is commonly found in older age. Therefore stroke is the most common cause of adult disability (Tyson *et al.*, 2007). In Bangladesh the extensive risk factors about stroke are hypertension (63) followed by heard disease (24%), diabetes mellitus (21%) and hyperlipidaemia (7%) (Hossain *et al.*, 2011). Day by day stroke incidents have increased. Most of the developing countries, this rising can be attributed to the adaptation of unhealthy lifestyle and a lack of awareness about health issues (Siddiqui *et al.*, 2012).

In the world, The World Health Organization position Bangladesh's mortality rate due to stroke as number 84. In Bangladesh the prevalence of stroke reported in Bangladesh is

0.3%, although no data on stroke incidences have been recorded. Hospital-based studies operate in past decades have indicated that hypertension is the main reason of ischemic and hemorrhagic stroke in Bangladesh. The large number of disability-adjusted life-years lost due to stroke (485 per 10 000 people) appearance that stroke severely impacts Bangladesh's economy. Although two non-governmental organizations, BRAC and the Centre for the Rehabilitation of the Paralyzed are actively involved in primary stroke prevention strategies, the Bangladeshi government needs to maintain healthcare growth to cope with the rising population density and to reduce stroke incident (Islam et al., 2012). In Bangladesh, Centre for the Rehabilitation of the Paralyzed (CRP) is a non-profitable organization. At CRP, patients get physiotherapy, occupational therapy and speech and language therapy treatment for different neurological conditions (CRP, 2010). Stroke is one of them. In the world, many people have experience to attack by stroke.

Stroke is a neurological condition which influences a normal health of a person. After stroke there have significant change in a patient's body (Ledbetter, 2010). Stroke has long lasting effects and these includes tiredness and fatigueless, pain and headache, problem with movement and balance, difficulty and speech, emotional change, loss of memory, reduce cognition ability, vision problems, anxiety and depression (Stroke Association, 2015). Many patients have probability of recurrent stroke, fall with serious injury, fall without injury, urinary tract infection, pressure sore, and pain at different body part, confusion, anxiety and depression (Langhorne *et al.*, 2000).

Falling is a usual and serious complication of stroke patients. Falling can lead to less amount of independence of activities of daily living like as eating, bathing, dressing, toileting, and transferring in patients (Shim et al., 2012). The main reason of fall is poor muscle strength, balance, cognitive deficit and visual abnormality and fall also occurs when patient are walking and transferring independently to regain their functions (Harris *et al.*, 2005). Beside, one of the reasons for breaking bones is the fall of stroke patient about 23-50%. So, considerate of falls risk is required for prevention of dependent ADL and secondary injuries and previous studies demonstrated that depression and cognitive and physical function were associated with falls in stroke patients (Cho et al., 2013). Patient with stroke can experience fall in any time of their life, especially older aged

patient. But most of the fall occurs at first two weeks of stroke. Among faller patient with stroke, first time fall can increase the probability to occur fall again. Depression is increasing day by day on patient's and caregiver's mind. The depression about fall on patient's mind is one of the major cause to occur fall. After the event of fall there is possibility to decrease social support of the patient (Czernuszenko and Czlonkowska, 2009).

## **1.2 Justification/ Significance**

Worldwide, stroke is the leading causes of death and disability. In the situation of south Asia, although the stroke population is very large the treatment is very limited by professional resource (neurologists and stroke specialists) and economic resources. National health-care authorities and health policy makers in the part of the world consider non communicable diseases a low level of priority (Wasay, Khatri and Kaul, 2014). Research respecting stroke is not taken seriously as the means of combating serious issue relating to health and disability. In certain case, research can play an essential role in displaying issue related to the control and prevention of stroke. More frequent among patients who require moderate assistance with motor activities- that is who perform between 50% and 75% on their own, on average (Lee & stokic, 2018).

In Bangladesh, a hospital based study form that 46% of total patient with stroke are living in villages (Hossian et al., 2011). Moreover, there is a lack of accessible home environment for mobility of stroke survivors in rural areas of Bangladesh and it is a threat for increasing fall rate among Bangladeshi patient with stroke. Ultimately fear of falling can lead to declined levels of physical activity and health condition, loss of independence, fewer community interactions, social isolation and to depression (Friedman et al., 2002).

Fall and fall related injury are related with participation restriction in daily living activities and declined to engage in social activity. It is determine that there have close relationship between fall and loss of function (Schmid et al., 2013). The most common risk factors of fall for a patient with stroke are performing activities of daily living

(ADL). A faller patient is more dependent rather than a non-faller patient in ADL (Weerdesteyn *et al.*, 2008). Patient may more dependent to their caregiver for performing self-care activity and it is very important issue for Bangladeshi people with stroke. The results of this study publish the level of concern about falling during daily living activities and investigate association among fear of falling and ADLs performing, balance and cognition with socio demography and fear of falling for patient with stroke. About the major risk of daily living activities for patient with stroke that fall occurs.

The aim of occupational therapy is to facilitate activity performance by developing performance skills and Therapists educated patient with stroke about how to regain lost performance and compensatory technique. The main focus of occupational therapy treatment is train of self-care, productivity and leisure activities. Occupational therapist also educates and shares information about patient's condition to family and caregivers (Steultjens *et al.*, 2003). There is no exception in Bangladeshi occupational therapists. The result of study will be helpful for occupational therapist to prepare appropriate treatment plan and provide better intervention. Therapist will be provided information and education to client and caregiver about fall and fear of fall.

Caregiver is very important for a patient with stroke after fall. Many patients are depending on their caregiver to perform activity. Patients are reliance on caregiver like as additional strategy to minimize fall (Schmid and Rittman, 2009). Caregiver have important role to take care a patient with stroke at home. Bangladeshi caregivers are not well known about post stroke fall. They also not have clear idea about fall and fear of fall. This study will be useful for client and caregiver. This study will help to create more awareness among patients and caregivers about fall and fear of fall.

Researcher has very interest in this area, as a student of occupational therapy. It will be hope that further resource will be develop in this area after completing this study. Other health care professionals will gather more knowledge about fall among patient with stroke. The results of study will help to ensure a successful rehabilitation program.

### **1.3 Operational Definition**

**Fall:** Fall is a serious medical complication among patient with stroke. According to WHO “A *fall is an event which results in a person coming to rest inadvertently on the ground or floor or other lower level*” (World Health Organization, 2014). “*Suddenly go down onto the ground or towards the ground without intending to or by accident is called fall*” (Cambridge Dictionaries Online, 2014). Falls also defined as involuntary coming to rest on the ground surface, base or lower than knee level due to abnormality of balance. Fall may occur at any time after stroke (Simpson and Miller, 2011).

**Fear of fall:** Fear of fall arise among stroke survivors mind. Patient stays at risk of fall due to fear of fall (Weerdesteyn *et al.*, 2008).

**Activities of daily living:** The tasks of everyday life. These activities include eating, dressing, getting into or out of a bed or chair, taking a bath or shower, and using the toilet. Instrumental activities of daily living are activities related to independent living and include preparing meals, managing money, shopping, doing housework, and using a telephone (National central institute).



## **CHAPTER 2 LITERATURE REVIEW**

Stroke may cause physical impairments such as paralysis, weakness sensory disturbances, and impaired postural control (Michel, 2003). It can also cause mental fatigue, depression and impaired cognitive function and both physical and mental impairments can contribute to a fall, a common complication after a stroke. (Johansson *et al.*, 2012).

World Health Organization (2014) defines stroke as- “A stroke or Cerebral vascular accident (CVA) is caused by the interruption of the blood supply to the brain usually because a blood vessel bursts or is blocked by a clot. This cuts off the supply of oxygen and nutrients causing damage to the brain tissue. The most common symptom of a stroke is sudden weakness or numbness of the face, arm or leg, most often on side of the body. Other symptoms include: confusion, difficulty speaking or understanding speech, difficulty seeing with one or both eyes, difficulty walking, dizziness, loss of balance or coordination, severe headache with no known cause, fainting or unconsciousness”.

Stroke causes damage to the brain. The total body function including motor function is maintained by brain. Body functions and motor function and cognitive function become impair due to stroke. Patient’s ability to perform ADL’s also becomes impair after stroke. Patient also experiences fall after stroke due to motor and balance deficit. This study will find the fear of fall among people with different types of stroke in Bangladesh.

People can affect by stroke in any age and stroke may occur as a result of loss of blood circulation in brain. Stroke has a major contribution to increase disabilities in the world. In the world, stroke occurs in every half second to a person. Every year approximately 5 million people achieve disability by stroke in the world (Rosamond *et al.*, 2008). Bangladesh has no exception of them. In Bangladesh, the number of stroke is increasing day by day.

Stroke affects the person’s whole life, the changes depends on location of interference and extend of brain tissue affected and Sensory, motor, perceptual with cognitive deficit can occur among patient body. In sensory disorder include tactile, position sense or

proprioception, object identification or stereognosis and auditory and perceptual disorder include inability to define right position of body or body scheme disorders, tactile perception, deficit in motor plan or apraxia, unilateral neglect, inability to attend visually element in environment or problem in visual attention, inability to recognize the relationship between one form and self in spatial area or problem in spatial relationships, figure ground perception, vertical visual perception and inability to recognize familiar object from environment or agnosia. Patient also has cognitive dysfunction and cognitive dysfunction includes problem in memory, judgment, abstract thinking, maintain sequence and problem solving. A patient with stroke faces particular physical complications such as weakness of body part, numbness, change in muscle strength and tone (Pedretti, 2103). Post-stroke, movement disorder impaired sensation and cognitive deficit are facilitated fall among stroke patient (Schmid and Rittman, 2009). From the practical experience of researcher at CRP, it had been founded that some of patient with stroke had faced fall and some had chance of fall due to fear of fall and fall risk in home environment.

Gender and age are two important factors affecting stroke prevalence in Bangladesh (Mohammad et al., 2011). The main risk factor for stroke in Bangladesh is Hypertension (63%) followed by heart disease (24%), diabetes mellitus (21%), and hyperlipidaemia (75) and maximum patient with stroke are living in rural area in case of Bangladesh. In Bangladesh, a hospital based study found that 46% of total patient with stroke are living in villages (hossain et al., 2011). Study in Bangladesh revealed that there is lack of awareness of major risk factors, warning symptoms, organ involvement, treatment available (Bhat et al., 2016).

Falls are the second leading cause of accidental or unintentional injury deaths worldwide. Each year at estimated 424000 individuals die from falls globally of which over 80% are in low-and middle-income countries. Adults older than 65 years are suffering from the greatest number of fatal falls. 37.3 million Falls those are severe enough to require medical attention, occurs each year (WHO, 2016).

Stroke impacts on most of aspects of a person's well being, that forces survivors to alter their life style they were living and maintain to reconstruct their lives. Strokes happened suddenly but recovery is often a long term process and stroke survivors experience physical, psychological and social challenges they cannot be seen easily by normal being

that are interrelated and impact on each other (Alaszewski et al., 2007). Czernuszenko & Czlonkowska (2009) study conducted that patients with severe stroke-related disability in the early period after stroke are prone to fall during rehabilitation and various falls are most usual in patient over 65 years of age.

Belgen et al. (2006) also reported that individuals with stroke who fell were 5.6 times more likely to be afraid of falling and this fear of falling leads to reduce confidence level reduction in physical activity, resulting in a loss of functional independence. Fear of falling lead to reduced levels of physical activity and de-conditioning, creating a that may result in greater decline in physical activity, a decrease in ADLs, a loss of independence, fewer community interactions, social isolation, and depression (Friedman et al., 2002).

The falling incident was greater with increasing depression and depression was an important risk factor for falling during the one year follow up period for patients with stroke (Ugur et al., 2000). The disability status and depression after the stroke are significant factors that influence physical and mental health of patients and the prevention of disability is more concerned along with early diagnosis and treatment of depression for important of Health Related Quality (HRQOL) of life of patient of stroke (Serda et at., 2015).

Shorter length of stay require greater rehabilitation capability which may lead to more intrusive

Therapeutic approaches and expose patients to a greater risk for fall (Lee & Stokic et al., 2008). Stroke survivors who got physiotherapy are able to live independently and have better quality of life and have lower mortality than those who did not receive it (Van Peppan et al., 2004). In particular, walking and transferring which are important goals of rehabilitation for most patients seen to be activities that put the patient at risk of falling (Baetens et al., 2011). These caregivers began to realize the skills they learned during inpatient rehabilitation did not always translate well at home. Transfer were far more difficult in the home than in rehabilitation and caregivers were often required to do as many as 8 to 10 transfers each day (Lutz et al., 2011).

Bangladesh is a developing country situated in South Asia. The population of Bangladesh is approximately 160,000,000 and most of the Bangladeshi people live in rural area

(Islam *et al.*, 2013). Among them 10% people are living with disability. For this reason disability is an important issue in Bangladesh (Hossain *et al.*, 2011). There are different types of disability present in Bangladesh. People with disabilities are get opportunity to access in education and job. In Bangladesh, government job and educational sector have a quota system for people with disability. Female people with disability discriminate than male for any opportunity. Some non-government organisation works to rehabilitate people with disability. Awareness raising program also conduct by different organization in community level (Titumir and Hossain, 2005). People with disability face difficulty in marriage, daily life, educational settings and job sector. Disability exposes their individual, social and family life and maximum society people are looked negatively to people with disabilities. Female with disabilities face more negative situation and as a result some psychological complication arise among their mind. There have some wrong ideas about the causes of disability and many people belief that stroke is the result of curse (Hossain, Atkinson and Underwood, 2002).

Stroke is one of the important causes of disability in Bangladesh and most of the patients with stroke were male. Most of them were older age and the age ranges between 51-70 years (Hossain *et al.*, 2011). It is great chance to occur fall among those stroke survivor.

Maximum patient with stroke are living in rural area (Hossain *et al.*, 2011). They have not clear idea about disability, stroke and fear of fall after stroke. The most of the specialized hospital and stroke rehabilitation center are situated in urban area and maximum time rural people cannot reach acute care after stroke due to long distance of hospital. They also not get proper intervention after fall at all time. At the time of community based rehabilitation placement, researcher explored that accessibility was not maintained in maximum rural house. Uneven surface, muddy and sleepy road are common in rainy season. It is a threat for increasing fall rate among Bangladeshi patient with stroke.

Rehabilitation is a most effective way to minimize functional limitation among people with stroke and occupational therapists work with patient as a member of rehabilitation team. Occupational therapy is a client-centered profession and occupational therapists

provide purposeful activity to patient for improving patient condition. Remediation is not possible for all patients that time occupational therapists use compensatory strategies to facilitate independence (Govender and Kalra, 2007).

Occupational therapist has played important role to a patient with stroke after fall. Safety is first priority to a patient with stroke. In home environment, fall can occur due to slippery floor, not adjusted bed height, intakes psychotropic drug, not use appropriate transferring technique among caregiver (Tsur and Segal, 2010). Carefully perform activity and accessibility in home environment is responsible to minimize fall and fear of fall.

Occupational therapists help to minimize fear of fall among patient with stroke by ensuring accessible home environment for patient with stroke and they give advice about adjust to bed height, add a handrail beside bed, accessibility in home include remove threshold at door, remove uneven surface at house, make a ramp, add a handrail on both side of stair and accessible toilet for patient with stroke (Toto, 2012). Therapists prevent not only fall but also work with patients.

## CHAPTER 3 METHODOLOGY

### 3.1 Research question

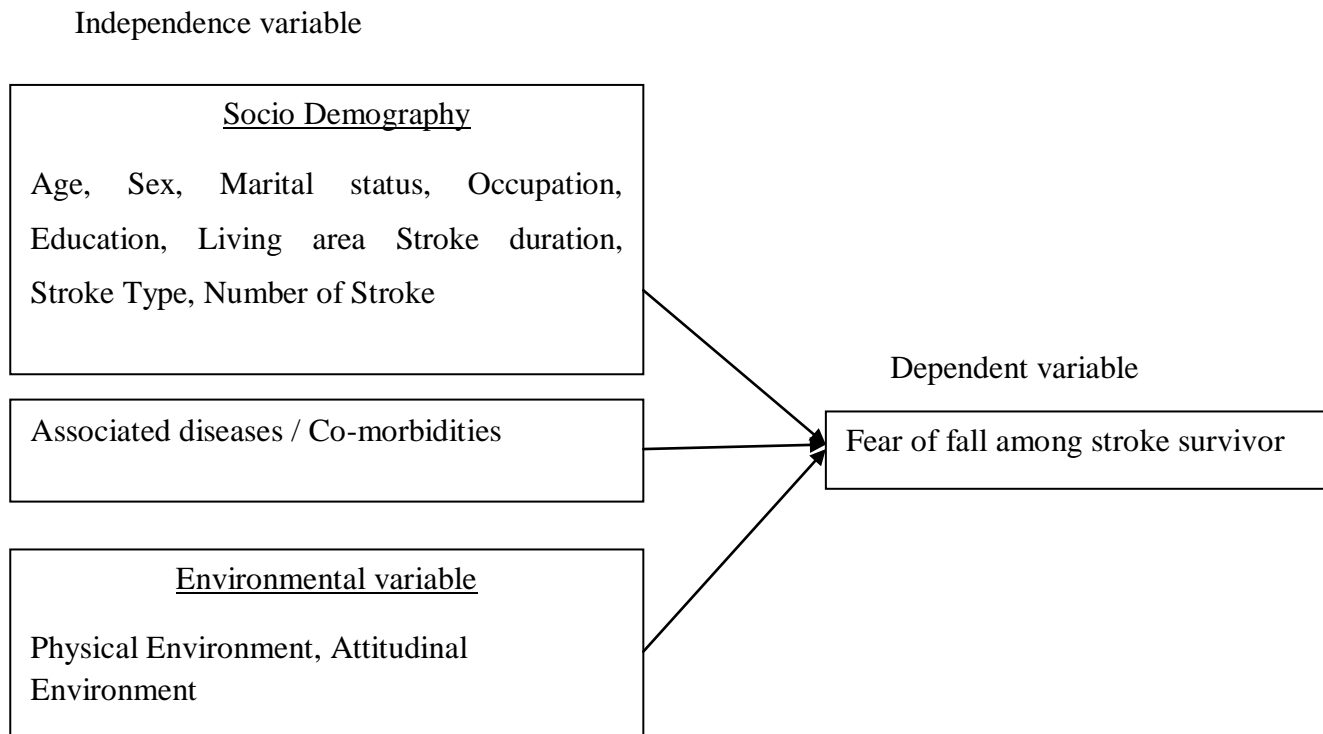
What are the fears of falling among stroke survivor in the selected community of Bangladesh?

### 3.2 Study aim and Specific Objective

To investigate the fear of falling among stroke survivor after completing rehabilitation in the selected community of Bangladesh

- To identify the characteristics of socio-demographics.
- To investigate association among fear of falling, ADLs performing, balance and cognition with socio-demographic.

### 3.3 Conceptual framework



### **3.4 Study design**

In this study, researcher used quantitative research design. In quantitative methods, researcher collected data by using a specific questionnaire and a particular way (Shaughnessy, Zechmeister and Zechmeister, 2003). The study is cross-sectional survey research design. Researcher used this method to fulfill the aim and objectives of the study. The aim of this study is to investigate the fear of falling among stroke survivor after completing rehabilitation in the selected community of Bangladesh

The researcher chose the design as the way of using large numbers of participant and then collecting data accurately. The cross-sectional method was best suited method for this study. The cross sectional study design allow to describe different characteristics of participant and compare among them (Shaughnessy, Zechmeister and Zechmeister, 2003). Cross-sectional studies are present a situation over a short period of time. This types study usually conducts to find out the prevalence of a case from sample. Prevalence means the number of case among total population in a time (Levin, 2006). In this study design researcher collected information about the status of fall among Bangladeshi stroke survivor.

The information collected through asking question and answer to these questions by participant. Data were collected one time from a participant by using a survey questionnaire. In this study, researcher investigated the relationship between demographic factor and fall among stroke survivor. Cross sectional studies are useful to recognize the association among variable of questionnaire (Mann, 2003). For this reason, researcher used cross-sectional methods for his study.

### **3.5 Study population**

The study was conducted from People with Stroke patient

### **3.6 study setting**

The study was conducted in the community (Mirpur, Savar, Manikganj & Dhamrai) setting after taking information from stroke rehabilitation unit, Occupational Therapy outpatient unit of CRP- Savar which is situated under the Dhaka district.

### **3.7 Study period**

The period of this study was from August 2018 to April 2019.

### **3.8 Sample size**

Sample size estimated according to following criteria: 50% prevalence of patient with stroke because researcher has not accurate data about the prevalence of stroke in Bangladesh. The confidence interval was 95% and 5% error level. The formulation of sample size determination:  $(n) = z^2 \times p \times q / r^2$ . Here,

$z = 1.96$  (confidence interval 95%)

$r = 0.05$  (error level 5%)

$p = 0.5$  (50% prevalence)

$q = (1 - 0.5) = 0.5$  (1-p)

The total sample required 383 to conduct study. But researcher selected 50 people to conduct the study due to limited time for this study. The participants selected based on inclusion and exclusion criteria.

### **3.9 Inclusion and exclusion criteria**

- **Inclusion Criteria:**

- Patient above 18 years of age
- All type of stroke (ischemic and hemorrhagic)
- The study will be conducted from People after 3 month of stroke



- **Exclusion Criteria:**

Participant with a previous history of other complication such as head injury, fracture and other neurological conditions are being excluded from this study.

### **3.10 Sampling techniques**

Finding the appropriate number and type of people to take part in the study is called sampling (Hiicks, 2000). Purposive sampling technique used in this study. The researcher was selecting 50 stroke survivors as sample of study by using purposive sampling. Purposive sampling is a non-random sampling technique. The purposive sampling can use on survey based research. In this types of sampling, sample know about the purpose of study and provide information about question from their knowledge. Purposive sampling was more appropriate than random sampling. Researcher used purposive sampling to get more accurate data from participant. Researcher collected data from patient with stroke on the base of inclusion and exclusion criteria (Tongco, 2007).

### **3.11 Data collection tools/materials**

Demographic Questionnaire, Falls Efficacy Scale (FES), Berg Balance Scale (BBS), Modified Barthel Index (MBI), Bangla Adapted Mini-Mental State Examination (BAMSE). In the questionnaire there was participant's demographic information including age, sex, marital status, previous occupation, types of stroke, educational status, affected body part, number of stroke, accessible road in front of house, floor surface of house, Patient live with whom alone with questionnaire of FES, BBS, MBI, BAMSE. Data is collected from this questionnaire.

#### **Fall Efficacy Scale (FES):**

The Falls Efficacy Scale-International (FES-I) is a short, easy to administer tool that measures the level of concern about falling during social and physical activities inside and outside the home whether or not the person actually does the activity. The level of concern is measured on a four point likert scale (1=not at all concerned to 4=very

concerned) (Yardley et al., 2005). The FES-I was developed in a collaborative effort with members of the Prevention of Falls Network Europe (ProFaNE), European Committee focused on fall prevention and the psychology of falling. The group tested the FES-I using different samples in different countries and translated the tool into several languages.

### **Berg Balance Scale (BBS):**

The BBS is a 10-item test (56 points maximum) using a 5 point (0-4) scale to rate each item, with 0 indicating an inability or need for maximal assistance to complete the task or performs task with safety concerns and 4 indicating independent and safe ability to perform task. Berg et al defined 3 components of balance: static (maintains of posture), dynamic (adjustment to voluntary movement), and reactive (reaction to external forces).the majority of falls were reported during walking, an activity that requires dynamic and reactive balance. The measure we used to evaluate balance (eg, turning 360 degree, transferring, and placing alternate feet on stool) and to a lesser degree reactive balance (Harris et al., 2005).

### **Modified Barthel Index (MBI):**

The Barthel Index is considered to be the best of the ADL measurement scales. The modified scoring of the Barthel Index achieved greater sensitivity and improved reliability than the original version, without causing additional difficulty or affecting the implementation time(Shah, 1989) (Shah, S., Vanclay, F., Cooper, B., 1989. Improving the sensitivity of the Barthel Index for stroke rehabilitation. *Journal of Clinical Epidemiology*,Pages 703-709).

### **Bangla Adapted Mini-Mental State Examination (BAMSE):**

As a whole, our result suggest that for those living in the socio culture context of Bangladesh, irrespective of literacy skills, the BAMSE in an instrument that can be used to assess cognitive function of the normal elderly in a very similar way as the MMSE is used in contexts where literacy is the norm (Kabir & Herlitz, 2000).

### **3.12 Data collection methods**

At first the researcher will take permission from the head of the department of Occupational Therapy in CRP-Savar to collect data from outpatient unit and Stroke Rehab Unit. Researcher reviewed the schedule of patients with stroke from unit in-charge and then makes a daily potential participant list to check the inclusion criteria. Before collecting data, researcher provided information sheets and consent forms to participant. Participant got opportunity to ask questions and they signed the consent form after being satisfied. Then the researcher collected the data through a questionnaire from the participants by a face to face conversation. Through this process researcher asked question and filled up questionnaire or participant completed questionnaire. The interviewer helped the interviewee by changing some word of same meaning to understand the questionnaire and when participant confused in some answer (Shaughnessy, Zechmeister and Zechmeister, 2003).

### **3.13 Data management and analysis**

Data entry and analysis performed by using version 20 of Statistical Package for Social Science (SPSS). Data analyze through descriptive statistical analysis and it present by using table, figure, bar and pie chart. The presentation of data organizes in SPSS and in Microsoft Office Word. All data are input within the variable of SPSS and analyze data in SPSS. Microsoft word excel use to present data using column, bar, and pie chart. Descriptive statistics will be used to attain research objectives. The degree of association between different variables will also be determined through SPSS.

### **3.14 Quality control & quality assurance**

When conducting the study the researcher took help from the supervisor when needed. During the interview and analysis of data, result is not influence by the researcher biases, value or own perspectives. Data were collected carefully and confidentially of recipient information maintained during whole period of research. Researcher accepted the answers o participant whether they are right or wrong without researcher influence. The researcher checked all data several times to maintain accuracy of input of the data in the

SPSS files. Outcome of the result is not influenced by showing any personal interpretation.

### **3.15 Ethical consideration**

Ethical considerations implemented to avoid ethical problem. The researcher granted permission from research supervisor and head of department of Occupational Therapy of Bangladesh Health Professions Institute (BHPI), an academic institute of CRP to conduct the study. Researcher got permission from head of Occupational Therapy department in both CRP-Savar and CRP-Mirpur for data collection. Information sheet and consent form provided to each participant. Study purpose, aim and objectives were clearly describe in information sheet and consent form. Researcher informed verbally about the topic and purpose of the study to participant. The researcher assured them that confidentiality of personal information must strictly maintain in future. The researcher ensured that the service of patient will not be hampered by participants in this study. Participant had full right to withdraw their participation from this study at any time. The researcher also committed not to share the information given with others except the research supervisor. A written information sheet and consent form signed by each participant who participated in the study. The information gathered from the participants anonymously. The researcher had available to answer any study related questions or inquiries from the participants. All sources cited and acknowledged appropriately. The field notes and answer sheet not shared or discussed with others.

**CHAPTER 4**  
**RESULT**

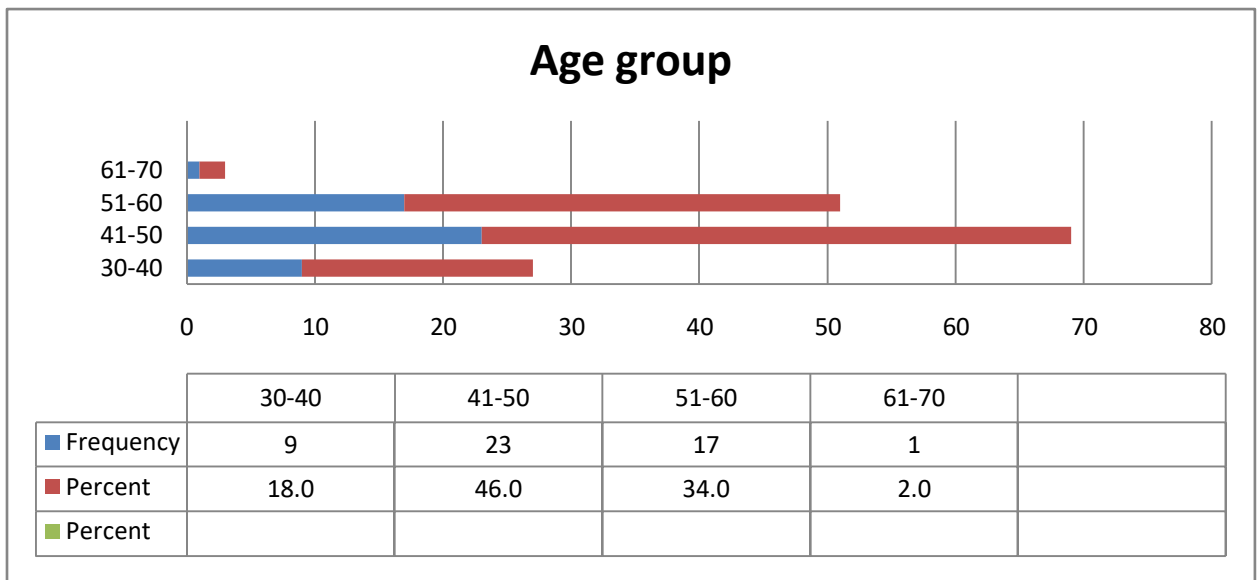
**4.1 Socio-demographic characteristics of participants**

Characteristics	Number (n)	Percentage (%)	Mean	Std. Deviation ±
<b>Patient's Age</b>				
(30-40)	9	18.0		
(41-50)	23	46.0	49.10	8.122
(51-60)	17	34.0		
(61-70)	1	2.0		
<b>Duration of Stroke</b>				
(3-6)	17	34.0		
(7-10)	19	38.0		
(11-14)	8	16.0	1.10	.580
(15-18)	2	4.0		
(19-22)	3	6.0		
(23-26)	1	2.0		
<b>Patient's Sex</b>				
Male	33	66.0	1.34	.479
Female	17	34.0		
<b>Marital Status</b>				
Married	48	96.0		
Unmarried	1	2.0	1.10	.580
Separate	1	2.0		
<b>Previous Occupational Status</b>				
Job	22	44.0		
Business	9	18.0	2.34	1.423
Student	1	2.0		
Housewife	16	32.0		

Farmer	2	4.0		
<b>Educational Status</b>				
Illiterate	10	20.0		
Primary	17	34.0	2.62	1.260
Secondary	10	20.0		
Higher Secondary	8	16.0		
Graduate and above	5	10.0		
<b>Types of Stroke</b>				
Ischemic	45	90.0	1.10	.303
Hemorrhagic	5	10.0		
<b>Affected Body Part</b>				
Right Side	22	44.0		
Left Side	25	50.0	1.62	.602
Both Side	3	6.0		
<b>Number of Stroke</b>				
First time	43	86.0		
Second time	4	8.0	1.20	.535
More than two	3	6.0		
<b>Road in front of the house</b>		32.0		
Pitch road	16	36.0		
Brick road	18	36.0	2.00	.808
Mud Road	16			
<b>Floor Surface of the house</b>		70.0		
Made by Brick	35	14.0		
Made by Mud	7	16.0	1.46	.762
Made by Tiles	8			
<b>Patient live with whom</b>		98.0		
Family	49	2.0		

Caregiver	1		1.02	.141
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**Table-1: Socio-demographic characteristics of participants**



**Fig-:1 Age group of participants**

**Age group:**

In this study 50 stroke patients were participants. The table shows that among them 18% (n=9) were age group (30-40) years, 46% (n=23) were age group (41-50) years and 2% (n=1) was age group (61-70) years of stroke patients.

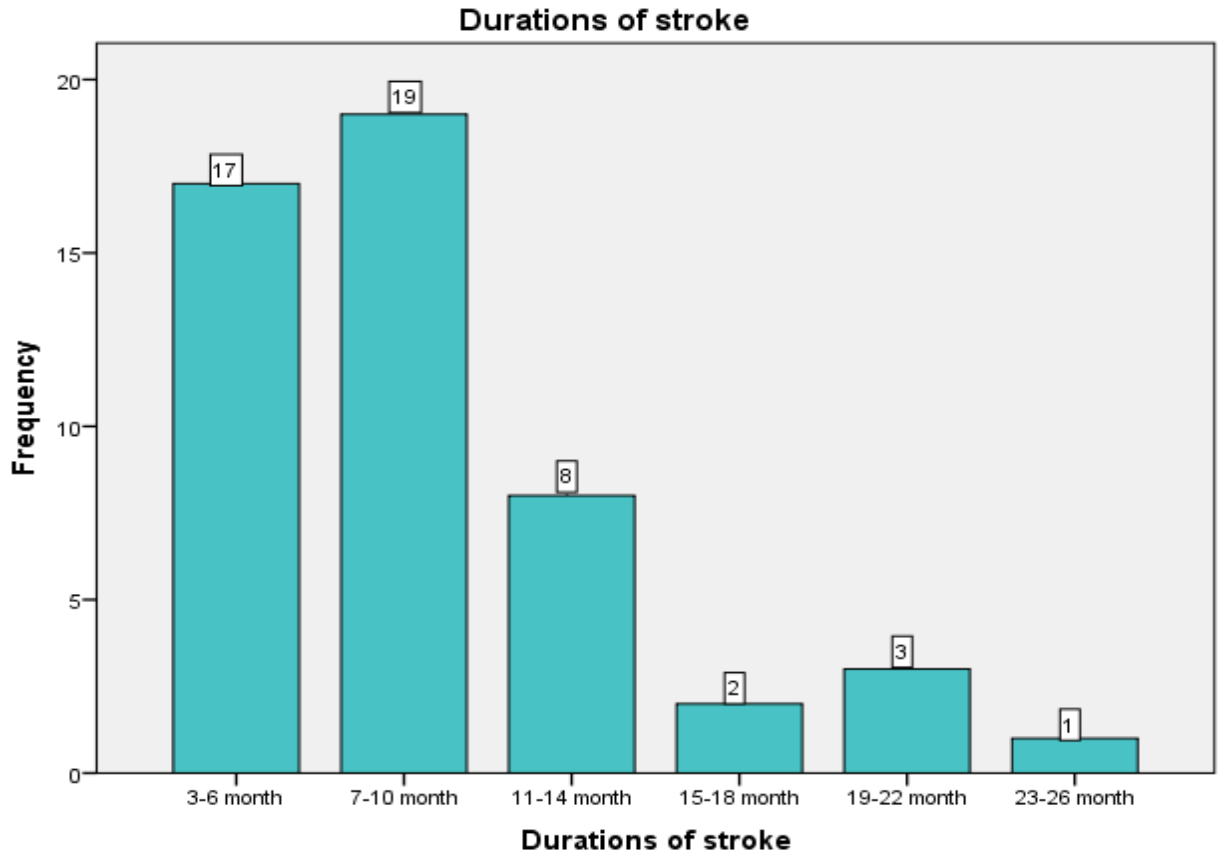


Fig-2: Stroke duration of participants

**Stroke duration of participants:**

In this study 50 stroke patients were participants. Among them (3-6) month durations were (n=17), (7-10) month durations were (n=19), (11-14) month durations were (n=8), (15-18) month durations were (n=2), (19-22) month durations were (n=3) and (23-26) month durations were (n=1).



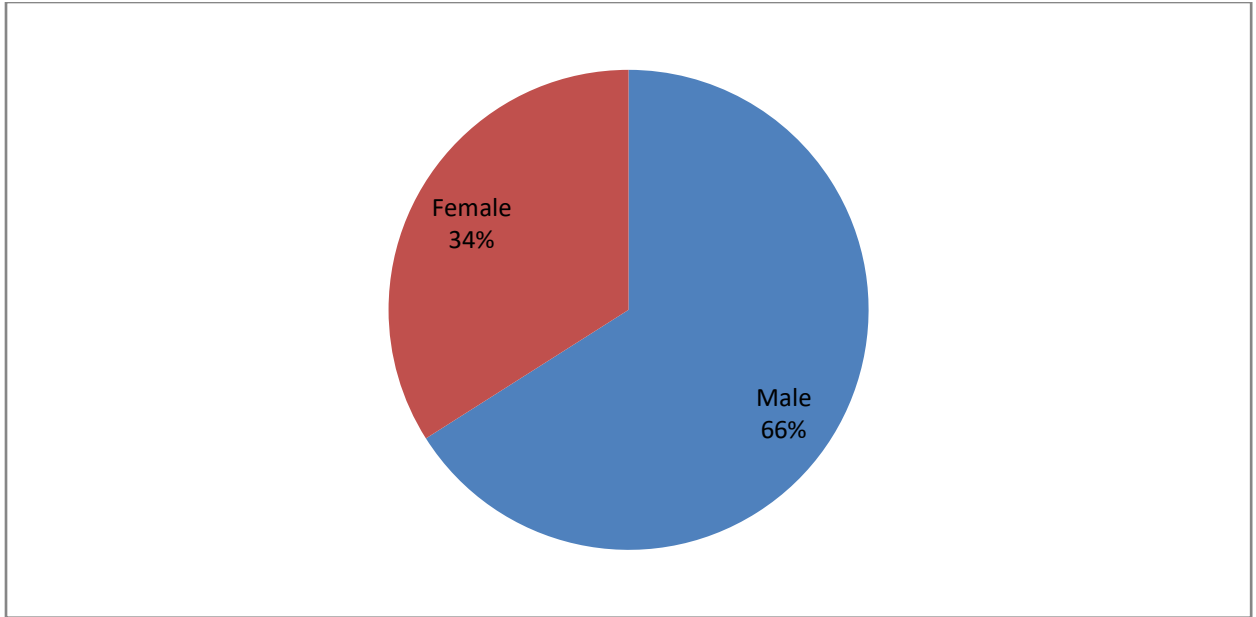


Fig-3: Sex of participant

**Sex:**

Fig-3 shows that 50 subjects were used for this survey. Among them 66% were male and 34% were female

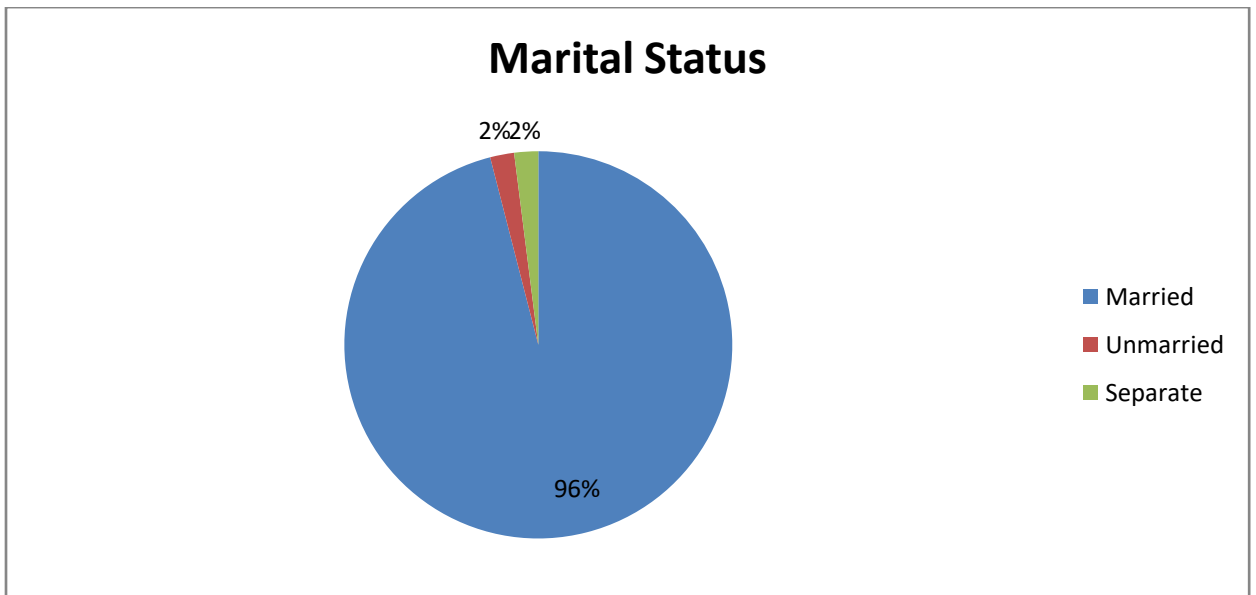


Fig-4: Marital Status of participants

**Marital Status:**

In this study 50 patients were participants. Among them 96% (n=48) were married and 2% (n=1) unmarried and 2% (n=1) separate.

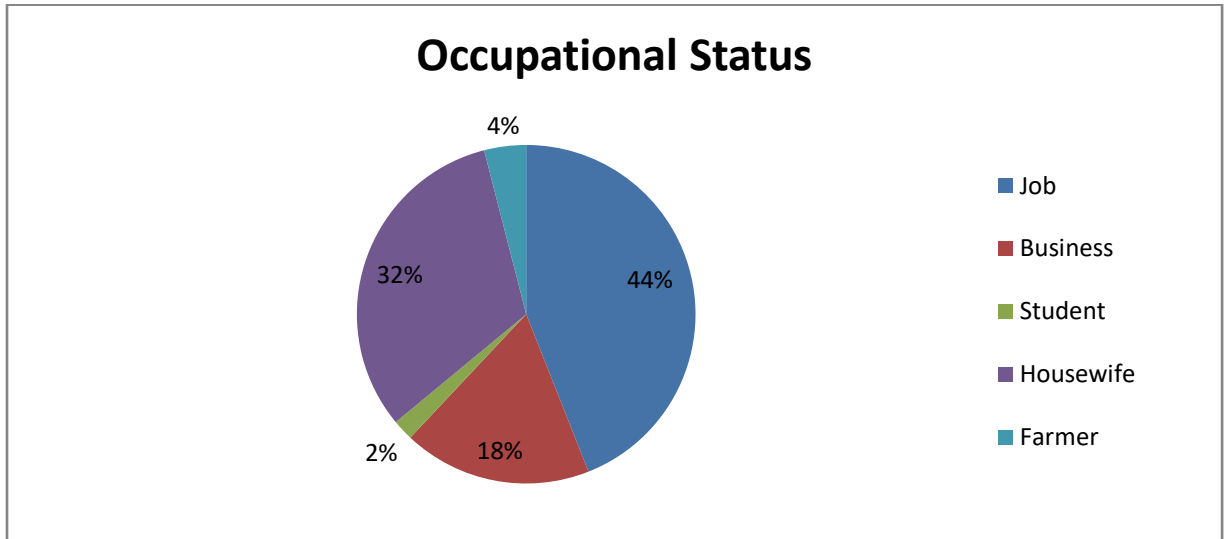


Fig-5: Occupational Status of Participants

**Educational Status:**

In this study 50 patients were participants. Fig- show that Occupation were job 44% (n=22), housewife 32% (n=16), Business 18% (n=9), farmer 4% (n=2) and student 2% (n=1).

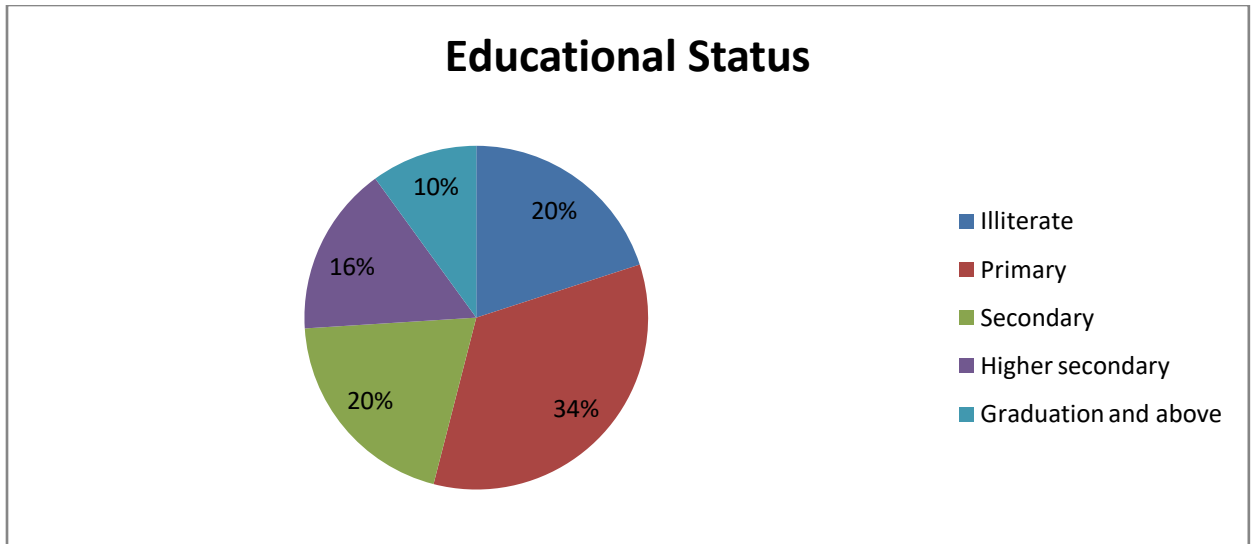


Fig-6: Educational Status of Participants

#### **Educational Status:**

From fig-6 educational status were primary 34% (n=17), 20% (n=10) were secondary, 16% (n=8) were higher secondary and 10% (n=5) were graduation and above.

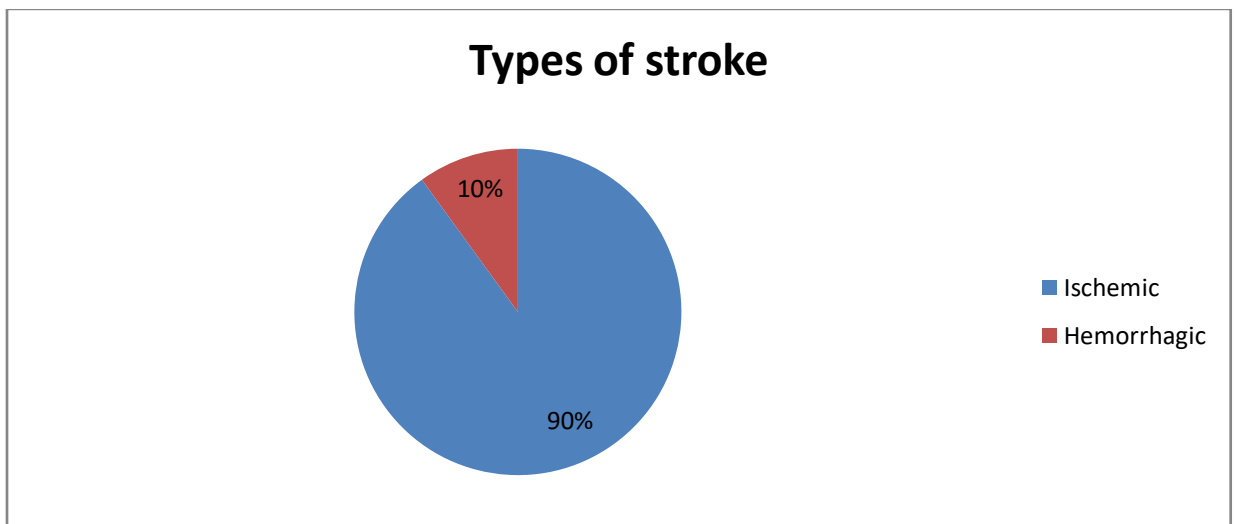


Fig-7: Percentage of type of stroke

**Type of stroke:**

It is observed from fig-7 that from total participants, ischemic type was the highest 90% (n=45) and 10% (n=5) were hemorrhagic stroke.

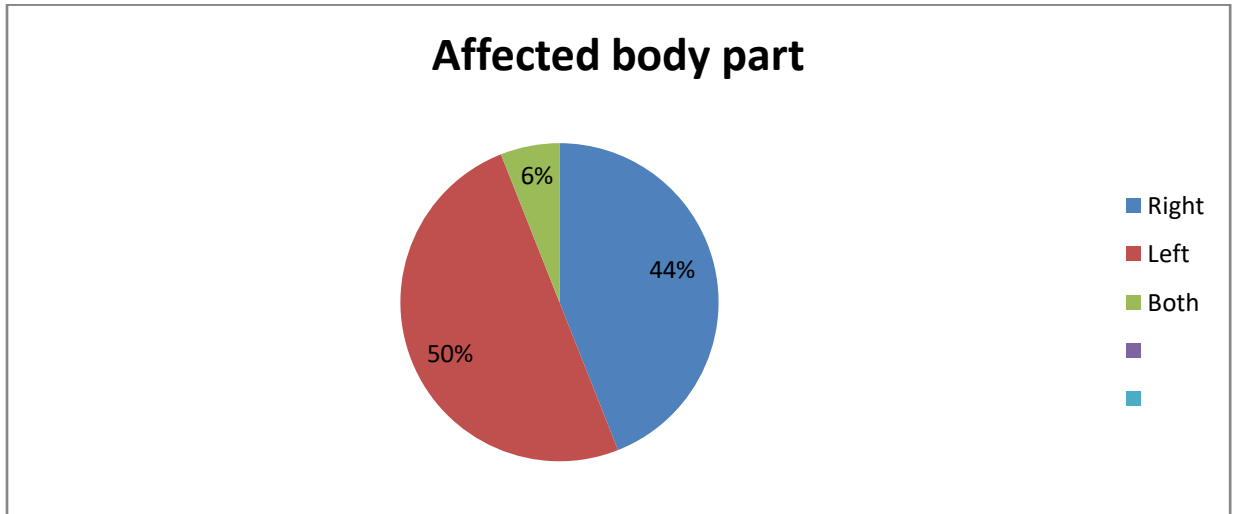


Fig-8: Percentage of affected side

**Affected body part:**

In this study 50 patients were participants. Among them 50% (n=25) were left side and 44% (n=22) were right side and 6% (n=3) were both side.

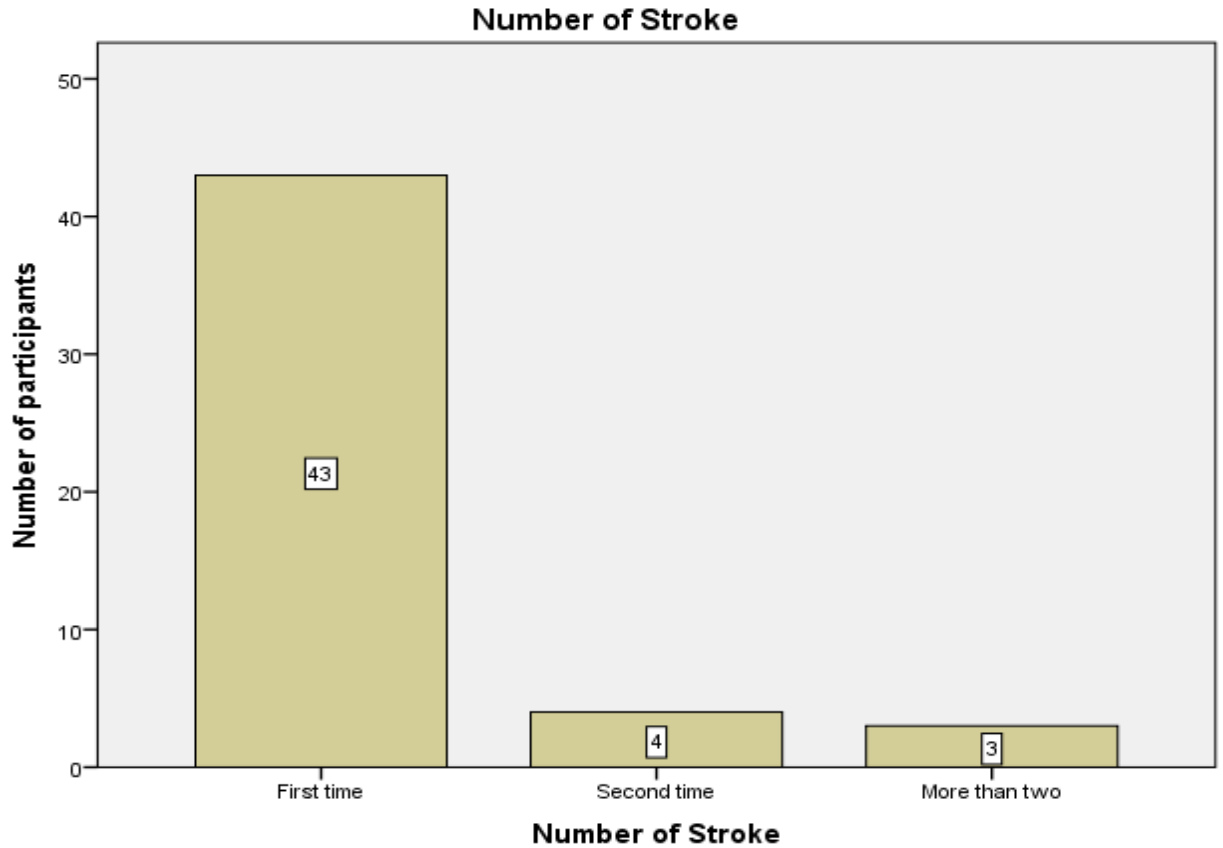


Fig-9: Number of stroke of participants

**Number of stroke:**

Figure-9 shows that 43 participants have first time stroke, 4 participants are second time and 3 participants are more than two times affected by stroke.

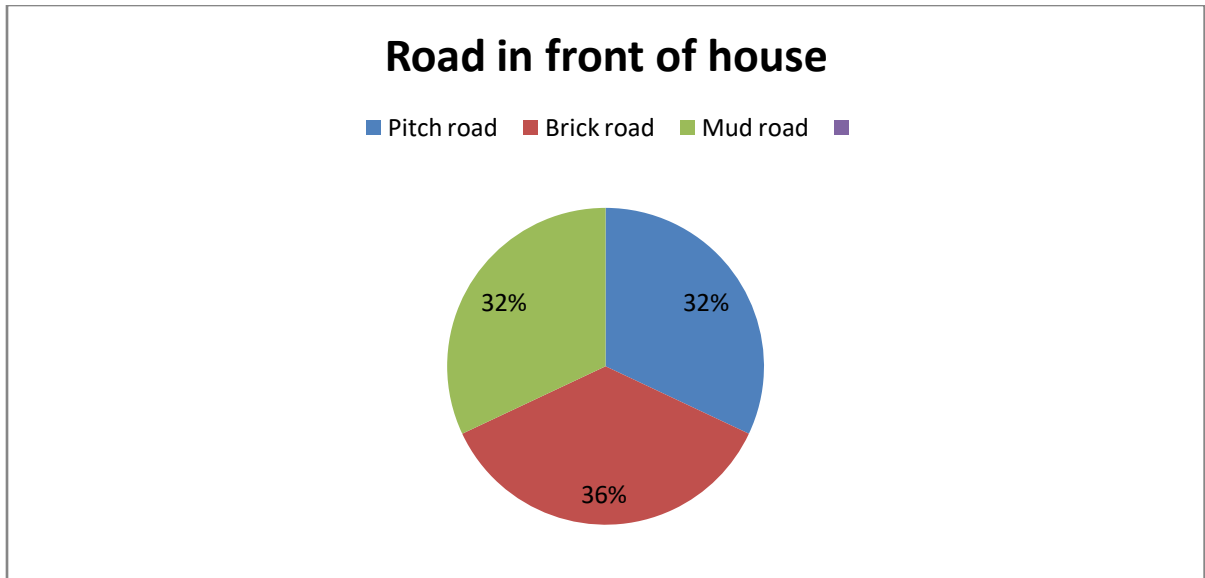


Fig-10: Percentage of road in front of house of participants

#### Road in front of house:

Figure-10 shows that 36% (n=18) were brick road, 32% (n=16) were pitch and 32% (n=16) were mud road in front of house of participants.

#### 4.11. Floor surface of the house of participants

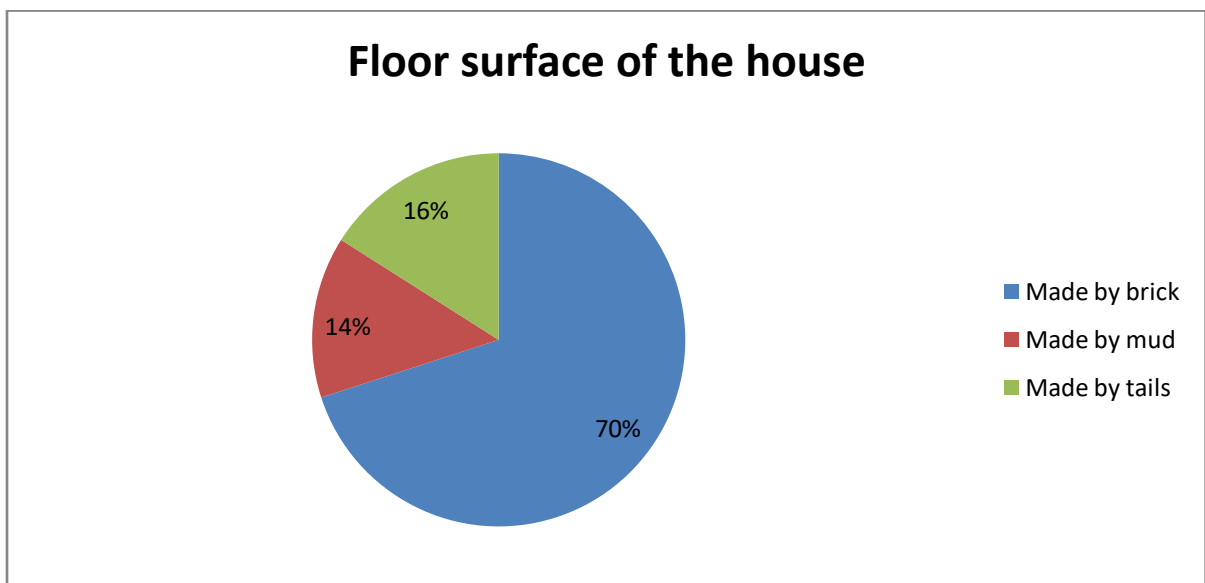


Fig-11: Floor surface of the house of participants

**Floor surface of the house:**

It shows from this figure-11 that 70% (n=35) were made by brick, 16% (n=8) were made by tiles and 14% (n=7) were made by mud floor surface of the house of participants.

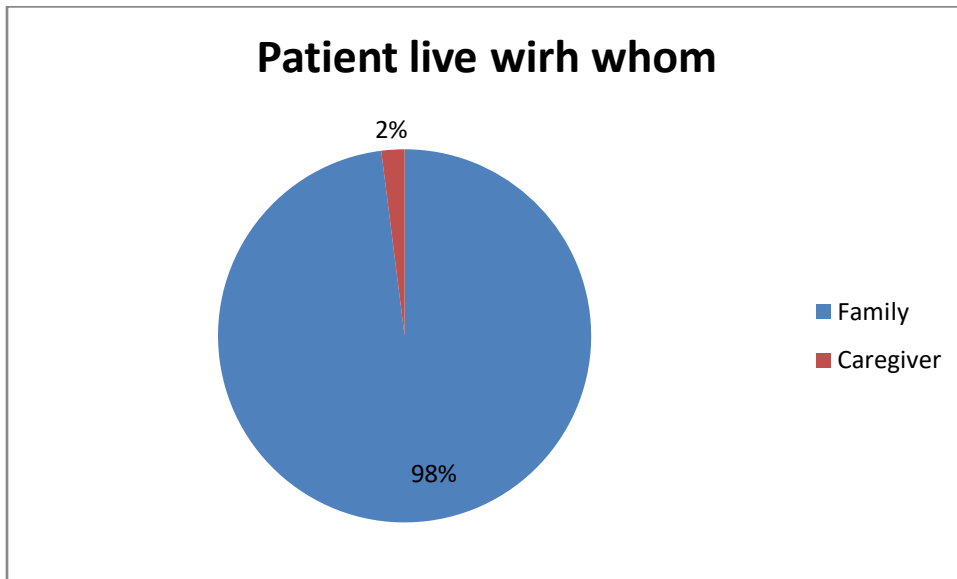


Fig-12: Percentage of patient live with whom

**Patient live with whom:**

Figure-12 shows that 98% (n=49) participants were live with family and 2% (n=1) participant live with caregiver.

#### 4.14. Test scores

Characteristics	Number	Percentage %
<b>Fear of falling</b>		
Not at all concerned	1	2
Somewhat concerned	23	46
Fairly concerned	25	50
Very concerned	1	2
<b>Balance function</b>		
Low fall risk	27	54
Medium fall risk	10	20
High fall risk	13	26
<b>ADLs performance level</b>		
Independence	4	8
Slight dependence	12	24
Moderate dependence	22	44
Severe dependence	12	24
<b>Cognitive function</b>		
Normal	30	60
Mild cognitive impairment	10	20
Moderate cognitive impairment	10	20

**Table-2: Test scores**

#### **FES**

In this study 50 stroke patients were participants. In case of fear of falling measure through FES, it is found that 2% (n=1) was not at all concerned, 46% (n=23) were somewhat concerned, 50% (25) were fairly concerned and 2% (n=1) was very concerned when patients were engaged in the activities.

#### **BBS**

In case of risk of falls measured through Berg Balance Scale (BBS), it is found that highest participants 54% (n=27) were in low fall risk. Among other participants, 26% (n=13) were high fall risk and 20% (n=10) were medium fall risk



## MBI

In case of ADLs performance level measure through Modified Barthel Index (MBI), it is found that 8% (n=4) were Independence, 24% (n=12) were slight dependence, 44% (n=22) were moderate dependence and 24% (n=12) were severe dependence of participants.

## BAMSE

In case of cognition function level of participants measured through BAMSE, it is found that the highest number of participants 60% (n=30) were normal. Among other participants cognitive function impairment, 20% (n=10) were mild and 20% (n=10) were moderate cognitive function impairment

### 4.15. Association among FES, BBS, MBI and BAMM with socio-demographic

Association between FES with socio-demographic			
Variables	X <sup>2</sup> Value	P Value	Remarks
Age	8.467	.076	Non Significant
Duration Of stroke	7.731	.100	Non Significant
Marital status	2.083	.245	Non Significant
Previous occupation	28.764	.065	Non Significant
Educational status	14.507	.032	Significant
Types of stroke	10.348	.037	Significant
Affected body part	18.579	.074	Non Significant
Number of stroke	2.267	.110	Non Significant
Road in front of house	4.018	.080	Non Significant
Surface of the house	6.865	.056	Non Significant
Patient live with whom	1.020	.500	Non Significant

<b>Association between BBS with socio-demographic</b>			
Variables	X <sup>2</sup> Value	P Value	Remarks
Age	12.585	.05	Significant
Duration Of stroke	6.390	.04	Significant
Marital status	2.083	.245	Non Significant
Previous occupation	5.744	.039	Significant
Educational status	8.124	.005	Significant
Types of stroke	8.531	.015	Significant
Affected body part	6.457	.006	Significant
Number of stroke	2.433	.087	Non Significant
Road in front of house	4.014	.080	Non Significant
Surface of the house	17.603	.066	Non Significant
Patient live with whom	.869	.0540	Non Significant
<b>Association between MBI with socio-demographics</b>			
Variables	X <sup>2</sup> Value	P Value	Remarks
Age	9.844	.05	Significant
Duration of stroke	10.958	.024	Significant
Marital status	4.490	.108	Non Significant
Previous occupation	11.488	.026	Significant
Educational status	16.793	.026	Significant
Types of stroke	6.061	.144	Non Significant
Affected body part	7.886	.046	Significant
Number of stroke	7.602	.069	Non Significant
Road in front of house	2.360	.077	Non Significant
Surface of the house	4.966	.079	Non Significant
Patient live with whom	3.231	.240	Non Significant

<b>Association between BAMM with socio-demographic</b>			
Variables	X <sup>2</sup> Value	P Value	Remarks
Age	14.781	.050	Significant
Duration Of stroke	9.985	.017	Significant
Marital status	4.911	.110	Non Significant
Previous occupation	11.488	.026	Significant
Educational status	7.941	.05	Significant
Types of stroke	5.926	.05	Significant
Affected body part	1.410	.114	Non Significant
Number of stroke	3.618	.138	Non Significant
Road in front of house	1.412	.084	Non Significant
Surface of the house	4.966	.079	Non Significant
Patient live with whom	.680	.600	Non Significant

**Table-3: Association among FES, BBS, MBI and BAMM with socio-demographic**

**Association between Fears of fall (FES) with socio-demographic:**

In the following table-3 shows the association between fears of falling with socio-demographics. A Pearson Chi-square test was performed to show association between these variables. There was no association found between fear of falling with duration, age, marital status, occupation, affected body part, number of stroke, road in front of house, surface of the house, patient live with whom (p=.076, p=.100, p=.245, p=.065, p=.074, p=.110, p=.080, p=.056, p=.500) respectively, as the p value was greater than 0.05. However significant association was found between educational status, type of stroke (p=.032, p=.037) respectively, as the p value was less than 0.05.

#### **Association between balance function (BBS) with socio-demographic:**

In the following table-4 shows the association between Balance function with socio-demographics. A Pearson Chi-square test was performed to show association between these variables. There was no association found between balance function with marital status, number of stroke, road in front of house, surface of the house, patient live with whom (  $p=.245$ ,  $p=.087$ ,  $p=.080$ ,  $p=.066$ ,  $p=.0540$ ) respectively, as the p value was greater than 0.05. However significant association was found between age, duration of stroke, previous occupation, educational status, type of stroke, affected body part (  $p=.05$ ,  $p=.04$ ,  $p=.039$ ,  $p=.005$ ,  $p=.015$ ,  $p=.006$ ) respectively, as the p value was less than 0.05.

#### **Association between ADL performance levels (MBI) with socio-demographics:**

In the following table- shows the association between ADLs performance level with socio-demographics. A Pearson Chi-square test was performed to show association between these variables. There was no association found between ADLs Performance level with marital status, type of stroke, number of stroke, road in front of house, surface of the house (  $p=.108$ ,  $p=.144$ ,  $p=.069$ ,  $p=.077$ , and  $p=.079$  ) respectively, as the p value was greater than 0.05. However significant association was found between age, duration of stroke, previous occupation, educational status, affected body part and with ADLs performance level (  $p=.05$ ,  $p=.024$ ,  $.026$ ,  $p=.026$  and  $p=.046$ ) respectively, as the p value was less than 0.05.

#### **Association between cognitive function (BAMM) with socio-demographic:**

In the following table-6 shows the association between cognitive function with socio-demographics. A Pearson Chi-square test was performed to show association between these variables. There was no association found between Cognition function with marital

status, affected body part, number of stroke, road in front of house, surface of the house and patient live with whom ( $p=.110$ ,  $p=.114$ ,  $p=.138$ ,  $p=.084$ ,  $p=.079$ ,  $p=.680$ ) respectively, as the p value was greater than 0.05. However significant association was found between age, duration of stroke, previous occupation, educational status, type of stroke ( $p=.050$ ,  $p=.017$ ,  $p=.026$ ,  $p=.05$ ,  $p=.05$ ) respectively, as the p value was less than 0.05.

### **5.1. Socio-demographic characteristics of patient**

The study was conducted to evaluate probability of fear of fall among stroke survivor in the community of Bangladesh. The study found that among 50 patients with stroke, the maximum 46% (n=23) participants were (41-50) years old. Other participants, 34% (n=17) were (51-60) years old, 18% (n=9) were (30-40) years old and 2% (n=1) was (61-70) years old. Several study have been done on stroke survivor and they found similar findings as a study in Pakistan found that 30% of stroke occur among the patient with less than 45 years old ( kulshreshtha et al., 2012). The mean age was 49.10 years. (Akbari et al., 2006) also shows that mean age in 52.41 ± 6.19 years and (Shah and Jayavant, 2006) also show mean age in 51.7 years. The age is an important factor in stroke.

In this research the male participant were 66% (n=33) and female participant were 34% (n=17). Similarly in an epidemiology study in Bangladesh showed that 74% were male patients and 26% were female patients (Islam et al., 2012). Bengel et al., 2006 reported on their study that 62% participants were male and 38% were female.

The result shows that among total participant, 96% (n=48) married and 2% (n=2) unmarried and 2% (n=1) separate. A study on stroke patient revealed findings as (Schimed et al., 2013) reported that reported 50% participant was married and 50% were unmarried. In cultural perspective, marriage is common among Bangladeshi people rather than European and American country. In Bangladeshi culture, early marriage is common in rural area. Hoq (2013) found that in different division in Bangladesh most of the women got married under 15 years old.

In this study population, 445 (n=22) were job, 32% (n=16) were housewife 18% (n=9) were business, 4% (n=2) were farmer and 2% (n=1) was student. A study conducted in Foridpur Medical College and found than among stroke survivor, 20% were job, 17% were business, 16% were housewife, 9% were farmer, 21% were retired person and 9%

were other profession ( Hossain et al., 2011). There have some difference occupation among Bangladeshi stroke survivor. Moreover housewife, businessman, and service holder are mainly affecting by stroke.

The result found that highest number of participant 34% (n=17) were primary. Among others participants occupational level, 20% (n=10) were illiterate, 20% (n=10) were secondary, 16.5% (n=8) were higher secondary and 10% (n=5) were graduation and above but study by (Hossain et al., 2011) in Bangladesh found that higher percentage of non school going population of 37% which is much higher than this research, 31% received schooling, 19% patients have higher secondary level education, only 13% went to university. There have some difference findings among Chinese patient with stroke and that study found 37.8% participant were illiterate, 47.3% were complete their primary education and 14.9% had higher than primary education (Sze *et al.*, 2001).

In this study, for stroke type-Ischemic type was the 90% (n=45) and 10%(n=5) were hemorrhagic stroke. After all most of the studies revealed that ischemic stroke was found to be higher than hemorrhagic. Study conducted by (Cho, Yu & Rhee, 2015) that 65% ischemic and 35% hemorrhagic stroke.

In this study, the result found that right side affected patients were 44% (n=22) and left side affected patients were 50% (n=25) and both side affected patients were 6% (n=3). The result is similar in a study of Belgen *et al.* (2006) on fall of patient with stroke revealed that left side hemiplegic patient were 36% and right side hemiplegic patient were 64% among total participant.

The result found that first time stroke experienced among 86% (n=43) participants, second time experienced stroke among 8% (n=4) participant and more than two among 6% (n=3) participant. Mostly patient with stroke in first time experience is more common. There also have similar findings in a study about fall among patient with stroke in Poland. The study reported that in their study 80% patient experienced stroke for first time (Czernuszenko and Czlonkowska, 2009).

The study found that most of the participant 70% (n=35) were live in a house which made by brick. In others, 16% (n=8) participant's floor of house was made by tiles, 14% (n=7) participant's floor of house was made by mud.

Accessibility is an important issue among stroke survivor and Patient with stroke face difficulty in their daily living activity such as mobility. In accessible road, most of the participant 36 (n=18) had brick road in front of house, 32% (n=16) had pitch road in front of house, and 32% (n=16) had mud road in front of house. There have a relation between fear of fall among stroke survivor and accessibility or accessible environment.

The total participant of study, 98% (n=49) were live in family and 2% (n=1) of participant live with care giver. In Bangladeshi culture, maximum people were live with family. Uddin (2009) found that Bangladeshi families are mainly nuclear and joint. Family consists of father, mother, son, daughter, husband, wife, brother, and sister. Patient with stroke when come rehabilitation centre, maximum time they stay with regular caregiver who is their family member and minimum time they stay with paying caregiver and Patient with stroke can get excellent care from family and regular caregiver.

## **5.2. Association among FES, BBS, MBI and BAMM with socio-demographic**

### **Association between Fears of fall (FES) with socio-demographic of patient**

A Pearson Chi-square test was performed to show association between these variables. There was no association found between fear of falling with socio-demographic variables such as-duration, age, marital status, occupation, affected body part, number of stroke, road in front of house, surface of the house, patient live with whom (p=.076, p=.100, p=.245, p=.065, p=.074, p=.110, p=.080, p=.056, p=.500) respectively, as the p value was greater than 0.05. However significant association was found between educational status, type of stroke (p=.032, p=.037) respectively, as the p value was less than 0.05. Another study found that there is association with socio-demographic factors to prevention of fear of falling and may assist in the development of stroke rehabilitation strategies and



enhancement of independent ambulation (Harris et al., 2005). In other studies among community-dwelling older persons, the factor analysis was suggestive for two underlying factors, i.e. concern about falling during ADL, and concern about falling during social activities (Camargos et al., 2010).

#### **Association between balance function (BBS) with socio-demographic of patient**

A Pearson Chi-square test was performed to show association between these variables. There was no association found between balance function with marital status, number of stroke, road in front of house, surface of the house, patient live with whom (  $p=.245$ ,  $p=.087$ ,  $p=.080$ ,  $p=.066$ ,  $p=.0540$ ) respectively, as the p value was greater than 0.05. However significant association was found between age, duration of stroke, previous occupation, educational status, type of stroke, affected body part (  $p=.05$ ,  $p=.04$ ,  $p=.039$ ,  $p=.005$ ,  $p=.015$ ,  $p=.006$ ) respectively, as the p value was less than 0.05. Fears of falling in stroke patients with chronic disabilities have been associated between poor balance and mobility with socio-demographic (Hyndman et al., 2003).

#### **Association between ADLs performance level (MBI) with socio-demographic of patient**

A Pearson Chi-square test was performed to show association between these variables. There was no association found between ADLs Performance level with marital status, type of stroke, number of stroke, road in front of house, surface of the house ( $p=.108$ ,  $p=.144$ ,  $p=.069$ ,  $p=.077$ , and  $p=.079$ ) respectively, as the p value was greater than 0.05. However significant association was found between duration of stroke, age, previous occupation, educational status, affected body part ( $p=.05$ ,  $p=.024$ ,  $p=.026$ ,  $p=.026$  and  $p=.046$ ) respectively, as the p value was less than 0.05.

#### **Association between Cognitive function (BAMM) with socio-demographic of patient**

A Pearson Chi-square test was performed to show association between these variables. There was no association found between Cognition function with marital status, affected body part, number of stroke, road in front of house, surface of the house and patient live with whom ( $p=.110$ ,  $p=.114$ ,  $p=.138$ ,  $p=.084$ ,  $p=.079$ ,  $p=.680$ ) respectively, as the p value

was greater than 0.05. However significant association was found between age, duration of stroke, previous occupation, educational status, type of stroke ( $p=.050$ ,  $p=.017$ ,  $p=.026$ ,  $p=.005$ ,  $p=.05$ ) respectively, as the p value was less than 0.05. Depressed participants had higher fall risk than with normal and moderately participants. Depression was an important risk factor for falling during the 1 year follow up period for patients with stroke (Ugur et al., 2000). Fear of falling of stroke patients were significant associated between cognition function with socio-demographic. The result of relationship between risk of fall and level of cognition function showed that higher the cognitive impairment higher is the level of risk of fall (Ramirez et al., 2010).

## **CHAPTER 6 LIMITATIONS**

Some issues regarding the study which impacted negatively on the validity, reliability and usefulness of findings were identified. These include:

- There have not enough literature about fear of fall among patients with stroke in Bangladeshi context or south Asian context.
- This study is a quantitative study. Researcher selected purposive sampling in this study. The study was conducted by small sample size. Small sample size is not representing all population of a country. So the data is not generalized to all people with stroke.
- The sample was selected as convenient rather than randomly.
- The questionnaire was long, so patient in hurry to answer this might lead to misleader answer and not reliable test performance score.

## **CHAPTER 7 RECOMMENDATIONS**

**Recommendations for patient:** Stroke survivors play vital role to reduce fall. Patient can perform activity with full concentration. At home, stroke survivor must give full concentration to practice different therapeutic activity. Stroke survivors also aware about fear of fall and injury and take medical intervention.

**Recommendations for caregiver:** Caregivers have significant role to prevent fall. Fall is less common in Bangladesh than western country due to strong family bonding and full caregiver support. Caregivers' awareness is very important when patient perform daily living activity or therapeutic activity. Caregiver can give physical support at the time of transferring and other important time.

**Recommendations for therapist:** Occupational therapist also have important role to reduce fall and fear of fall among stroke survivor. Occupational therapists explain to patient and caregiver about different aspect fall and fear of fall. Explanation of different safe transferring technique is helpful to reduce fall. Arrange a therapeutic session about fear of fall and fall preventive activity with stroke survivors and caregiver.

**Recommendations for future research:** Researcher's recommendation is that there have good scopes to conduct study about fall among stroke survivors in future time. Some important topics are:

- Activity limitation and level of independency in their ADLs among fear of faller stroke survivor.
- Patient's perception about fall occurrence.
- Similar research will conduct in the broader area and large scale of sample size.

## **CHAPTER 8 CONCLUSION**

In this study extends knowledge about fear of fall among people with stroke in the community of Bangladesh. People with stroke experience fall during activity time, day time, at different place. Patients experience a significant change after fall. Some patient experience injury, fear of fall, limited activity participation, and decrease level of independency. From analyzed the data, researcher found that association among fear of fall, balance function, ADLs performance level and cognition function with socio-demographic of the patient of stroke survivors in this study. Patient experience fewer falls than western country. The fall is less common in our country due to active supervision of caregiver. There have a strong family bonding in Bangladesh and nuclear family is common. Patient get full physical support from family member and it is a major cause to fewer falls. Older age patients are experience fall in more time. Most of the faller patient experienced fall at room. Day time is very common to occur fall. People pass more busy time at day. In day time especially, morning time occur maximum fall. Now a day this is a big issue and major concern for stroke survivor. Activity limitations also occur among stroke survivor. In Bangladeshi context, patient can get financial support and direct care from family. It helps a patient to reduce active participation in activity. Stroke survivor also depends on different assistive device and after fall they are more dependent on assistive device. Faller patient are more anxious about fear of fall.

Occupational therapist can take a role to minimize fall and fear of fall. Occupational therapist works with patient to improve patient's functional independency. Therapists also improve patient's physical status through different therapeutic activates and educate the patients about different technique to reduce about fear of fall. The activity help a stroke survivor to avoid fall and fear of fall and a faller patient can overcome from different types of difficulties.

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[http://www.who.int/violence\\_injury\\_prevention/other\\_injury/falls/en](http://www.who.int/violence_injury_prevention/other_injury/falls/en)  
[Accessed 16 January 2019].

## APPENDIX 1

### Approval letter for conducting research

18-October, 2018  
The Chairman  
Institutional Review Board (IRB)  
Bangladesh Health Professions Institute (BHPI)  
CRP- Chapain, 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 4<sup>th</sup> year B. Sc. in Occupational Therapy course at Bangladesh Health Professions Institute. For the requirement of my course curriculum, I have to conduct a research project. My research title is **Fear of falling among stroke survival in the selected community of Bangladesh – A cross sectional study** will be supervised by Md. JulkerNayan, Associate Professor, Department of Occupational Therapy, BHPI, and CRP. The purpose of this study is to investigate the fear of falling among stroke survival after completing rehabilitation in the selected community of Bangladesh. Four (4) different scales (Falls Efficacy Scale, Berg Balance Scale, Standardized Mini-Mental State Examination, and Modified Barthel Index) and the questionnaire of these scales will be used by face to face interview. Related information will be collected from the participant. The study will not be cause of any harm to the participant. Data collectors will receive informed consents from all participants as written record. Any kind of collected data will be kept confidential.

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


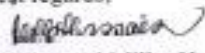
Sincerely yours,  
*Md. Jubayer Islam, 20.10.18.*  
Md. Jubayer Islam  
Session: 2014-2015  
Student ID: 122140142  
4<sup>th</sup> Year Student  
B. Sc in Occupational Therapy,  
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh

#### Recommendation from Thesis Supervisor & Head of the Department:

Approved by	Signature & Date
<b>Research Supervisor</b> Md. JulkerNayan Associate Professor Dept. of Occupational Therapy BHPI, CRP- Chapain, Savar, Dhaka- 1343	<i>He may allow to conduct the study as mentioned.</i> <i>[Signature]</i> 20-10-18
<b>Head of the Department</b> SK Moniruzzaman Assistant Professor Dept. of Occupational Therapy BHPI, CRP- Chapain, Savar, Dhaka- 1343	<i>[Signature]</i> 20/10/2018

## APPENDIX 2

### Permission letter for data collection

	<b>বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)</b> <b>Bangladesh Health Professions Institute (BHPI)</b> <i>(The Academic Institute of CRP)</i>								
Ref: CRP-BHPI/IRB/10/18/1245	Date: 21/11/18								
<b>To</b> Md. Jubayer Islam B.Sc. in Occupational Therapy Session: 2014-2015, Student ID: 122140142 BHPI, CRP, Savar, Dhaka-1343, Bangladesh									
<b>Subject:</b> Approval of research proposal "Fear of falling among stroke survival in the selected community of Bangladesh – A cross sectional study" by ethics committee.									
Dear Md. Jubayer Islam, Congratulations, The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the Principal investigator. The Following documents have been reviewed and approved:									
<table border="1"><thead><tr><th>Sr. No.</th><th>Name of the Documents</th></tr></thead><tbody><tr><td>1</td><td>Dissertation Proposal</td></tr><tr><td>2</td><td>Questionnaire (English and Bengali version)</td></tr><tr><td>3</td><td>Information sheet &amp; consent form.</td></tr></tbody></table>	Sr. No.	Name of the Documents	1	Dissertation Proposal	2	Questionnaire (English and Bengali version)	3	Information sheet & consent form.	
Sr. No.	Name of the Documents								
1	Dissertation Proposal								
2	Questionnaire (English and Bengali version)								
3	Information sheet & consent form.								
The study involves Four (4) different scales (Falls Efficacy Scale, Berg Balance Scale, Standardized Mini-Mental State Examination and Modified Barthel Index) and the questionnaire of these scales will be used by face to face interview which will take 40 to 50 minutes and have no likelihood of any harm to the participants. Congenial and secure place of interview will have to be ensured by the investigator. In addition, the investigator will ensure appropriate compensation and/or incentive as per the 40 to 50 minutes from the participants, for example, water, tea, snacks etc without affecting the participant's ability to reasonably decide to participate. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 10 AM on September 01, 2018 at BHPI.									
The 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 or informed consent and ask to be provided a copy of the final report. This Ethics committee 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 (IRB) BHPI, CRP, Savar, Dhaka-1343, Bangladesh									
সিভিআইপি-চাপসাইন, সারার, ডাকা-১৩৪৩, বাংলাদেশ, ফোন : ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স : ৭৭৪৫০৬৯ CRP-Chapsain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org									

**APPENDIX 3**  
**Information sheet (English)**

The name of the researcher is Md. Jubayer Islam. He is a student of 4th year, Department of Occupational Therapy, Bangladesh Health Professions Institute (BHPI). As a part of his academic issues he has to conduct a dissertation in this academic year. So researcher would like to invite you to participate in this study. The title of the study is “Fear of falling among stroke survival in the selected community of Bangladesh”.

Your participation is voluntary in the study. You can withdraw your participation in anytime. There is not the facility to get any pay by this participation. The study will never be any harm to you but it will help the service user to know your experience, which is very important for the service provider to plan for the future activities.

Confidentiality of all records will be highly maintained. The gathered information from you will not be disclose anywhere except this study and supervisor. The study will certainly never reveal the name of participant.

If you have any query regarding the study, please feel free to ask to the contact information stated below:

Md. Jubayer Islam  
Student of 4th year  
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## APPENDIX 4

### তথ্যপত্র

গবেষকের নাম মোঃ জুবায়ের ইসলাম। তিনি বাংলাদেশ হেল্থ প্রফেশন ইনস্টিউটের বি. এস. সি. ইন অকুপেশনাল থেরাপি চতুর্থ বর্ষের ছাত্র। প্রাতিষ্ঠানিক কাজের অংশ হিসেবে চলতি শিক্ষাবর্ষে তাকে একটি গবেষনামূলক কাজ করতে হবে। তাই গবেষক আপনাকে এই গবেষণায় অংশগ্রহন করার জন্য আমন্ত্রণ জানাচ্ছে। গবেষণার বিষয় “বাংলাদেশের নির্দিষ্ট জায়গায় স্ট্রোকে আক্রান্ত রোগীদের পড়ে যাওয়ার ভয়”।

এই গবেষণায় আপনার অংশগ্রহন সম্পূর্ণরূপে স্বেচ্ছায়। আপনি এই গবেষণা থেকে যেকোনো সময় আপনার অংশগ্রহন প্রত্যাহার করতে পারবেন। এই গবেষণায় অংশগ্রহনের মাধ্যমে আপনি আর্থিক ভাবে লাভবান হবেন না। এই অংশগ্রহণ কখনোই আপনার জন্য ক্ষতির কারন হয়ে দাঁড়াবে না কিন্তু এই গবেষণার মাধ্যমে সেবা প্রদানকারী সদস্যগণ আপনার অবিজ্ঞতার কথা জানতে পারবেন এবং প্রাপ্ত তথ্যসমূহ সেবার মানোন্নয়নে সাহায্য করবে।

আপনার থেকে প্রাপ্ত তথ্যসমূহের সর্বোচ্চ গোপনীয়তা রক্ষা করা হবে। গবেষণা ও গবেষণার তত্ত্বাবধাইয়ক ব্যতীত এই তথ্যগুলো অন্য কোথাও প্রকাশিত হবে না এবং গবেষণার কোথাও অংশগ্রহনকারীর নাম প্রকাশ করা হবে না।

গবেষণা সম্পর্কিত যেকোন ধরনের প্রশ্নের জন্য নিম্নলিখিত ব্যক্তির সাথে যোগাযোগ করার জন্য অনুরোধ করা যাচ্ছে:

মোঃ জুবায়ের ইসলাম

৪র্থ বর্ষ, বি. এস. সি. ইন অকুপেশনাল থেরাপি

বাংলাদেশ হেল্থ প্রফেশন ইনস্টিউট

পক্ষাঘাতগ্রস্তদের পূর্নবাসন কেন্দ্র

চাপাইন, সাভার, ঢাকা- ১৩৪৩।

## APPENDIX 5

### Consent form

This research is the part of Occupational Therapy course and name of the researcher is Md. Jubayer Islam. He is a student of Bangladesh Health Professions Institute in B. Sc. in occupational therapy in 4th year. The study was entitled as “Fear of falling among stroke survival in the selected community of Bangladesh”.

In this study I am ..... a participant and I have been clearly informed about the purpose of the study. I have the right to refuse participation any time and any stage of the study. I will not be bound to answer to anybody. I understand that at present or future there will be no impact of treatment receiving for participate the study.

I am also informed that all the information collects from me that am used in this study would be kept safe and maintain confidentiality. The researcher and the supervisor will be eligible to access in the information for his publication of the research result. My name and address will not published anywhere in this study.

I can consult with the researcher and the research supervisor about the research process or get answer to any question related to research project. I have been informed about above-mentioned information and I am willing to participate in the study with consent.

Signature/Finger print of the Participant:	Date:
Signature of the Researcher:	Date:
Signature/Finger print of the witness:	Date:

## APPENDIX 6

### সম্মতিপত্র

এই গবেষণা অকুপেশনাল থেরাপি বিভাগের অধ্যয়নের একটি অংশ এবং গবেষকের নাম মোঃ জুবায়ের ইসলাম। তিনি বাংলাদেশ হেল্থ প্রফেশন ইনস্টিউটের বি. এস. সি. ইন অকুপেশনাল থেরাপি চতুর্থ বর্ষের ছাত্র এবং তার গবেষণার বিষয় “বাংলাদেশের নির্দিষ্ট জায়গায় স্ট্রোকে আক্রান্ত রোগীদের পড়ে যাওয়ার ভয়”।

এই গবেষণার আমি.....  
একজন অংশগ্রহণকারী এবং আমি এই গবেষণার উদ্দেশ্য পরিষ্কার ভাবে জানতে পেরেছি। আমি যেকোনো সময় এবং গবেষণার যেকোনো পর্যায়ে আমার অংশগ্রহন প্রত্যাহার করতে পারবো। এই জন্য আমি কারো কাছে বাধ্য থাকবো না। আমি অবগত হয়েছি যে, এই গবেষণায় অংশগ্রহন করার ফলে বর্তমানে কিংবা ভবিষ্যতে আমার চিকিৎসা গ্রহণের উপর কোনো প্রভাব পড়বে না।

এই গবেষণার জন্য আমার দেয়া তথ্য সমূহ সম্পূর্ণভাবে গোপন ও নিরাপদ থাকবে। শুধুমাত্র গবেষক এই তথ্যগুলো গবেষণার ফলাফলের কাজে ব্যবহার করতে পারবে। এই গবেষণায় আমার নাম ও ঠিকানা প্রকাশ করা হবে না।

আমি এই গবেষণার পদ্ধতি কিংবা গবেষণা সম্পর্কিত যেকোনো প্রশ্নের উত্তর গবেষক ও গবেষণা তত্ত্বাবধায়কের কাছ থেকে জানতে পারবো। আমি উপরোক্ত সকল তথ্য সপর্কে জানি এবং আমি এই গবেষণায় অংশগ্রহনে সম্মতি জ্ঞাপন করছি।

অংশগ্রহণকারীর স্বাক্ষর/ টিপসইঃ	তারিখঃ
গবেষকের স্বাক্ষর/ টিপসইঃ	তারিখঃ
স্বাক্ষীর স্বাক্ষর/ টিপসইঃ	তারিখঃ

**APPENDIX 7**

**Questionnaire:**

**Demographic Questionnaire**

**ID no:**

**Mobile number:**

**Date of Stroke:**

<b>1</b>	<b>Age.....Years</b>
<b>2</b>	<b>Patient's Sex</b> Male =1 Female=2
<b>3</b>	<b>Marital Status</b> Married=1 Unmarried=2 Separate=3
<b>4</b>	<b>Previous Occupational Status</b> Job=1 Business=2 Student=3 Housewife=4 Farmer=5
<b>5</b>	<b>Educational Status</b> Illiterate=1 Primary=2 Secondary=3 Higher Secondary=4 Graduate and above=5
<b>6</b>	<b>Types of Stroke</b> Ischemic=1 Hemorrhagic=2
<b>7</b>	<b>Affected Body Part</b> Right Side=1 Left Side=2

	Both Side=3
<b>8</b>	<b>Number of Stroke</b> First time=1 Second time=2 More than two=3
<b>9</b>	<b>Road in front of the house</b> Pitch road=1 Brick road=2 Mud Road=3
<b>10</b>	<b>Floor Surface of the house</b> Made by Brick=1 Made by Mud=2 Made by Tails=3
<b>11</b>	<b>Patient live with whom</b> Family Caregiver

**Part-2 Falls Efficacy Scale (FES)**

		Not at all concerned 1	Somewhat concerned 2	Fairly concerned 3	Very concerned 4
1	Cleaning the house (e.g. sweep, vacuum, dust)				
2	Getting dressed or undressed				
3	Preparing simple meals				
4	Taking a bath or shower				
5	Going to the shop				
6	Getting in or out of a chair				
7	Going up or down stairs				
8	Walking around in the neighborhood				
9	Reaching for something above your head or on the ground				
10	Going to answer the telephone before it stops ringing				

11	Walking on a slippery surface (e.g. wet or icy)				
12	Visiting a friend or relative				
13	Walking in a place with crowds				
14	Walking on an uneven surface (e.g. rocky ground, poorly maintained pavement)				
15	Walking up or down a slope				
16	Going out to a social event (e.g. religious service, family gathering, or club meeting)				
Sub Total					
TOTAL					/64

### **Part-3 Berg Balance Scale (BBS)**

#### SITTING TO STANDING

INSTRUCTIONS: Please stand up. Try not to use your hand for support.

- ( ) 4 able to stand without using hands and stabilize independently
- ( ) 3 able to stand independently using hands
- ( ) 2 able to stand using hands after several tries
- ( ) 1 needs minimal aid to stand or stabilize
- ( ) 0 needs moderate or maximal assist to stand

#### STANDING UNSUPPORTED

INSTRUCTIONS: Please stand for two minutes without holding on.

- ( ) 4 able to stand safely for 2 minutes
- ( ) 3 able to stand 2 minutes with supervision
- ( ) 2 able to stand 30 seconds unsupported
- ( ) 1 needs several tries to stand 30 seconds unsupported
- ( ) 0 unable to stand 30 seconds unsupported

If a subject is able to stand 2 minutes unsupported, score full points for sitting unsupported. Proceed to item #4.

#### SITTING WITH BACK UNSUPPORTED BUT FEET SUPPORTED ON FLOOR OR ON A STOOL

INSTRUCTIONS: Please sit with arms folded for 2 minutes.

- ( ) 4 able to sit safely and securely for 2 minutes
- ( ) 3 able to sit 2 minutes under supervision
- ( ) 2 able to sit 30 seconds
- ( ) 1 able to sit 10 seconds
- ( ) 0 unable to sit without support 10 seconds

#### STANDING TO SITTING

INSTRUCTIONS: Please sit down.

- ( ) 4 sits safely with minimal use of hands
- ( ) 3 controls descent by using hands
- ( ) 2 uses back of legs against chair to control descent
- ( ) 1 sits independently but has uncontrolled descent
- ( ) 0 needs assist to sit

#### TRANSFERS

INSTRUCTIONS: Arrange chair(s) for pivot transfer. Ask subject to transfer one way toward a seat with armrests and one way toward a seat without armrests. You may use two chairs (one with and one without armrests) or a bed and a chair.

- ( ) 4 able to transfer safely with minor use of hands
- ( ) 3 able to transfer safely definite need of hands
- ( ) 2 able to transfer with verbal cuing and/or supervision
- ( ) 1 needs one person to assist
- ( ) 0 needs two people to assist or supervise to be safe

### STANDING UNSUPPORTED WITH EYES CLOSED

INSTRUCTIONS: Please close your eyes and stand still for 10 seconds.

- ( ) 4 able to stand 10 seconds safely
- ( ) 3 able to stand 10 seconds with supervision
- ( ) 2 able to stand 3 seconds
- ( ) 1 unable to keep eyes closed 3 seconds but stays safely
- ( ) 0 needs help to keep from falling

### STANDING UNSUPPORTED WITH FEET TOGETHER

INSTRUCTIONS: Place your feet together and stand without holding on.

- ( ) 4 able to place feet together independently and stand 1 minute safely
- ( ) 3 able to place feet together independently and stand 1 minute with supervision
- ( ) 2 able to place feet together independently but unable to hold for 30 seconds
- ( ) 1 needs help to attain position but able to stand 15 seconds feet together
- ( ) 0 needs help to attain position and unable to hold for 15 seconds

### REACHING FORWARD WITH OUTSTRETCHED ARM WHILE STANDING

INSTRUCTIONS: Lift arm to 90 degrees. Stretch out your fingers and reach forward as far as you can. (Examiner places a ruler at the end of fingertips when arm is at 90 degrees. Fingers should not touch the ruler while reaching forward. The recorded measure is the distance forward that the fingers reach while the subject is in the most forward lean position. When possible, ask subject to use both arms when reaching to avoid rotation of the trunk.)

- ( ) 4 can reach forward confidently 25 cm (10 inches)
- ( ) 3 can reach forward 12 cm (5 inches)
- ( ) 2 can reach forward 5 cm (2 inches)
- ( ) 1 reaches forward but needs supervision
- ( ) 0 loses balance while trying/requires external support

### PICK UP OBJECT FROM THE FLOOR FROM A STANDING POSITION

INSTRUCTIONS: Pick up the shoe/slipper, which is in front of your feet.

- ( ) 4 able to pick up slipper safely and easily



- ( ) 3 able to pick up slipper but needs supervision
- ( ) 2 unable to pick up but reaches 2-5 cm (1-2 inches) from slipper and keeps balance independently
- ( ) 1 unable to pick up and needs supervision while trying
- ( ) 0 unable to try/needs assist to keep from losing balance or falling

**TURNING TO LOOK BEHIND OVER LEFT AND RIGHT SHOULDERS WHILE STANDING**

**INSTRUCTIONS:** Turn to look directly behind you over toward the left shoulder. Repeat to the right. (Examiner may pick an object to look at directly behind the subject to encourage a better twist turn.)

- ( ) 4 looks behind from both sides and weight shifts well
- ( ) 3 looks behind one side only other side shows less weight shift
- ( ) 2 turns sideways only but maintains balance
- ( ) 1 needs supervision when turning
- ( ) 0 needs assist to keep from losing balance or falling

**TURN 360 DEGREES**

**INSTRUCTIONS:** Turn completely around in a full circle. Pause. Then turn a full circle in the other direction.

- ( ) 4 able to turn 360 degrees safely in 4 seconds or less
- ( ) 3 able to turn 360 degrees safely one side only 4 seconds or less
- ( ) 2 able to turn 360 degrees safely but slowly
- ( ) 1 needs close supervision or verbal cuing
- ( ) 0 needs assistance while turning

**PLACE ALTERNATE FOOT ON STEP OR STOOL WHILE STANDING UNSUPPORTED**

**INSTRUCTIONS:** Place each foot alternately on the step/stool. Continue until each foot has touched the step/stool four times.

- ( ) 4 able to stand independently and safely and complete 8 steps in 20 seconds
- ( ) 3 able to stand independently and complete 8 steps in > 20 seconds

- ( ) 2 able to complete 4 steps without aid with supervision
- ( ) 1 able to complete > 2 steps needs minimal assist
- ( ) 0 needs assistance to keep from falling/unable to try

#### STANDING UNSUPPORTED ONE FOOT IN FRONT

INSTRUCTIONS: (DEMONSTRATE TO SUBJECT) Place one foot directly in front of the other. If you feel that you cannot place your foot directly in front, try to step far enough ahead that the heel of your forward foot is ahead of the toes of the other foot. (To score 3 points, the length of the step should exceed the length of the other foot and the width of the stance should approximate the subject's normal stride width.)

- ( ) 4 able to place foot tandem independently and hold 30 seconds
- ( ) 3 able to place foot ahead independently and hold 30 seconds
- ( ) 2 able to take small step independently and hold 30 seconds
- ( ) 1 needs help to step but can hold 15 seconds
- ( ) 0 loses balance while stepping or standing

#### STANDING ON ONE LEG

INSTRUCTIONS: Stand on one leg as long as you can without holding on.

- ( ) 4 able to lift leg independently and hold > 10 seconds
- ( ) 3 able to lift leg independently and hold 5-10 seconds
- ( ) 2 able to lift leg independently and hold L 3 seconds
- ( ) 1 tries to lift leg unable to hold 3 seconds but remains standing independently.
- ( ) 0 unable to try of needs assist to prevent fall

- ( ) TOTAL SCORE (Maximum = 56)

**Part-4 MODIFIED BARTHEL INDEX (MBI)**

INDEX ITEM	SCORE	DESCRIPTION
CHAIR/BED TRANSFERS	0	Unable to participate in a transfer. Two attendants are required to transfer the patient with or without a mechanical device.
	3	Able to participate but maximum assistance of one other person is required in all aspects of the transfer.
	8	The transfer requires the assistance of one other person. Assistance may be required in any aspect of the transfer.
	12	The presence of another person is required either as a confidence measure, or to provide supervision for safety.
	15	The patient can safely approach the bed walking or in a wheelchair, lock brakes, lift footrests, or position walking aid, move safely to bed, lie down, come to a sitting position on the side of the bed, change the position of the wheelchair, transfer back into it safely and/or grasp aid and stand. The patient must be independent in all phases of this activity.
AMBULATION	0	Dependent in ambulation.
	3	Constant presence of one or more assistant is required during ambulation.
	8	Assistance is required with reaching aids and/or their manipulation. One person is required to offer assistance.
	12	The patient is independent in ambulation but unable to walk 50 metres without help, or supervision is needed for confidence or safety in hazardous situations.
	15	The patient must be able to wear braces if required, lock and unlock these braces

		assume standing position, sit down, and place the necessary aids into position for use. The patient must be able to crutches, canes, or a walkalette, and walk 50 metres without help or supervision.
<p><b>AMBULATION/WHEELCHAIR</b>  * (If unable to walk)  Only use this item if the patient is rated “0” for Ambulation, and then only if the patient has been trained in Wheelchair management.</p>	<p>0</p> <p>1</p> <p>3</p> <p>4</p> <p>5</p>	<p>Dependent in wheelchair ambulation.</p> <p>Patient can propel self short distances on flat surface, but assistance is required for all other steps of wheelchair management.</p> <p>Presence of one person is necessary and constant assistance is required to manipulate chair to table, bed, etc.</p> <p>The patient can propel self for a reasonable duration over regularly encountered terrain. Minimal assistance may still be required in “tight corners” or to negotiate a kerb 100mm high.</p> <p>To propel wheelchair independently, the patient must be able to go around corners, turn around, manoeuvre the chair to a table, bed, toilet, etc. The patient must be able to push a chair at least 50 metres and negotiate a kerb.</p>
<p><b>STAIR CLIMBING</b></p>	<p>0</p> <p>2</p> <p>5</p> <p>8</p> <p>10</p>	<p>The patient is unable to climb stairs.</p> <p>Assistance is required in all aspects of chair climbing, including assistance with walking aids.</p> <p>The patient is able to ascend/descend but is unable to carry walking aids and needs supervision and assistance.</p> <p>Generally no assistance is required. At times supervision is required for safety due to morning stiffness, shortness of breath, etc.</p> <p>The patient is able to go up and down a flight of stairs safely without help or</p>

		supervision. The patient is able to use hand rails, cane or crutches when needed and is able to carry these devices as he/she ascends or descends.
TOILET TRANSFERS	0	Fully dependent in toileting.
	2	Assistance required in all aspects of toileting.
	5	Assistance may be required with management of clothing, transferring, or washing hands.
	8	Supervision may be required for safety with normal toilet. A commode may be used at night but assistance is required for emptying and cleaning.
	10	The patient is able to get on/off the toilet, fasten clothing and use toilet paper without help. If necessary, the patient may use a bed pan or commode or urinal at night, but must be able to empty it and clean it.
BOWEL CONTROL	0	The patient is bowel incontinent.
	2	The patient needs help to assume appropriate position, and with bowel movement facilitatory techniques.
	5	The patient can assume appropriate position, but cannot use facilitatory techniques or clean self without assistance and has frequent accidents. Assistance is required with incontinence aids such as pad, etc.
	8	The patient may require supervision with the use of suppository or enema and has occasional accidents.
	10	The patient can control bowels and has no accidents, can use suppository, or take an enema when necessary.
	0	The patient is dependent in bladder management, is incontinent, or has

BLADDER CONTROL	<p>2</p> <p>5</p> <p>8</p> <p>10</p>	<p>indwelling catheter.</p> <p>The patient is incontinent but is able to assist with the application of an internal or external device.</p> <p>The patient is generally dry by day, but not at night and needs some assistance with the devices.</p> <p>The patient is generally dry by day and night, but may have an occasional accident or need minimal assistance with internal or external devices.</p> <p>The patient is able to control bladder day and night, and/or is independent with internal or external devices.</p>
BATHING	<p>0</p> <p>1</p> <p>3</p> <p>4</p> <p>5</p>	<p>Total dependence in bathing self.</p> <p>Assistance is required in all aspects of bathing, but patient is able to make some contribution.</p> <p>Assistance is required with either transfer to shower/bath or with washing or drying; including inability to complete a task because of condition or disease, etc.</p> <p>Supervision is required for safety in adjusting the water temperature, or in the transfer.</p> <p>The patient may use a bathtub, a shower, or take a complete sponge bath. The patient must be able to do all the steps of whichever method is employed without another person being present.</p>
DRESSING	<p>0</p> <p>2</p> <p>5</p>	<p>The patient is dependent in all aspects of dressing and is unable to participate in the activity.</p> <p>The patient is able to participate to some degree, but is dependent in all aspects of dressing.</p>

	8	Assistance is needed in putting on, and/or removing any clothing.
	10	Only minimal assistance is required with fastening clothing such as buttons, zips, bra, shoes, etc.  The patient is able to put on, remove, corset, braces, as prescribed.
PERSONAL HYGIENE (Grooming)	0	The patient is unable to attend to personal hygiene and is dependent in all aspects.
	1	Assistance is required in all steps of personal hygiene, but patient able to make some contribution.
	3	Some assistance is required in one or more steps of personal hygiene.
	4	Patient is able to conduct his/her own personal hygiene but requires minimal assistance before and/or after the operation.
	5	The patient can wash his/her hands and face, comb hair, clean teeth and shave. A male patient may use any kind of razor but must insert the blade, or plug in the razor without help, as well as retrieve it from the drawer or cabinet. A female patient must apply her own make-up, if used, but need not braid or style her hair.
FEEDING	0	Dependent in all aspects and needs to be fed, nasogastric needs to be administered.
	2	Can manipulate an eating device, usually a spoon, but someone must provide active assistance during the meal.
	5	Able to feed self with supervision. Assistance is required with associated tasks such as putting milk/sugar into tea, salt, pepper, spreading butter, turning a plate or other “set up” activities.
	8	Independence in feeding with prepared

	10	<p>tray, except may need meat cut, milk carton opened or jar lid etc. The presence of another person is not required.</p> <p>The patient can feed self from a tray or table when someone puts the food within reach. The patient must put on an assistive device if needed, cut food, and if desired use salt and pepper, spread butter, etc.</p>
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**Part-5 Bangla Adapted Mini-mental State Examination (BAMSE)**

	Items	BAMSE Total score=30	Participation Score
Orientation	1.Orientation to time	Season; month; day; date; time of day. (5)	
	2.Orientation to place	Country; district; village/city; area/street/neighborhood; house/place (asked In the reverse order). (5)	
Registration	3.Three objects registration	Mango; Flower; Fish. (3)	
Attention and Calculation	4.A.Calculation	“A man has 20 taka for rickshaw fare. Every day, he spends 3 taka for rickshaw fare. After spending the first day’s rickshaw fare, he will be left with 17 taka. How much money will be left after the next day’s rickshaw fare, and the next day’s fare....’ And so on, five time...?.(5)	
	4.B. Attention/ Days backward	Name the days of the week backwards) eg before Sunday comes Saturday, and before Saturday comes...?. (5)	
Recall	6.Recall	Name of the three objects learned earlier. (3)	
Language	7.Naming	Glass and spoon. (2)	
	8.Repition	‘Neither this nor that’ in Bangla. (1)	
	9.Language/ comprehension	The individual is asked to follow the interviewer who will raise his/her right hand. (1)	
	10.Three-step task	The individual is asked to follow the interviewer’s instruction: ‘Take the paper in your right or left hand. Fold the paper on the floor’. (3)	



	11.Scenrence construction	The individual is asked the question: 'If you did not know my name how would you find out my name?' (1)	
Copying	12. Copying a figure	The individual is asked to construct a figure with sticks following a laid out construction of overlapping pentagons. (5)	
	* (Alternatively)	<b>Total score:</b>	

## APPENDIX 8\*

### প্রশ্নাবলী

স্ট্রোকে আক্রান্ত রোগীদের পড়ে যাওয়ার ভয় সম্পর্কে একটি জরিপ প্রশ্নপত্র

অংশ - ১ ( জনতাত্ত্বিক তথ্যাবলী )

রোগীর পরিচিতি নং-

মোবাইল নাম্বারঃ

স্ট্রোক এর তারিখঃ

১.	বয়সঃ ..... বছর
২.	লিঙ্গ পুরুষ= ১ মহিলা= ২
৩.	আপনার বৈবাহিক অবস্থা সম্পর্কে বলুন ? বিবাহিত = ১ অবিবাহিত = ২ বিধবা = ৩ তলাকপ্রাপ্ত = ৪ অন্যান্য = ৫
৪.	আপনার পূর্বের পেশা কি ছিল? চাকরি = ১ ব্যবসা = ২ শিক্ষার্থী=৩ গৃহিণি = ৪ কৃষক = ৫ অন্যান্য=৬

৫.	<p>আপনি কতদূর পর্যন্ত পড়াশোনা করেছেন ?</p> <p>নিরক্ষর = ১          প্রাথমিক = ২          মাধ্যমিক = ৩          উচ্চমাধ্যমিক = ৪          স্নাতক এবং এর উর্ধে = ৫</p>
৬.	<p>আপনি কোন ধরনের স্ট্রোকে আক্রান্ত হয়েছেন ?</p> <p>ইস্কেমিক = ১          হেমোরিজিক = ২</p>
৭.	<p>স্ট্রোকের ফলে শরীরের কোন পাশ আক্রান্ত হয়েছে ?</p> <p>ডান পাশ = ১          বাম পাশ = ২          উভয় পাশ = ৩</p>
৮.	<p>আপনি কতবার স্ট্রোক করেছেন ?</p> <p>এক বার = ১          দুই বার = ২          দুই এর বেশি = ৩</p>
৯.	<p>আপনার বাড়ির সামনের রাস্তা কেমন ?</p> <p>পিচঢালা = ১          ইটের = ২          মাটির = ৩          অন্যান্য = ৪</p>
১০.	<p>যে বাড়িতে আপনি বাস করেন সেটির মেঝের পৃষ্ঠ কেমন ?</p> <p>পাকা বা ইটের তৈরি = ১          মাটির = ২          টাইলস = ৩          অন্যান্য = ৪</p>
১১.	<p>আপনি কার সাথে বসবাস করেন ?</p> <p>পরিবারের সাথে = ১          সেবাকারীর সাথে = ২</p>

**অংশ – ২ ( ফলস এফিকেসি স্কেল )**

		মোট সতর্ক না	একটু সতর্ক	ভালোভা বে সতর্ক	খুব ভালোভা বে সতর্ক
		১	২	৩	৪
১.	ঘর পরিষ্কার করার সময় ( যেমন- ঝাড়ু দেওয়া,শুকানো/ মোছা, ময়লা)				
২.	জামা-কাপড় পরা ও খোলার সময়				
৩.	সহজ খাবার তৈরি করার সময়				
৪.	গোসল করার সময়				
৫.	বাজারে যাওয়ার সময়				
৬.	চেয়ারে বসা ও উঠার সময়				
৭.	সিঁড়িতে উঠা ও সিঁড়ি থেকে নামার সময়				
৮.	বাড়ির আশে পাশে হাঁটার সময়				
৯.	মাথার উপর থেকে অথবা মেঝে থেকে কোন জিনিস নেওয়ার সময়				
১০.	টেলিফোনের রিং বন্ধ হওয়ার আগে টেলিফোন ধরতে যাওয়ার সময়				
১১.	কোন পিচ্ছিল জায়গায় হাঁটার সময়				
১২.	বন্ধু অথবা আত্মীয়-স্বজনদের সাথে দেখা করার সময়				
১৩.	ভিড়ের মধ্যে হাঁটার সময়				
১৪.	কোন আসমতল যায়গায় হাঁটার সময় ( পাথরে ভরা মেঝে, খারাপ ফুটপাত)				
১৫.	ঢালু জায়গায় উঠা ও নামার সময়				
১৬.	সামাজিক কোন অনুষ্ঠানে যাওয়ার সময় (যেমন- ধর্মীয় অনুষ্ঠান, সামাজিক অনুষ্ঠান, ক্লাব এর মিটিং)				
	অংক সমূহের যোগফল				
		মোট			

## অংশ – ৩ (বার্গ বেলেন্স স্কেল)

### ১. বসা থেকে উঠা

নির্দেশনাবলীঃ দয়া করে দাঁড়ান। চেষ্টা করবেন হাতের সাহায্য না নিতে।

- ( ) ৪ হাতের সাহায্য ছাড়া দাঁড়াতে পারে এবং নিজেই দৃঢ় হতে পারে
- ( ) ৩ স্বাধীন ভাবে দাঁড়াতে পারে হাতের সাহায্য নিয়ে
- ( ) ২ কয়েকবার চেষ্টা করার পর হাতের সাহায্য নিয়ে দাঁড়াতে পারে
- ( ) ১ সামান্য সাহায্য প্রয়োজন দাঁড়াতে অথবা দৃঢ়তা পেতে
- ( ) ০ পর্যাপ্ত অথবা বেশি সাহায্য প্রয়োজন দাঁড়ানোর জন্য

### ২. সাহায্য ছাড়া দাঁড়ানো

নির্দেশনাবলীঃ দয়া করে ২ মিনিট এর জন্য দাঁড়ান কোনো কিছু না ধরে।

- ( ) ৪ নিরাপদ ভাবে ২ মিনিট দাঁড়াতে পারে
- ( ) ৩ পর্যাবেক্ষনরত অবস্থায় ২ মিনিট দাঁড়াতে পারে
- ( ) ২ সাহায্য ছাড়া ৩০ সেকেন্ড দাঁড়াতে পারে
- ( ) ১ অনেকবার চেষ্টার প্রয়োজন ৩০ সেকেন্ড সাহায্য ছাড়া দাঁড়াতে
- ( ) ০ সাহায্য ছাড়া ৩০ সেকেন্ড দাঁড়াতে পারে না

যদি কোন ব্যক্তি সাহায্য ছাড়া ২ মিনিট দাঁড়াতে পারে তাহলে তাকে সাহায্য ছাড়া বসার জন্য পুরা পয়েন্ট দিতে হবে। #৪ পদে অগ্রসর হওয়া।

৩. পিঠে কোন রকম সাহায্য ছাড়া বসা কিন্তু পা মাটির সাহায্য নিবে অথবা পিড়িতে রাখবে

নির্দেশনাবলীঃ দয়া করে হাত ভাজ করে ২ মিনিট বসুন।

- ( ) ৪ নিরাপদ ভাবে ২ মিনিট বসতে পারে
- ( ) ৩ পর্যাবেক্ষনরত অবস্থায় ২ মিনিট বসতে পারে
- ( ) ২ ৩০ সেকেন্ড বসতে পারে
- ( ) ১ ১০ সেকেন্ড বসতে পারে
- ( ) ০ সাহায্য ছাড়া ১০ সেকেন্ড বসতে পারে না

### ৪. দাঁড়ানো থেকে বসা

নির্দেশনাবলীঃ দয়া করে বসুন।

- ( ) ৪ হাতের সামান্য সাহায্য নিয়ে নিরাপদ ভাবে বসতে পারে
- ( ) ৩ হাতের সাহায্য নিয়ে নিচের দিকে যাওয়া নিয়ন্ত্রন করবে
- ( ) ২ পায়ের পিছন দিক চেয়ারে ভর করে নিচের দিকে যাওয়া নিয়ন্ত্রন করবে
- ( ) ১ নিজে নিজে বসতে পারবে কিন্তু নিচের দিকে যাওয়া নিয়ন্ত্রন করবে পারবে না
- ( ) ০ বসতে সাহায্য লাগবে

#### ৫. স্থানান্তর

নির্দেশনাবলীঃ পিভট স্থানান্তর জন্য চেয়ার ব্যবস্থা করা । ব্যক্তিকে নির্দেশ দিতে হবে একটি বসার স্থান এর সাথে আর্মরেস্ট আবার আর একটি বসার স্থান এর সাথে আর্মরেস্ট ছাড়া স্থানান্তর করতে ।

- ( ) ৪ হাতের সামান্য সাহায্যে নিরাপদ ভাবে স্থানান্তর করতে পারে
- ( ) ৩ সম্পূর্ণ ভাবে হাতের সাহায্য নিয়ে স্থানান্তর করতে পারে
- ( ) ২ পর্যবেক্ষনরত অবস্থায় অথবা মৌখিক নির্দেশ এর মাধ্যমে স্থানান্তর করতে পারে
- ( ) ১ একজন ব্যক্তির সাহায্যের প্রয়োজন
- ( ) ০ দুইজন ব্যক্তির সাহায্য অথবা পর্যবেক্ষন প্রয়োজন

#### ৬. কোন সাহায্য ছাড়া চোখ বন্ধ করে দাঁড়াবেন

নির্দেশনাবলীঃ দয়া করে আপনার চোখ বন্ধ করুন এবং ১০ সেকেন্ড সোজা হয়ে দাঁড়ান ।

- ( ) ৪ নিরাপদ ভাবে ১০ সেকেন্ড দাঁড়াতে পারে
- ( ) ৩ পর্যবেক্ষনরত অবস্থায় ১০ সেকেন্ড দাঁড়াতে পারে
- ( ) ২ ৩ সেকেন্ড দাঁড়াতে পারে
- ( ) ১ ৩ সেকেন্ড চোখ বন্ধ রাখতে পারে না কিন্তু নিরাপদে থাকে
- ( ) ০ সাহায্য প্রয়োজন না হলে পড়ে যাবে

#### ৭. কোন সাহায্য ছাড়া দাঁড়াবে কিন্তু পা দুটি এক সাথে থাকবে

নির্দেশনাবলীঃ দয়া করে পা দুটি একসাথে করুন এবং কোন কিছু না ধরে দাঁড়িয়ে থাকুন

- ( ) ৪ নিজে নিজে পা দুটি একসাথে করে এবং নিরাপদে ১ মিনিট দাঁড়াতে পারে
- ( ) ৩ নিজে নিজে পা দুটি একসাথে করে এবং পর্যবেক্ষনরত অবস্থায় ১ মিনিট দাঁড়াতে পারে

- ( ) ২ নিজে নিজে পা দুটি একসাথে করে কিন্তু ৩০ সেকেন্ড এর জন্য ধরে রাখতে পারবে না
- ( ) ১ অবস্থান নিতে সাহায্য লাগবে কিন্তু পা দুটি একসাথে করে ১৫ সেকেন্ড দাঁড়াতে পারবে
- ( ) ০ অবস্থান নিতে সাহায্য লাগবে কিন্তু ১৫ সেকেন্ড এর জন্য ধরে রাখতে পারবে না

৮. দাঁড়ানো অবস্থায় বাহু সম্পূর্ণভাবে প্রসারিত করে সামনের দিকে অগ্রসর হওয়া

নির্দেশনাবলীঃ ৯০ ডিগ্রীতে বাহু বাঁকাতে হবে। আঙ্গুল সর্বোচ্চ প্রসারিত করা এবং সামনে অগ্রসর করা যতটুকু করতে পারে ( বাহু যখন ৯০ ডিগ্রীতে থাকবে, পরিষ্কর তখন আঙ্গুলের শেষ মাথায় একটি রুলার রাখবেন। আঙ্গুলগুলো যখন সামনে অগ্রসর হবে রুলারকে স্পর্শ করবেন। রেকর্ড করা পরিমাপটি সর্বাদিক অবস্থান থেকে আঙ্গুলের দিকে পৌঁছাতে যত দূরত্ব। যখন সম্ভব, অগ্রসরের সময় ব্যক্তিকে বলা কোমড়ের ঘূর্ণন এড়ানোর জন্য উভয় বাহু ব্যবহার করতে )

- ( ) ৪ আস্থার সাথে ২৫ সেমি ( ১০ ইঞ্চি ) সামনে পৌঁছাতে পারে
- ( ) ৩ ১২ সেমি ( ৫ ইঞ্চি ) সামনে পৌঁছাতে পারে
- ( ) ২ ৫ সেমি ( ২ ইঞ্চি ) সামনে পৌঁছাতে পারে
- ( ) ১ সামনের দিকে পৌঁছাবে কিন্তু পর্যবেক্ষন প্রয়োজন
- ( ) ০ চেষ্টা করার সময় ভারসাম্য হারায় / বাইরের সাহায্য প্রয়োজন

৯. দাঁড়ানো অবস্থায় মেঝে থেকে বস্তু তুলতে হবে

নির্দেশনাবলীঃ পায়ের সামনে থেকে জুতা অথবা স্লিপার তুলতে হবে।

- ( ) ৪ নিরাপদে এবং সহজে স্লিপার তুলতে পারে
- ( ) ৩ স্লিপার তুলতে পারে কিন্তু পর্যবেক্ষন প্রয়োজন
- ( ) ২ তুলতে পারে না কিন্তু নিজে নিজে ভারসাম্য রেখে ২-৫ সেমি স্লিপারের দিকে পৌঁছাতে পারে
- ( ) ১ তুলতে পারে না এবং চেষ্টার সময় পর্যবেক্ষন প্রয়োজন
- ( ) ০ চেষ্টা করতে পারেনা / ভারসাম্য হারানো অথবা পতন রুখতে সাহায্য প্রয়োজন

১০. দাঁড়ানো অবস্থায় বাম ও ডান কাঁধের উপর তাকানোর জন্য ঘুরা

নির্দেশনাবলীঃ বাম কাঁধ বরাবর পিছন দিকে তাকানোর জন্য ঘুরা । একই ভাবে ডান দিকে করা ।(পরিষ্কর একটি বস্তু ব্যবহার করবে যাতে মূল বিষয় থেকে ভালোভাবে পিছন দিকে তাকানো যায়)

- ( ) ৪ দুই দিক থেকে পিছনে তাকানো এবং ভালো ওজন স্থানান্তর
- ( ) ৩ এক পাশ হতে পিছনে তাকানো এবং অন্য পাশ থেকে কম ওজন স্থানান্তর
- ( ) ২ শুধুমাত্র পাশাপাশি ঘুরা কিন্তু ভারসাম্য নিয়ন্ত্রন করা
- ( ) ১ ঘুরার সময় পর্যাবেক্ষন প্রয়োজন
- ( ) ০ ভারসাম্য হারানো অথবা পড়ে যাওয়া এড়াতে সাহায্য প্রয়োজন

১১. ৩৬০ ডিগ্রী ঘুরতে হবে

নির্দেশনাবলীঃ একটি সম্পূর্ণ বৃত্তে ঘুরতে হবে । থামুন । তারপর অন্য দিকে একটি পূর্ণ বৃত্তে ঘুরুন ।

- ( ) ৪ ৪ সেকেন্ডে বা তার কম সময়ে ৩৬০ ডিগ্রী ঘুরতে পারে
- ( ) ৩ ৪ সেকেন্ডে বা তার কম সময়ে ৩৬০ ডিগ্রী একপাশে ঘুরতে পারে
- ( ) ২ ৩৬০ ডিগ্রী নিরাপদে কিন্তু ধীরে ধীরে ঘুরতে পারে
- ( ) ১ নিবিড় পর্যাবেক্ষন অথবা মৌখিক নির্দেশ প্রয়োজন
- ( ) ০ ঘুরতে সাহায্য প্রয়োজন

১২. সাহায্য ছাড়া দাঁড়িয়ে এক পা সামনে রাখা

নির্দেশনাবলীঃ প্রত্যেক পা বিকল্পভাবে পদক্ষেপ করা বা চৌকির উপর রাখা । প্রতিটি পা পদক্ষেপ করা বা চৌকি চারবার স্পর্শ না করা পর্যন্ত চালিয়ে যাওয়া ।

- ( ) ৪ নিজেনিজে দাঁড়িয়ে এবং নিরাপদ ভাবে ২০ সেকেন্ডে ৮ টি পদক্ষেপ সম্পূর্ণ করতে পারে
- ( ) ৩ নিজেনিজে দাঁড়িয়ে এবং ২০ সেকেন্ডের বেশি সময়ে ৮ টি পদক্ষেপ সম্পূর্ণ করতে পারে
- ( ) ২ সাহায্য ও পর্যাবেক্ষন ছাড়া ৪ টি পদক্ষেপ সম্পূর্ণ করতে পারে
- ( ) ১ সামান্য সাহায্য নিয়ে ২ টি পদক্ষেপ সম্পূর্ণ করতে পারে
- ( ) ০ পড়ে যাওয়া এড়াতে সাহায্য প্রয়োজন/ চেষ্টা করতে পারে না

১৩. সাহায্য ছাড়া এক পা সামনে দিয়ে দাঁড়ানো

নির্দেশনাবলীঃ এক পায়ের ঠিক সামনে আর এক পা রাখতে হবে। যদি মনে হয় পা ঠিক সামনে রাখতে পারবেনা, তাহলে সামনে এগিয়ে রাখুন যাতে এক পায়ের আঙ্গুলের সাথে অন্য পায়ের গোড়ালি থাকে ( স্কোর ৩ পয়েন্ট, তলে পা ফালানোর দৈর্ঘ্য অন্য পা ফালানোর দৈর্ঘের চেয়ে বেশে হতে হবে এবং এমতা অবস্তায় ব্যক্তির সাধারন দাঁড়ানোর ভঙ্গি এর দৈর্ঘ্য এর সমতায় থাকবে )

- ( ) ৪ পায়ের গোড়ালি আগে তারপর পায়ের বৃদ্ধা আঙ্গুল মাটিতে এই অবস্তায় নিজে নিজে ৩০ সেকেন্ড স্থির হতে পারে
- ( ) ৩ নিজে নিজে পা সামনে ফেলাতে পারে এবং ৩০ সেকেন্ড স্থির হতে পারে
- ( ) ২ নিজে নিজে ছোট ছোট পদক্ষেপ নিতে পারে এবং ৩০ সেকেন্ড স্থির হতে পারে
- ( ) ১ পদক্ষেপ নিতে সাহায্যের প্রয়োজন কিন্তু ১৫ সেকেন্ড স্থির হতে পারে
- ( ) ০ পদক্ষেপ নিতে অথবা দাঁড়াতে গিয়ে ভারসাম্যহীন হয়ে যায়

#### ১৪. এক পায়ে দাঁড়ানো

নির্দেশনাবলীঃ এক পায়ে দাঁড়ান কোন কিছু না ধরে যতক্ষন পারেন।

- ( ) ৪ নিজে নিজে পা তুলতে পারে এবং ১০ সেকেন্ডের বেশি ধরে রাখতে পারে
- ( ) ৩ নিজে নিজে পা তুলতে পারে এবং ৫-১০ সেকেন্ড ধরে রাখতে পারে
- ss( ) ২ নিজে নিজে পা তুলতে পারে এবং ৩ অথবা তার কম ধরে রাখতে পারে
- ( ) ১ পা তুলতে চেষ্টা করবে ৩ সেকেন্ড ধরে রাখতে পারবে না কিন্তু নিজে নিজে দাঁড়িয়ে থাকতে পারবে
- ( ) ০ চেষ্টা করতে পারে না পড়ে যাওয়া প্রতিরোধ করতে সাহায্য প্রয়োজন

### অংশ -৪ ( মডিফাইড বার্কেল ইনডেক্স )

সূচিপত্র বিষয়	মান	বর্ণনা
চেয়ার / বিসানা স্থানান্তর	০	স্থানান্তরে অংশগ্রহণ করতে অক্ষম। রোগীকে স্থানান্তরের জন্য একটি যান্ত্রিক ডিভাইস সহ বা ছাড়া দুই পরিচারক প্রয়োজন।
	৩	অংশগ্রহণ করতে সক্ষম কিন্তু স্থানান্তরের সকল দিকের জন্য অন্য একজনের সর্বোচ্চ সহায়তা প্রয়োজন।



	৮	স্থানান্তরের জন্য অন্য ব্যক্তির সহায়তা প্রয়োজন।স্থানান্তরের যেকোনো অবস্থায় তার সাহায্য প্রয়োজন হতে পারে।
	১২	আত্মবিশ্বাস অথবা নিরাপত্তা তত্ত্বাবধানের জন্য অন্য ব্যক্তির উপস্থিতি প্রয়োজন।
	১৫	রোগী নিরাপদে হেঁটে অথবা হুইলচেয়ার দিয়ে বিছানায় যেতে পারেন। হুইলচেয়ারে বসতে পারেন, ব্রেক লক, পাদপীঠ উঠানো, বা অবস্থান নির্ণয় করে হাঁটা, নিরাপদে বিছানায় যাওয়া,বিছানায় শোয়া, বিছানার পাশে বসার অবস্থানে আসা, হুইলচেয়ারের অবস্থান পরিবর্তন,আগের অবস্থায় স্থানান্তর করে ফিরে যাওয়া এবং / অথবা এইড / স্ট্যান্ড ধরতে।পারবো।রোগী অবশ্যই এই কার্যকলাপের সকল পর্যায়ে স্বাধীন হবে।
এম্বুলেশন / চলাচল	০	এম্বুলেশনে / চলাচলে ক্ষেত্রে নির্ভরশীল
	৩	এম্বুলেশনের / চলাচলের সময় এক বা একাধিক সহকারীর সব সময় উপস্থিতি প্রয়োজন হয়।
	৮	তাদের নাগাল পাওয়া এবং/ অথবা হস্তচালনের জন্য সাহায্য প্রয়োজন হয়। সাহায্য প্রদানের জন্য একজন সাহায্যকারী প্রয়োজন।
	১২	রোগী এম্বুলেশনের / চলাচলের সময় স্বাধীন কিন্তু সাহায্য বিনা৫০মিটার হাঁটতে সক্ষম, অথবা আত্মবিশ্বাস যোগানোর জন্য বাবিপজ্জনক পরিস্থিতিতে নিরাপত্তার জন্য রক্ষণাবেক্ষণ প্রয়োজন হয়।
	১৫	রোগীর অবশ্যই প্রয়োজন হলে ব্রস পরতে পারে, দাঁড়ানো ও বসা অবস্থায় ব্রস আটকাতে এবং খুলতে পারে, প্রয়োজনীয় এইডগুলো ব্যবহারের জন্য যথাস্থানে অবস্থান করতে পারে। রোগী অবশ্যই সাহায্য বা তত্ত্বাবধান ছাড়া ক্রাচেচ, কেনস, এবং ৫০মিটার হাঁটতে সক্ষম হবে।

<p>এম্বুলেশন / হুইলচেয়ার</p> <p>(* যদি হাঁটতে অক্ষম হয়) এই আইটেমটি শুধুমাত্র যদি রোগীকে এম্বুলেশনের জন্য “ ০” রোট করা হয় তবে ব্যবহার করুন এবং শুধুমাত্র রোগীকে হুইলচেয়ার ব্যবস্থাপনার উপর প্রশিক্ষিত করা হয়ে থাকে।</p>	<p>০</p> <p>১</p> <p>৩</p> <p>৪</p> <p>৫</p>	<p>হুইলচেয়ার এম্বুলেশনে নির্ভরশীল।</p> <p>রোগীর সমতল পৃষ্ঠে অল্প দূরত্ব চালাতে পারেন, কিন্তু হুইলচেয়ার ব্যবস্থাপনার অন্য সব ধাপের জন্য সহায়তার প্রয়োজন হয়।</p> <p>চেয়ার থেকে টেবিল, বিছানা, ইত্যাদি নিপুণভাবে ব্যবহার করার জন্য সবসময় সহায়তা এবং একজন ব্যক্তির উপস্থিতির প্রয়োজন হয়।</p> <p>রোগী নিয়মিত একটি পরিমিত সময়কালের জন্য নিজেকে চালনা করতে পারেন। "চাপা কোণে" বা ১০০ মিমি উচ্চ বাধায় ন্যূনতম সহায়তা প্রয়োজন হতে পারে।</p> <p>হুইলচেয়ার স্বাধীনভাবে চালানোর জন্য, রোগী অবশ্যই কাছাকাছি কোণে যেতে, আশেপাশে ঘুরতে, চেয়ারটিকে কৌশলে টেবিল, বিছানা, টয়লেট ইত্যাদি পরিচালনা করতে সক্ষম হতে হবে।</p> <p>রোগী অবশ্যই একটি চেয়ার অন্ততপক্ষে ৫০ মিটার ধাক্কা দিতে অথবা একটআ বাঁধা প্রতিবন্ধক অতিক্রম করতে সক্ষম হবে।</p>
<p>সিঁড়ি বেয়ে উঠা</p>	<p>০</p> <p>২</p> <p>৫</p> <p>৮</p> <p>১০</p>	<p>রোগী সিঁড়ি বেয়ে উঠতে অক্ষম</p> <p>সিঁড়ি বেয়ে উঠার সকল ক্ষেত্রেই সাহায্যের প্রয়োজন, সেই সঙ্গে হাঁটতে সহায়ক সরঞ্জামের সাহায্য দরকার</p> <p>রোগী উঠতে/নামতে সক্ষম কিন্তু হাঁটতে সহায়ক সরঞ্জাম বহন করতে অক্ষম এবং রক্ষণাবেক্ষণ ও সাহায্যের প্রয়োজন</p> <p>সাধারণত কোনো সাহায্যের প্রয়োজন হয় না। কোন কোন সময় মর্নিং স্টীফনেস, শ্বাসকষ্ট ইত্যাদি থেকে নিরাপত্তার জন্য রক্ষণাবেক্ষণের প্রয়োজন হয়।</p> <p>রোগী কারো সাহায্য বা রক্ষণাবেক্ষণ ছাড়াই নিরাপদে সিঁড়ি বেয়ে উঠানামা করতে সক্ষম। রোগী প্রয়োজনমত হাতের রেলিং, ছড়ি বা লাঠি ব্যবহার করতে সক্ষম এবং সে উঠানামা করার সময় এসব সরঞ্জামাদি সাথে করে বহন করতে</p>

		সক্ষম।
টয়লেটে স্থানান্তর	০	টয়লেটের কাজে পুরোপুরি নির্ভরশীল
	২	টয়লেটের সকল কাজের ক্ষেত্রেই সাহায্যের প্রয়োজন হয়
	৫	কাপড় পরা, স্থানান্তর কিংবা হাত ধোয়ার কাজে সাহায্যের প্রয়োজন হয়
	৮	স্বাভাবিক টয়লেটের কাজে নিরাপত্তার জন্য রক্ষণাবেক্ষণের প্রয়োজন হতে পারে। রাতের বেলা একটি কমোড ব্যবহার করতে পারে কিন্তু ইহা খালি করতে এবং পরিষ্কার করতে সাহায্যের প্রয়োজন হয়
	১০	রোগী সাহায্য ছাড়াই টয়লেটে যেতে/আসতে, কাপড় পড়তে এবং টয়লেট পেপার ব্যবহার করতে সক্ষম। যদি আবশ্যিক হয় রোগী রাতের বেলা বিছানা প্যান বা কমোড কিংবা প্রস্রাবাগার ব্যবহার করতে পারেন, কিন্তু তিনি অবশ্যই এটি খালি করতে এবং পরিষ্কার করতে সক্ষম হবেন।
অন্ত্রের নিয়ন্ত্রণ	০	রোগী অন্ত্রের নিয়ন্ত্রণে অক্ষম।
	২	রোগীর যথাযথ অবস্থান এবং অন্ত্র সঞ্চালনে সাহায্যকারী কৌশল গ্রহণ করতে সাহায্যের দরকার হয়
	৫	রোগী যথাযথ অবস্থান গ্রহণ করতে পারে, কিন্তু কারো সাহায্য ছাড়া সহায়ক কৌশলগুলি ব্যবহার করতে পারে না কিংবা নিজেকে পরিষ্কার করতে পারে না এবং ঘন ঘন দুর্ঘটনায় পড়ে। নিয়ন্ত্রণে সহায়ক সরঞ্জামের সহায়তার দরকার হয়, যেমন প্যাড।
	৮	রোগীর সাপোজিটরি কিংবা এ্যানেমা ব্যবহারের জন্য রক্ষণাবেক্ষণের প্রয়োজন হতে পারে।
	১০	রোগী অন্ত্রের নিয়ন্ত্রণ করতে পারে এবং কোন দুর্ঘটনা ঘটে না, প্রয়োজন পড়লে সাপোজিটরি ব্যবহার করতে পারে বা এ্যানেমা নিতে পারে

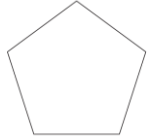
<p>মূত্রথলি নিয়ন্ত্রণ</p>	<p>০ ২ ৫ ৮ ১০</p>	<p>রোগী মূত্রাথলি পরিচালনায় নির্ভরশীল, মূত্রের বেগ নিয়ন্ত্রণে অক্ষম অথবা ক্যাথেটার লাগানো</p> <p>রোগী মূত্রের বেগ নিয়ন্ত্রণে অক্ষম কিন্তু একটি অভ্যন্তরীণ বা বহিরাগত যন্ত্রের প্রয়োগে সাহায্য করতে সক্ষম</p> <p>রোগী সাধারণত দিনের বেলা শুষ্ক থাকে, কিন্তু রাতের বেলা নয় এবং যন্ত্রের মাধ্যমে কিছু সাহায্যের প্রয়োজন হয়।</p> <p>রোগী সাধারণত দিনরাত উভয় সময়েই শুষ্ক থাকে, কিন্তু হঠাৎ করে দুর্ঘটনা হতে পারে কিংবা অভ্যন্তরীণ বা বহিরাগত যন্ত্রের সামান্য সাহায্য প্রয়োজন হতে পারে</p> <p>রোগী দিনে রাতে সবসময় মূত্রথলি নিয়ন্ত্রণ করতে সক্ষম এবং/অথবা অভ্যন্তরীণ বা বহিরাগত যন্ত্র দ্বারা স্বাধীন।</p>
<p>গোসল/স্নান</p>	<p>০ ১ ৩ ৪ ৫</p>	<p>নিজে নিজে গোসলের জন্য পুরোপুরি নির্ভরশীল</p> <p>গোসলের সকল ক্ষেত্রেই রোগীর সাহায্য প্রয়োজন তবে সে কিছুটা সাহায্য করতে সক্ষম</p> <p>গোসলের জন্য অবস্থান পরিবর্তন করতে অয়হবা ধোঁয়া বা মোছার জন্য সাহায্যের প্রয়োজন হয়, সেই সঙ্গে তার অবস্থা অথবা রোগের জন্য একটি কাজ শেষ করতে পারে না।</p> <p>নিরাপত্তার জন্য রক্ষণাবেক্ষণ প্রয়োজন যেমন পানির তাপমাত্রা নিয়ন্ত্রণ কিংবা স্থানান্তর</p> <p>রোগী বাথটাব, বার্না কিংবা পুরোপুরিভাবে গা মুছে গোসল করতে পারে। যে পদ্ধতিই ব্যবহার করা হোক রোগী অবশ্যই অন্য ব্যক্তির উপস্থিতি ছাড়া তার সবগুলো ধাপ করতে সক্ষম হবে।</p>
<p>কাপড় পরিধান</p>	<p>০ ২ ৫</p>	<p>রোগী কাপড় পরার সকল ক্ষেত্রেই নির্ভরশীল এবং সে কাজটিতে অংশগ্রহণ করতে সক্ষম</p> <p>রোগী কিছুটা অংশগ্রহণ করতে সক্ষম, কিন্তু কাপড় পরার সকল ক্ষেত্রেই সে নির্ভরশীল</p> <p>কোন কাপড় পরতে এবং/অথবা খুলতে সাহায্য প্রয়োজন</p>

	৮	শুধুমাত্র কাপড়কে ঠিকভাবে আটকাতে সামান্য সহায়তা প্রয়োজন যেমন- বোতাম, চেইন, ব্রা, জুতা ইত্যাদি লাগানোর কাজে
	৯	রোগী নির্দেশনা অনুযায়ী কার্সেট(ব্রা এর মতই), ব্রেস পড়তে কিংবা খুলতে সক্ষম
দৈহিক পরিচ্ছন্নতা (পরিচর্যা)	০	রোগী দৈহিক পরিচ্ছন্নতায় অংশগ্রহণ করতে অক্ষম এবং সকল ক্ষেত্রেই নির্ভরশীল
	১	দৈহিক পরিচ্ছন্নতার সকল ধাপেই সহায়তার প্রয়োজন হয় কিন্তু রোগী কিছুটা সাহায্য করতে পারে
	৩	দৈহিক পরিচ্ছন্নতার এক বা একাধিক ধাপে কিছু সহায়তার প্রয়োজন হয়
	৪	রোগী নিজে নিজেই তার দৈহিক পরিচ্ছন্নতা পরিচালনা করতে সক্ষম, তবে কাজের আগে এবং/অথবা সামান্য সহায়তার প্রয়োজন হয়
	৫	রোগী নিজে নিজে তার হাতমুখ ধুতে,চুল আঁচড়ানো,দাঁত ব্রাশ করতে ও শেভ করতে পারে। একজন পুরুষ রোগী যে কোন ধরনের রেজার ব্যবহার করতে পারে তবে অবশ্যই সাহায্য ছাড়া রেজারে ব্লেড ঢোকানো এবং ড্রয়ার বা ক্যাবিনেট থেকে এটাকে বের করতে পারবে। একজন মহিলা রোগী অবশ্যই তার মেক-আপ লাগাতে পারবে যদি সে ব্যবহার করে, তবে চুলের খোঁপা করা বা চুলের স্টাইল করা না পারলেও হবে

খাওয়া – দাওয়া	০	সবদিক থেকেই নির্ভরশীল এবং খায়িয়ে দিতে হয়, ন্যাসোগেস্ট্রিক টিউব ব্যবহার করতে হয়
	২	একটি খাবারের যন্ত্রকে নিপূর্ণভাবে ব্যবহার করতে পারে, সচরাচর একটি চামচ, কিন্তু খাবারের সময় একজনকে অবশ্যই সক্রিয় সহায়তা প্রদান করতে হয়
	৫	কারো রক্ষণাবেক্ষণে নিজে নিজে খেতে সক্ষম। আনুষঙ্গিক কাজগুলোতে সাহায্য প্রয়োজন হয় যেমন - চা তে দুধ বা চিনি দেওয়া, লবণ, মরিচ, মাখন ছড়ানো, থালা উল্টানো কিংবা অন্যান্য সংস্থাপনার কাজগুলোতে
	৮	প্রস্তুতকৃত ট্রে থেকে স্বনির্ভরভাবে খেতে পারে কেবল মাংস কাটা, দুধের প্যাকেট খোলা, বোতলের মুখ খোলা এসব কাজ বাদে। অন্য ব্যক্তির উপস্থিতির প্রয়োজন পরেনা
	১০	রোগী ট্রে বা টেবিল থেকে নিজে নিজেই খেতে পারে যখন কেউ তার নাগালের মধ্যে খাবার রাখে। খাবার কাটা, লবণ এবং মরিচ নেয়া, মাখন লাগানো ইত্যাদি কাজে প্রয়োজন হলে রোগী অবশ্যই একটি সহায়ক যন্ত্র ব্যবহার করবে।
মোট মান		

**অংশ- ৫ (বাংলা এডাপ্টেড মিনি-মেন্টাল স্টেট এক্সামিনেশন)**

	অনুচ্ছেদ	মোট স্কোর= ৩০	অংশগ্রহণকারীর স্কোর
Orientation (পরিচিত হওয়া)	১. সময়ের সাথে পরিচিত হওয়া	ঋতু; মাস; দিন; তারিখ; দিনের সময় (৫)	
	২. জায়গার সাথে পরিচিত হওয়া	দেশ; জেলা; গ্রাম/শহর; অঞ্চল/রাস্তা/আশপাশ; ঘরবাড়ি/জায়গা (বিপরীত অনুসারে জিজ্ঞাসা করা)।(৫)	

Registration নিবন্ধীকরণ	৩. তিনটি বস্তু নিবন্ধীকরণ করুন	আম; ফুল; মাছ (৩)	
Attention & Calculation (মনোযোগ দেওয়া এবং হিসাব করা) *	৪. ক। হিসাব করা	একজন মানুষের রিক্সা ভাড়ার জন্য ২০ টাকা আছে। প্রতিদিন সে রিক্সা ভাড়ার জন্য ৩ টাকা খরচ করে। প্রথম দিন রিক্সা ভাড়া দেয়ার পর, সে সাথে ১৭ টাকা নিয়ে চলে যাবে। পরের দিন রিক্সা ভাড়া দেয়ার পর কত টাকা বাকি থাকবে এবং পরের দিনের ভাড়া .....তারপর, পাঁচ বার। (৫)	
	৪. খ। মনোযোগ দেওয়া/ দিনের পিছনের দিকে	সাপ্তাহের দিনের নামগুলো পিছনের দিকে বলা ( যমন রবিবারের আগে আসে শনিবার, এবং শনিবারের আগে আশে .....? (৫)	
Recall (মনে করা)	৬. মনে করা	পূর্বে শিখানো তিনটি বস্তুর নাম (৩)	
Language (ভাষা)	৭. নামকরণ	গ্লাস এবং চামচ (২)	
	৮. পুনরাবৃত্তি করা	‘এটা না হয় ওটা’ (১)	
	৯. ভাষা/উপলব্ধি ক্ষমতা	সাক্ষাতকার ব্যক্তিকে বলবে তার উপদেশ অনুসারন করে ডান হাত উপরে তুলতে। (১)	
	১০. তিনটি ধাপের কাজ	সাক্ষাতকার ব্যক্তিকে বলবে তার উপদেশ অনুসারন করতেঃ আপনার ডান বা বাম হাতে কাগজটি নিন। অর্ধেক কাগজ ভাঁজ করুন। কাগজটি মেঝের উপরে রাখুন। (৩)	
	১১. বাক্য গঠন করা	ব্যক্তিকে প্রশ্ন জিজ্ঞাসা করা। যদি আপনি আমার নাম না জানেন তাহলে কিভাবে আপনি আমার নামটি বের করবেন ? (১)	
Copying (অনুকরণ)	১২. অনুকরণ করুন একটি নকশা  	ব্যক্তিকে বলবে পঁচকোন ছবির উপর কিছু কাঠি দিয়ে একটি নকশা গঠন করতে। (১)	
		মোট স্কোরঃ	