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FUNCTIONAL AND PSYCHOLOGICAL OUTCOME OF STROKE SURVIVORS ATTENDED AT CRP

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

FUNCTIONAL AND PSYCHOLOGICAL OUTCOME OF STROKE SURVIVORS ATTENDED AT CRP

Submitted by **Homyra Nishat** for partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B. Sc. PT)

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Declaration

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also decline that for any publication, presentation or dissemination of information of the study. I would bound to take written consent from the department of Physiotherapy of Bangladesh Health Professions Institute (BHPI).

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CONTENTS

Topic **Page no**

Topic **Page no**

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Acronyms

BHPI	Bangladesh Health Professions Institute.
BI	Barthel Index
BMRC	Bangladesh Medical and Research council
CRP	Centre for the Rehabilitation of the Paralysed
GAD	Generalized Anxiety Disorder
ICH	Intra Cerebral Hemorrhage
IRB	Institutional Review Board
PHQ	Patient Health Questionnaire
PSD	Post Stroke Depression
SPSS	Statistical Package for the Social Science
WHO	World Health Organization

List of figures

List of tables

Abstract

Purpose: The purpose of the study was to identify the functional and psychological outcome of stroke survivors. **Objectives:** To determine the socio demographic information of the stroke survivors. To explore the anxiety level among the stroke survivors. To find out depression status among the stroke survivors. To identify the functional outcome of stroke survivors. **Methodology:** The study was conducted by using of cross sectional method. 102 participants were selected from Neurology unit, CRP, Savar, Dhaka. Participants were selected by purposive sampling. All data were collected through face-to face interview by using a semi structured questionnaire. **Results:** From the result of the study it was found that maximum participants were in between 51-60 years, 70% participants were male and remaining 30% were female. More than half (72.50%) were with ischemic stroke. In case of ischemic stroke, 9.46% respondents were functionally independent, maximum respondents (47.29%) were major dependent on others. But in hemorrhagic stroke, maximum (64.29%) were minor dependent. In ischemic stroke, most of the participants 43.24% faced minimal depression. On the other hand, maximum 50% participants faced mild depression in hemorrhagic stroke. Among the patients with hemorrhagic stroke, 35.71% participants were moderate anxious where in ischemic stroke 12.17% respondents were moderate anxious. It is found that, good functional outcome but poor psychological outcome in hemorrhagic stroke and vice versa in ischemic stroke. **Conclusion:** From the result of the study it was found that male are more affected than female. And people suffer more in ischemic stroke. After stroke, people face not only functional but also psychological problem. And there was association between age and functional and psychological outcome.

Key words: *Stroke, Functional outcome, Psychological outcome.*

CHAPTER I INTRODUCTION

1.1 Background

Nowadays the third leading cause of disability and the second leading cause of mortality is stroke throughout the world recognized by organized inpatient (stroke unit) care for stroke in 2013. As a result of improved medical care the complications of acute stroke are reducing thus decreasing the stroke mortality rates, but the residual disability rates of stroke are increasing. At present, more than 75% of patients survive a first stroke, and, among those, 25% have minor disability and 40% feel moderate to severe disabilities. Besides, stroke patients have possibility of recurrent stroke, a greater risk of death and further disability (Ovbiagele et al., 2014).

According to the World Health Organization, every year worldwide 15 million people suffer from stroke. Five million of these die and another five million are disabled permanently (Aydin et al., 2016). The disability rates among stroke survivor is between 24–54% (Srivastava et al., 2010).Worldwide in developing countries 86% of deaths occurred due to stroke in accordance with WHO 2001 (Wasay et al.,2014). Globally more than two-third patients died in developing country following stroke (Liu et al., 2007).

Among 162·2 million people of Bangladesh, majority of people (74%) lives in rural areas and only 26% live in urban areas. Stroke has been aligned as the third responsible cause of death concerning coronary heart disease and infectious diseases. The stroke patient's mortality rate increased from 6·00% (in 2006) to 8·57% (in 2011) along with an age-adjusted mortality rate of 108·31 with each 100,000 people (in 2011) (Islam et al., 2013). According to the prediction of National Commission of Macroeconomics and Health there will be 1.67 million stroke cases in India by 2015. The Global Burden of Disease Study has reported that in India overall deaths from stroke will exceed settled market economies up to year 2020 (Prasad et al., 2012).In Singapore, still the fourth leading cause of death is cerebrovascular disease and it's trend is increased instead of decreasing with a prevalence of 6.6% in 2016 (Lui & Nguyen, 2018).

Between 1990 and 2010 the burden of stroke was increased 19% and current projections estimated that Globally the probability of deaths will raise to 7.8 million in 2030 (Organised inpatient (stroke unit) care for stroke, 2013).

It is anticipated that over the next two decades worldwide the number of stroke-related burdens will be raised, but expected that the impressive improvement in the medical management of stroke will mitigate the crisis (Langhorne et al., 2011). Van et al., (2015) reported that within 2050, the number of stroke patients will probably increase in huge amount and of those about 50% patients may require assistance in their activities of daily living within 12 months. Though there is an impressive advancement in modern medicine, medications, and medical technology, the global disease stroke apprises a substantial mortality and morbidity risk towards the particular person with increased economic burden to the society. Worldwide, stroke is marked as the second leading cause of death with a history of ischemic heart disease, including approximately 6.7 million stroke deaths in 2015 (Lui & Nguyen, 2018).

Stroke is a fatal disease of residual neurological infection, that provokes serious physical disability or death (Mukherjee & Patil, 2011). In neurology the cerebrum is an active region as it is mind boggling in life process, memory and in capacity. With the progress of age, The brain becomes prone to getting various dangerous life threatening diseases with increased age in a very complex life, to combat this situation sustained effort and stamina will be needed. Nowadays stroke is a burning issue in this new millennium as it is not only a big killer, but also the leading cause of incompetence of Bangladesh in the world (Mohammad, 2011).

Stroke is mainly classified into hemorrhagic or non-hemorrhagic. Among all strokes 10% to 15% Intracerebral hemorrhage (ICH). Rupture of cerebral vessels can cause ICH and most often it occurs as a result of extreme high blood pressure on arterial walls which already damaged by atherosclerosis, aneurysm, or arteriovenous malformation. Ischemic strokes or cerebral infarcts (CI) caused by the development of thrombi and/or emboli into artery which produced blockages and caused deficiency of oxygen in vital tissues. Lack of cerebral circulation leads to neuronal cellular injury, inflammatory responses, and neuronal death. Subtype of each stroke (hemorrhagic versus non-hemorrhagic) can also be subdivided such as ICH can be subdivided into primary and secondary Intra cerebral hemorrhage. Primary ICH results from the fluent natural rupture of small vessels harmed by amyloid angiopathy or chronic

hypertension. Among all hemorrhages 78% to 88% primary ICH. Cerebrovascular bleeding, vascular abnormalities, tumors, or impaired coagulation consequences Secondary ICH (Perna &Temple, 2015).In a community-based study, in SriLanka the prevalence of stroke is 1.0%. According to a hospital-based stroke series of 103 patients, the ratio of pathological subtypes were 74.7% cerebral infarction, 19.1% intracerebral haemorrhage and 62.2% subarachnoid haemorrhage confirmed by CT scan. Of the infarcts, 31 (42%) were cortical, 30 (41%) were lacunar, 12 (16%) were cerebellar and brainstem and 1 (1.3%) was a border zone infarct. In Pakistan, Lifetime prevalence of stroke and TIA was 21.8% which was too high (18.4–25.5) (Prasad et al., 2012).

Most of the South Asian studies projected a higher percentage of haemorrhagic stroke (19-46%) compared with Western countries. This finding may be connected to lack of control and high rate of hypertension in South Asia. In younger patients (15–45 years of age) the prevalence of intracerebral haemorrhage (ICH) caused by stroke (32-43%) is particularly high. In Bangladesh the recurrency of ICH was high. The prevalence of cardio embolic stroke is higher in Western countries than South Asia (Wasay et al., 2014). The most update estimation remarked stroke as the fifth leading cause of death in Malaysia. Of all patients with stroke ischemic strokes are reports as the predominant variety in 73.3% according to the National Stroke Registry. The trend of small vessel disease is proportionally reducing from 62% (2003) to 28% (2012). The Korean Stroke Society reported 64.7% ischemic strokes admissions in 2000 & 76.1% in 2009 which reflects that the proportion has increased gradually with time. The proportion of haemorrhagic strokes has declined calmly.

To study stroke incidence and patterns in Southern Khorasan, the Khorasan Stroke Registry was founded in 2001. This study showed that per year from 2001 to 2005 the incidence of stroke has increased from 84.16 to 103.23/100000 population in Iran. Based on 6279 patients with stroke from 28 hospitals over the country the National Acute Stroke Israeli (NASIS) registry has recently published their results regarding stroke. The authors indicated a serious decline in the proportion of small vessel strokes among individuals of elder age (>85 years of age) from 2004 to 2010 in Israel. In Thailand stroke is included in the top three leading causes of mortality. The frequency rate of haemorrhagic stroke reduced from 22% (in 2003) to 13% (in 2012).

A recent data reports that the percentage of intracranial atherosclerosis is very high (52.6% of all ischemic strokes) as the predominant aetiology (Mehndiratta et al., 2014).

Age is a significant and non-modifiable risk factor of stroke. In the South Asian region onset the mean age of stroke (for example, 59 years in Pakistan and 63 years in India) that is lesser than in Western countries (for example, 68 years in the USA and 71 years in Italy). This issue is not only related to conventional risk factors but also related to nontraditional risk factors. Of those countries the prevalence of hypertension, diabetes, cardiovascular dis-eases and dyslipidaemia is comparable based on demography. This site has faced a double burden of tobacco exposure, with a 15–20% prevalence of smoking and up to 40% of people using chewing tobacco. Among the the chewing tobacco users a huge number of people are women. The obesity is a burning issue and it's prevalence is fearfully high, with the highest prevalence being found in SriLanka. In India and Pakistan atrial fibrillation, carotid artery disease and intracranial disease related data are limited. At younger age various nontraditional risk factors can be responsible for high frequency of stroke, such as use of water pipes, desi ghee (saturated fatty acids), chewable tobacco, and infectious causes. (Wasay et al., 2014).

Mostly in East Asian, South East Asian and South Asian countries large artery atherosclerosis is the predominant aetiology. Several data reported the high and increasing burden of cardio embolic strokes, particularly from China and the Middle East (Mehndiratta et al., 2014). In Bangladesh, one study estimated a total prevalence of 3 per 1,000 population, rapidly increased highly with 10 per 1,000 in people above 70 years of age (Wasay et al., 2014). According to some Indian studies the proportion of stroke occurance below age 40 is about 10–15% (Mehndiratta et al., 2014).

Elderly patients are at higher risk of mortality, poorer functional outcomes, history of prolong hospital stay, and institutionalization. Risk factors related to increased fall risks in stroke survivors include poor general health, time from first stroke, psychiatric problems, urinary incontinence, pain, motor impairment, and a history of recurrent falls (Lui & Nguyen, 2018).

The association of neuropsychiatric disorders with cerebrovascular disease includes depression, anxiety disorder, apathy, cognitive disorder, mania, psychosis, pathological affective display, catastrophic reactions, fatigue, and anosognosia. The first exploratory studies of post-stroke depression (PSD) has included studies conducted by researchers such as Martin Roth clarify the correlation between atherosclerotic disease and depression, and Folstein et al., proved that depression was significantly more common in patients with stroke compared with patients with comparable physical impairments due to orthopedic injuries. The first systematic longitudinal study of post stroke depression found out the positive association of severity of impairment in activities of daily living, social functioning, and cognitive function with the history of post stroke depression. A study published in 1984 on Brain first deter fined a predominant increase in both major and minor depression among patients with left anterior strokes compared with strokes affecting other locations (Robinson & Jorge, 2016).The most common result of stroke is post stroke depression (PSD) that occurs within 3 months of a stroke among 30% of stroke patients. Patients with post stroke depression often suffering from anxiety, cognitive impairment and increased number of death within 10 years (Vahid-Ansari & Albert, 2017).

Around a quarter of stroke and nearly a third of transient ischemic attack (TIA) are commonly suffered from anxiety. It can hamper stroke rehabilitation effort and limit patients probability of returning to their activities of daily living. In earlier observations reported that phobic anxiety might be present after stroke (Chun et al., 2018).As well as physical disability, Individuals with stroke may experience several physiological consequences. For example, different mood disorders, which can compromise the rehabilitation process and impact long-term recovery. It is predicted that at some point in life every fourth individual will experience an anxiety disorder, which can be a natural or vital, reaction to coping with stress and life-threatening events. Anxiety means something that feels uncomfortable, with feelings disappointed, boredom, worry, despair, and guilt all fitting within this thought. Anxiety is a type of fear or worry according to a psychological perspective aspect. Physical aspect of anxiety including stress, internal pressure or restlessness, feelings

of discomfort. A low level of anxiety is often expressed as worry or trouble, while a higher level often described as fear or panic (Rafsten et al.,2018).

1.2 Rationale

Stroke is a common neurological condition, mostly seen in developing country. Day by day there is increasing the number of stroke patients. Stroke affects an estimated 17 million people each year globally. The prevalence of stroke is 0.3% in Bangladesh. It is the third biggest reason for mortality.

40% of patients who survive a stroke are left with moderate disabilities and 15 - 30% with severe disabilities. Stroke is also related to post stroke depression and anxiety. Post stroke depression develops about 25-75% of patients. Anxiety is common, affecting around a quarter of stroke.

Many patients who face depression and anxiety after stroke do not want to receive treatment because they think they are the burden of family and society. So, it is important to explore their psychological level and motivate them to treatment.

In Bangladesh, there is no evidence of psychological status (Anxiety ,depression level) of stroke survivors. The main focus of the study is to determine the outcome of functional activity, anxiety and depression level of both type of stroke survivors which will beneficial for them, their caregivers and also for physiotherapist because they will inform about patient's psychology.

1.3 Research Question

What are the functional and psychological outcome of stroke survivors attended at CRP?

1.4 Aim of study

To identify the functional and psychological outcome of stroke survivors attended at CRP.

1.5 Conceptual framework

Independent variable **Dependent variable**

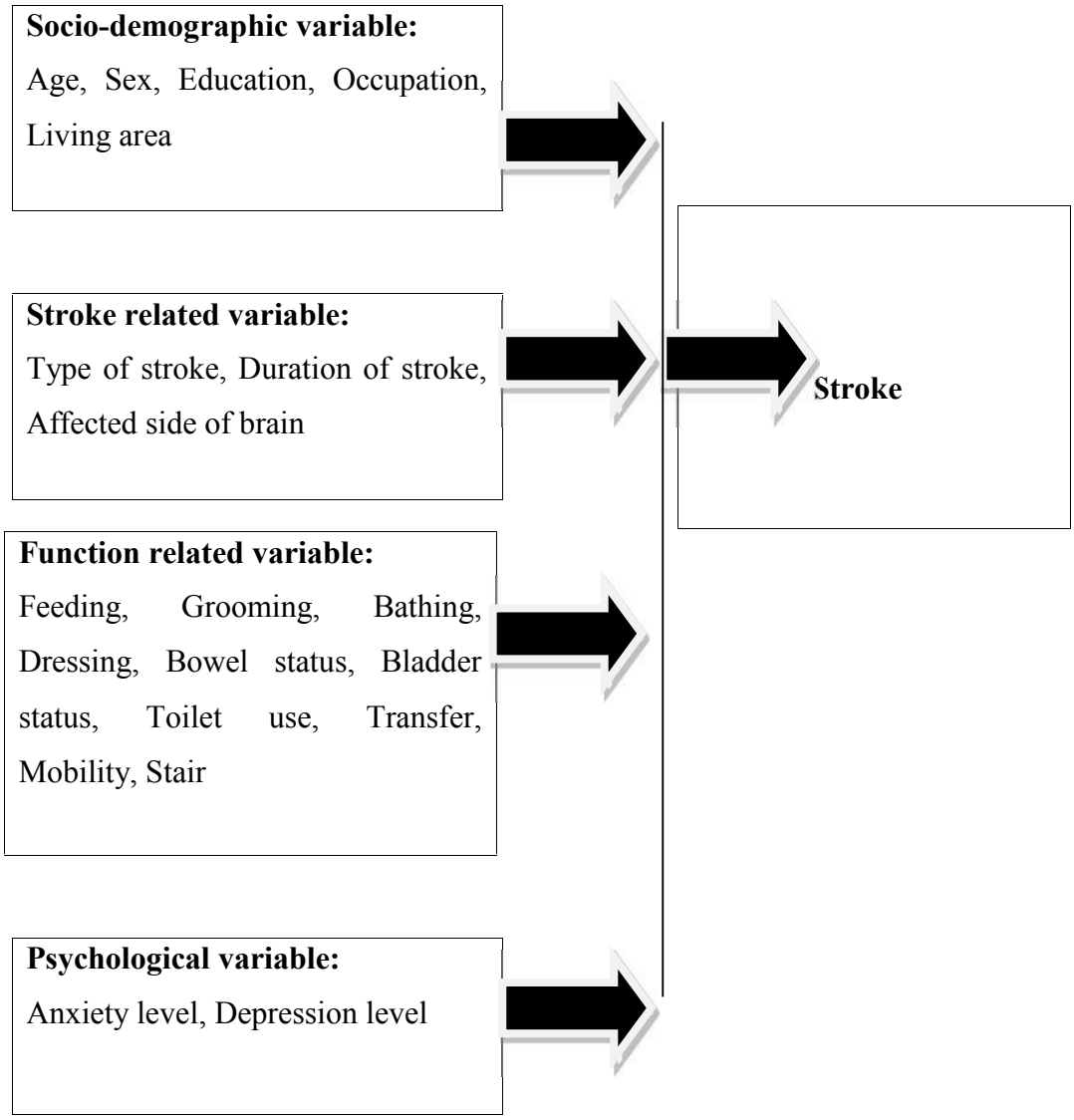

Table-1.5: Conceptual framework

1.6 Objectives

1.6.1 General objective

- To identify functional and psychological (Anxiety and depression level) outcome of stroke survivors attended at CRP.

1.6.2 Specific objectives.

- To determine the socio demographic information of the stroke survivors.
- To explore the anxiety level among the stroke survivors.
- To find out depression status among the stroke survivors.
- To find out the functional outcome of stroke survivors.

1.7 Operational Definition

1.7.1 Stroke

The World Health Organization (WHO) definition of stroke is: "rapidly developing Clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin".

1.7.2 Functional outcome

Functional outcome distinguishes itself from clinical outcome, focused instead of an individual's recovery in areas such as vocational and social functioning rather than symptom resolution.

Functional outcomes are the results of care that define how a patient is able to perform activities of daily life.

1.7.3 Anxiety

Anxiety is an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure. People with anxiety disorders usually have recurring intrusive thoughts or concerns. They may avoid certain situations out of worry.

A feeling of apprehension and fear, characterized by physical symptoms such as palpitations, sweating, and feelings of stress.

1.7.4 Depression

Depression is a common mental disorder, characterized by persistent sadness and a loss of interest in activities that you normally enjoy, accompanied by an inability to carry out daily activities, for at least two weeks.

Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Also called major depressive disorder or clinical depression, it affects how you feel, think and behave and can lead to a variety of emotional and physical problems.

CHAPTER - I I LITERATURE REVIEW

Cerebrovascular accidents/strokes are a public health issue, which is common and serious problem worldwide. Globally, strokes have high mortality and morbidity rates (Whitehead & Baalbergen, 2019). Stroke is the third biggest reason for mortality and has a massive emotional effect on clients and the members of their family and is the most common reason of severe bodily disability affecting approximately 40% of the patients (Varghese & Barboza, 2018). Globally, in 2004 stroke affected 15 million people per annum, killed 5 million and left 5 million survivors with permanent disability (Van der Riet et al., 2015).

Stroke is a leading cause of death and disability. While stroke mortality rates are decreasing due to improved medical treatment of the complications caused by acute stroke, the number of individuals living with the residual effects of stroke is rising. Currently, over 75% of patients survive a first stroke, and, of these individuals, 25% are left with a minor disability and 40% experience moderate-to-severe disabilities. Furthermore, stroke patients are at high risk for future vascular events, including recurrent stroke, putting them at a greater risk of death and further disability (Ovbiagele et al., 2014).Globally, about 16 million new cases of stroke and 62 million stroke survivors were estimated in 2005, and this is expected to increase to over 23 million new stroke cases and 7.8 million stroke deaths by 2030 in the absence of significant global public health response (Yau et al., 2016).

According to Duncan et al., 40% of patients who survive a stroke are left with moderate disabilities and 15 - 30% with severe disabilities. It can be assumed that the greatest health effect and financial burden on stroke survivors and their families are the possible long-term disabling effects (Whitehead & Baalbergen, 2019). Many studies show that in addition to the psychosocial stress, neurobiological factors such as site of infarct and brain atrophy may also be related to Post Stroke Depression (PSD). Depression is a debilitative complication of a stroke with repeated occurrences, ranging from 18% to 61% of depressive disorders among the stroke survivors affecting approximately 40% of the patients. Many studies show that in addition to the psychosocial stress, neurobiological factors such as site of infarct and

brain atrophy may also be related to Post Stroke Depression (PSD). PSD is a serious complication and initial or late stages of significant symptoms of depression are reported by about one third of stroke survivor's. The current advances in modern medical and evolving life expectancy have led to a reduction in mortality and the succeeding upsurge in patients having strokes with disabilities and impairment, which affects the survivor's quality of life significantly. Studies suggest that people with stroke having depression is dramatically more predominant and is related to the total population (Varghese & Barboza, 2018).

There are a variety of neuropsychiatric sequelae after stroke – the most common being depressive symptoms. Post-stroke depression develops in 25 - 75% of patients. However, it is not unusual for stroke patients to experience periods of emotionalism. Feelings of fear, anxiety, a sense of grief for their physical losses/changes, as well as other symptoms similar to those seen in depression might manifest. These normally dissipate with time and can be adequately managed with the support of the interdisciplinary team, including counsellors. It is therefore important to include a psychologist or counsellor on the team. If the above mentioned symptoms persist and interfere with a patient's other therapies, given the commonality of post-stroke depression, the rehabilitation physician should have a high index of suspicion for making the diagnosis. Subsequent pharmaco therapeutic management with selective serotonin reuptake inhibitors or heterocyclics is usually warranted and referral to a psychiatrist might be needed (Whitehead & Baalbergen, 2019).

Anxiety is common, affecting around a quarter of stroke and nearly a third of transient ischemic attack (TIA). It can hamper stroke rehabilitation effort and prevent patients from returning to their usual activities. Despite earlier observations that phobic anxiety might be present after stroke, intervention studies have treated anxiety post stroke as one unitary phenomenon and evaluated general approaches, such as relaxation and antidepressants, which are unlikely to be effective in phobic anxiety. Clinical trials have not yielded any definitive evidence to guide treatment for anxiety after stroke. It is well recognized in non stroke populations that phobic disorder and generalized anxiety disorder (GAD) need different treatment approaches (Chun et al., 2018).

Post stroke depression (PSD) affects approximately one third of ischemic stroke survivors, is often undiagnosed and inadequately treated, and is associated with increased morbidity and mortality after stroke. Depression screening after stroke is

thus important but can be complicated by cognitive and physical symptoms of stroke that may introduce additional variability in assessment of depressive symptoms and depression diagnosis. Although several established depression screening instruments have been validated in stroke cohorts, these scales can be burdensome for patients to complete, require a trained interviewer to administer, and often are designed only for screening and not as a diagnostic depression tool. The Patient Health Questionnaire 9-item depression scale (PHQ-9) is a 9-item self-administered depression screening and diagnostic tool increasingly used in primary care and other medical populations. Although it has excellent measurement properties in other settings, it has not been previously validated in patients with PSD. The purpose of this study was to examine the performance of the PHQ-9 as a screening and diagnostic instrument for assessing depression in ischemic stroke survivors (Williams et al., 2005). Depression makes an important contribution to poor quality of life. It occurs in approximately one third of stroke survivors in the first months after stroke and antidepressant medication is widely used in clinical practice, but we know little about the longer-term effects of depression, or its treatment, on functional outcomes. One reason may be that the definition and measures used to characterize psychological disorder have an influence on findings (West et al., 2010).

Emotional problems that can occur after stroke. Common problems include depression and anxiety. Emotional lability, a “catastrophic reaction”, anger, aggression, frustration and apathy are also evident. Post-traumatic stress disorder and fear of falling are further concerns. Depression occurs in approximately 30% of people post stroke. It is distressing for the individual, and depression is associated with longer hospitalisation, institutionalisation, poorer functional outcome, and mortality. Anxiety disorders include generalised anxiety disorder, panic attacks, and post traumatic stress disorder. Some 22% to 28% of stroke patients are affected by generalised anxiety disorder .The rate of panic disorder is not known. Post traumatic stress reactions appear in between 10% and 30% of patients .Up to 60% of those with stroke can develop a fear of falling and this has been associated with poorer physical function and a history of falls (Kneebone & Lincoln, 2012).

In Bangladesh, stroke has been ranked as the third leading cause of death after coronary heart disease and infectious diseases such as influenza and pneumonia. The

mortality rate of stroke increased from 6·00% (in 2006) to 8·57%, (in 2011) with an age-adjusted mortality rate of 108·31 per 100 000 people (in 2011). The World Health Organization (WHO) ranks mortality due to stroke in Bangladesh as number 84 in the world. The WHO reported that the number of disability-adjusted life years (DALY) lost (per 1000 people) because of stroke was 485, while the age-standardized DALY rate (per 100 000 people) for stroke was 864. These numbers indicate that stroke will have a great economic burden in Bangladesh in the future. The situation is compounded by the fact that 40·30% of Bangladeshi are already reported to be living in poverty. The prevalence of stroke has been estimated from a community study involving 15 627 participants aged 40 years and older. Stroke prevalence were reported as 0·20%, 0·30%, 0·20%, 1·00%, and 1·00% for the age groups 40–49 years, 50–59 years, 60–69 years, 70–79 years, and 80 years and above, respectively. The overall prevalence for stroke was 0·30%, and the ratio of male: female patients was 3·44 : 2·41(Islam et al., 2012).

In South Africa (SA), stroke is a leading cause of morbidity. In recent years, advances in medical management of acute strokes have resulted in a decrease in the global mortality rate of strokes, but despite this, many survivors remain with significant impairments (Whitehead & Baalbergen, 2019). Stroke mortality rates have fallen by 40% in developed countries in recent decades. Approximately 110 000 people have a stroke each year in UK with over 900 000 alive having survived a stroke .A substantial proportion of these patients are left with significant residual disability, including hemiparesis in almost one-half of patients. Consequently, one of the greatest health effects for patients, their families and the economy results from the long-term physical and cognitive consequences of stroke. By 2030, stroke prevalence is expected to increase by 25% in the USA, largely due to an ageing population. This change in population demographics will result in increased demands on health services as stroke in older people often result in more severe functional loss (Brewer et al., 2012).

In Thailand, stroke is the third leading cause of death. Current predictions up to 2050 are for a considerable increase in the numbers of stroke patients worldwide. Despite improvements in primary prevention, the consequences of stroke remain devastating

for many survivors: within 12 months of stroke around 50% of survivors are dependent on others to help with self-care and personal activities of everyday living .This places a significant demand on health systems through hospital readmissions, need for community support and use of rehabilitation resources. Stroke survivors live with the consequences of stroke, not only in terms of functional impairments but also in terms of reduced social interactions (Van der Riet et al., 2015).

Stroke affects an estimated 17 million people each year globally, a number projected to increase as a result of demographic changes and a greater number of people living to older ages where the risk of stroke is greatest. The Global Burden of Disease study has estimated that despite falling age- standardized rates of incident stroke, the number of strokes occurring worldwide increased by 68%. For many survivors and their families, this results in living a life affected by the long-term consequences of stroke, such as physical disability, cognitive impairment, fatigue and psychological problems such as depression and anxiety. Stroke is therefore shifting away from being a major killer to becoming a long-term (chronic) condition with multiple impacts on individuals, health systems and society (Crichton et al., 2016).

The brain can be divided into four main areas: the left/dominant hemisphere, the right/non-dominant hemisphere, the cerebellum and the brainstem (both the cerebellum and brainstem fall within the area known as the posterior fossa). These divisions make it easier to list and discuss the possible effects of stroke. The disabling effects of a stroke are dependent on the affected areas of the brain. By far the most common result of stroke is motor impairment, affecting ~80% of patients; it involves weakness of the face, arm and leg (in varying degrees) on one side of the body. The Oxford shire stroke classification simplifies syndromes into either hemorrhage or infarct and localises clinical presentations according to the area of damage. The broad divisions are: total anterior circulation stroke (TACS), partial anterior circulation stroke (PACS), lacunar stroke (LACS) and posterior circulation stroke (POCS).These clinical stroke syndromes have a mix of neurological presentations (hemi paresis, sensory changes, visuospatial problems and cognitive impairments), and functional outcomes can be predicted according to the various syndromes described (Whitehead & Baalbergen, 2019).

The incidence of stroke is increasing in developing countries because of demographic and epidemiologic transitions. Conversely, advances in diagnosis and management of

acute stroke have also improved survival in hospital settings, resulting in an increased number of individuals living with different physical, cognitive, or affective sequelae of stroke. Functional outcomes of stroke in physical, cognitive, and affective domains have been primarily studied in clinical settings of developed countries, but such studies are limited in developing nations. It is essential to understand the time line and the local factors associated with stroke outcome to identify the focus of rehabilitation services (Ghosal et al., 2014).

The burden of stroke is large and increasing worldwide, with notable ethnic/racial disparities. Effective primary stroke prevention strategies are therefore critical in ageing populations and where there is increasing numbers of people surviving with stroke-related disability and ongoing risk. However, because of the considerable challenges to determining temporal trends in incidence and outcome of stroke, there is limited information on the impact of declines (or increases) in rates and case fatality in whole populations. This leaves uncertainties regarding the impact of public health policies and improvements in health service delivery for this important disease (Feigin et al., 2015).

ICH is associated with a higher risk of fatality compared with cerebral infarction and approximately half of all patients with primary ICH die within the first month after the acute event. Additionally, patients who are aged 85 and above, compared to younger patients, tend to experience higher clinical severity (moderate or severe neurological deficit at time of hospital discharge of 89% versus 58%) and greater in-hospital mortality rate (50% versus 27%).Those who suffer ischemic strokes have a much better chance for survival than those who experience hemorrhagic strokes, as hemorrhagic stroke not only damages brain cells but also may lead to increased pressure on the brain or spasms in the blood vessels. Of note, there are three main processes implicated in neuro recovery: angiogenesis, neurogenesis, and synaptic plasticity. These processes are naturally produced in adult brains subsequent to intensive rehabilitation, which could promote an endogen neuro repair phenomenon. The relation to lesion location has been inconsistently reported to impact recovery, some research showing that stroke recovery was worse with deep subcortical strokes rather than superficial cortical areas and other studies showing the opposite outcome. Stroke severity appears to be an influential factor in predicting outcome. In one study, stroke type had no influence on mortality, neurological or functional outcome, or time

course of recovery, with initial stroke severity, the most important factor. The authors concluded that poorer prognosis in those with ICH is due to the increased frequency of those ICH who experienced increased stroke severity. Similarly, in another study, those with more severe ICH exhibited significantly greater recovery than those with CI of a similar CVA severity (Perna & Temple, 2015).

After stroke, the long-term effect is determined by the site and size of the initial stroke lesion and by the extent of subsequent recovery. Stroke can result in a large variety of symptoms and signs but the most common and widely recognized impairment caused by stroke is motor impairment, which typically affects the control of movement of the face, arm and leg of one side of the body and affects 80% of patients to varying degrees. (Brewer et al., 2012). Both ischemic and primary intracerebral hemorrhage are increasing in low to middle income populations in parallel with their rising prevalence of stroke risk factors including diabetes, hypertension and atrial fibrillation. While Western countries experienced a 42% decrease in stroke incidence over the past 20 years, India and China reported substantial increases in stroke incidence over the same time period, with higher reported rates of intracerebral hemorrhage than in North America.

Compared to Chinese and white patients, South Asian patients were younger at the time of both ischemic stroke and intracerebral hemorrhage. Stroke risk factors also differed by ethnicity. In those with ischemic stroke, Chinese patients were more likely to have atrial fibrillation whereas South Asians were more likely to have diabetes compared to other ethnic groups. In those with primary intracerebral hemorrhage, white patients were less likely to have hypertension and South Asian patients were more likely to have diabetes compared with the other groups.

Stroke incidence varied by ethnic group that depicts ethnic differences in 2010 and that depicts rates 1997±2010). Chinese persons had a substantially lower incidence of ischemic stroke, followed by South Asian and white patients that had higher rates of ischemic stroke. For primary intracerebral hemorrhage, stroke rates were highest among Chinese and generally similar between South Asian and white patients. The incidence of both age standardized ischemic stroke and intracerebral hemorrhage was generally higher in men than women across ethnic groups (Khan et al., 2017).

World stroke incidence studies have shown that there has been a 42% decrease in stroke incidence in high-income countries and more than a 100% increase in low-to

middle income countries. Early stroke case fatality has decreased in both high-income and low-to middle-income countries. Despite the increase in stroke incidence, the decrease in mortality rate leads to an increase in people living with disabilities. Therefore, stroke constitutes the leading cause of serious, complex, and long-term adult disability. Although 15–30% of the stroke survivors become permanently disabled, 50–70% of stroke patients regains functional independence and mostly regains walking ability (Yatar & Yildirim, 2015).

Stroke prevalence is escalating in countries that are developing due to a greater incidence, increasing risk factors, and advancing age. Around the globe, prevalence of Post stroke depression (PSD) varies widely, and in reports, this varied disparity is due to causes including ethnicity, sample size, assessment, and the intervals between strokes and in the selection of case and tools used and their methodological differences; hence the accurate prevalence of Post stroke depression (PSD) remains arguable essential to determine its prognosis, are lacking from developing countries. This prospective study was undertaken to assess the prevalence, natural history, and correlates of depression among SS in an Indian community. Prevalence of PSD was 36.98% (95% confidence interval [CI]: 31.89%- 42.06%). PSD is a routine consequence that is deteriorating and disabling the prognosis, hence, its study is of crucial importance to prevent its future and unfavourable consequences among stroke survivors (Varghese & Barboza, 2018).

The risk factors present in the stroke cases included hypertension (present in 58·62% of the stroke cases), cigarette smoking (53·79%), lipid disorder (48·01%), heart diseases (25·75%), DM (20·01%), and previous history of stroke (10·61%). In another study, the risk factors for stroke were investigated in 85 young patients (aged 14 to 45 years) hospitalized at the DMCH between January 2008 and July 2009. The majority (61·18%) suffered from an IS, while others had intracerebral haemorrhage (29·40%), subarachnoid haemorrhage (8·24%), or aneurysm (1·18%). The common risk factors for both IS and HS were hypertension (60·00%), hypercholesterolaemia (38·80%), diabetes (35·20%), smoking (32·90%), premature atherosclerosis (8 .20%), and oral contraceptive use (3·8%) (Islam et al., 2012).

CHAPTER-III METHODOLOGY

3.1 Study design

Here cross sectional study design was used for the study.

3.2 Study area

The researcher was collected data from the Neurology unit, Department of physiotherapy, CRP, Savar, Dhaka 1343. Stroke patients those who are treating here. It was easy for the researcher to gather information from the patients with Stroke.

3.3 Study Duration: The study was conducted from 21st April to 31st May 2019.

3.4 Study population

The study populations were people with stroke and sample population were those who came to CRP to receive treatment.

3.5 Sample size

A sample was a smaller group taken from the population. Sometimes the sample size may be big and sometimes it may be small, depending on the population and the characteristics of the study. According to the prevalence of stroke, estimated sample size 322.

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

(Where **z=1.96, p= 0.3, q= 1-p, d=0.05**). So total sample size will be 322.
Sample size for this study was 102.

3.6 Sampling procedure

The study was conducted by using the purposive sampling methods due to the time limitation and as it was the one of the easiest, cheapest and quicker method of sample selection. The researcher used this procedure, because getting of those samples whose criteria were concerned with the study purpose. Participants were chosen purposively because the participants had some particular features or characteristics which was

enable detailed exploration of the research objectives. 102 subjects were selected for the study according to the inclusion and exclusion criteria, because it was not possible to study the total population within the time. This method contained some inclusion criteria to select the participant.

3.7 Inclusion criteria

- Patients with stroke who were admitted in CRP.
- Voluntary participation.
- Both ischemic and hemorrhagic types of stroke were included.
- Age 21-60 years.
- Both right and left sided hemiplegic patient are included.
- Male and Female patient with CVA.
- Duration of stroke above 2 month.

3.8 Exclusion criteria

- Physically and mentally unstable patient.
- Patient suffering from serious pathological disease. e.g. tumors, tuberculosis etc.
- History of previous stroke.
- Duration of stroke more than 1.5 years.
- Any other neurological deficits as multiple sclerosis, parkinson's disease ect.
- Uncooperative patients.

3.9 Data Collection

3.9.1 Data collection instrument

A semi structured questionnaire and demographic information chart was used as a data collection instrument. In that time some other necessary materials were used like pen, pencil, and white paper and clip board. The English questionnaires were converted into Bengali to ask the participants during interviews. Researcher must took permission from each volunteer participant by using a written consent form in Bengali.

Measurement tools

Barthel Index (BI) scale, Patient Health Questionnaire (PHQ -9), Generalized Anxiety Disorder (GAD-7).

Barthel Index

The Barthel Index is a scale that indicates the ability to perform a selection of activities of daily living. It comprises 10 items (tasks), with total scores ranging from 0 (worst mobility in activities of daily living) to 100 (full mobility in activities of daily living) and it has adequate clinimetric (quality of clinical measurements) properties in stroke rehabilitation. In the index, the 10 items have these scoring combinations: a) 0 and 5, b) 0, 5 and 10, or c) 0, 5, 10 and 15.

These items in the Barthel Index address a patient's ability in feeding, bathing, grooming, dressing, bowel and bladder control, toileting, chair transfer, ambulation and stair climbing.

Patient Health Questionnaire (PHQ -9)

The Patient Health Questionnaire 9-item depression scale (PHQ-9) is a 9-item self-administered depression screening and diagnostic tool increasingly used in primary care and other medical populations.

The PHQ-9 can be used as a screening tool, with summed score ranging from 0 (no depressive symptoms) to 27 (all symptoms occurring daily). The PHQ-9 can also be used as a diagnostic assessment, with major depression diagnosed if 5 or more of the 9 symptoms have been present at least more than half the days of the past 2 weeks and 1 of these symptoms is either depressed mood.

Scores 1 to 4 represents minimal depression, scores of 5 to 9 represents patients with mild depression, scores of 10 to 14 represents moderate depression, moderately severe depression is scored by 15 to 19 and scores 20 to 27 usually indicated severe depression.

Generalized Anxiety Disorder (GAD-7)

A 7-item anxiety scale (GAD-7) had good reliability, as well as criterion, construct, factorial, and procedural validity. A cut point was identified that optimized sensitivity (89%) and specificity (82%). Increasing scores on the scale were strongly associated with multiple domains of functional impairment.

Scores 1 to 5 represents minimal anxious, scores of 6 to 10 represents patients with mild anxious, scores of 11 to 15 represents moderate anxious, and scores 16 to 21 usually indicated severe anxious.

3.9.2 Procedure of data collection

Data were collected directly using questionnaire. At very beginning researcher clarified that the participant had the right to refuse to answer of any question during completing questionnaire. They could withdraw from the study at any time. Researcher also clarified to all participants about the aim of the study. Participants were ensured that any personal information will not be published anywhere. Researcher took permission from each volunteer participant by using a written consent form. After getting consent from the participants, semi structured questionnaire was used to collect demographic informations and other specific information related to functions and psychology. Questions were asked according to the Bangla format. For conducting the interview, the researcher conducted a face to face interview and asked questions. Interviewee asked questions alone as much as possible with consent as sometimes close relatives could guide answer for them. The researcher built report and clarified questions during the interview. Face to face interviews are the most effective way to get full cooperation of the participant in a survey. Face to face interviews were also effective to describe about functional and psychological status among the population. According to the participants' understanding level, sometimes the questions were described in the native language so that the patients can understand the questions perfectly and answer accurately. All the data were collected by the researcher own to avoid the errors.

3.10 Data Analysis

Descriptive statistics was used to analyze data. Descriptive statistics refers methods describing a set of results in terms of their most interesting characteristics. Statistical analysis was performed by using statistical package for social science (SPSS) version 20. Every questionnaire was rechecked for missing information or unclear information. At first put the name of variables in the variable view of SPSS and the types, values, decimal, label alignment and measurement level of data. The next step was to input data view of SPSS. After input all data researcher checked the inputted data to ensure that all data had been accurately transcribed from the questionnaire sheet to SPSS data view. Then the raw data was ready for analysis in SPSS. Data are analyzed by descriptive statistics and calculated as percentage and presented by using tables, bar graphs and pie charts. Microsoft Office Excel 2007 was used to decorate bar graphs and pie charts. To find out the association among different variables chi square was performed.

Chi-Square (x2) test

Chi-Square (x2) test is the most popular discrete data hypothesis testing method. It is a nonparametric test of statistical significance for bivariate tabular analysis with a contingency table. Chi-Square test helps to analyze data come in the form of counts. This test can be applied to nominal or categorical data which can't be analyzed using the ranking technique.

3.11 Ethical Issues

The whole process of this research project was done by following the Bangladesh Medical Research Council (BMRC) guidelines and World Health Organization (WHO) Research guidelines. The proposal of the dissertation including methodology was presented to the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) for approval and the proposal was approved by the faculty members and gave permission initially from the supervisor of the research project and from the course coordinator before conducting the study. Again before starting data collection, researcher obtained permission from the head of physiotherapy department to access patient data based management and allow full involvement of physiotherapist who have been working in Neurological

physiotherapy department, CRP, Savar. The researcher strictly maintained the confidentiality regarding participant's condition and treatments. The researcher obtained consent from each participant to take part in this study. A signed informed consent form was received from each participant. The participants they decline answering any question during the study and were free to withdraw their consent and terminate participation at any time. Withdrawal of participation from the study did not affect their treatment in the physiotherapy department. Every subject had the opportunity to discuss their problems with the senior authority or administration of CRP and had any questioned answer to their satisfaction.

CHAPTER -IV RESULT

Data were analyzed by descriptive statistics and calculated as percentages and presented by using bar graphs, pie charts and tables.

Socio demographical information:

4.1 Age range of the participants

The study was conducted on 102 participants of having stroke. In the study the minimum age of a participant was 21 and maximum age of a participant was 60. Participants in between 21-30 years were 3, participants in between 31-40 years were 17, participants in between 41-50 years were 37 and 45 participants in between 51-60 years.

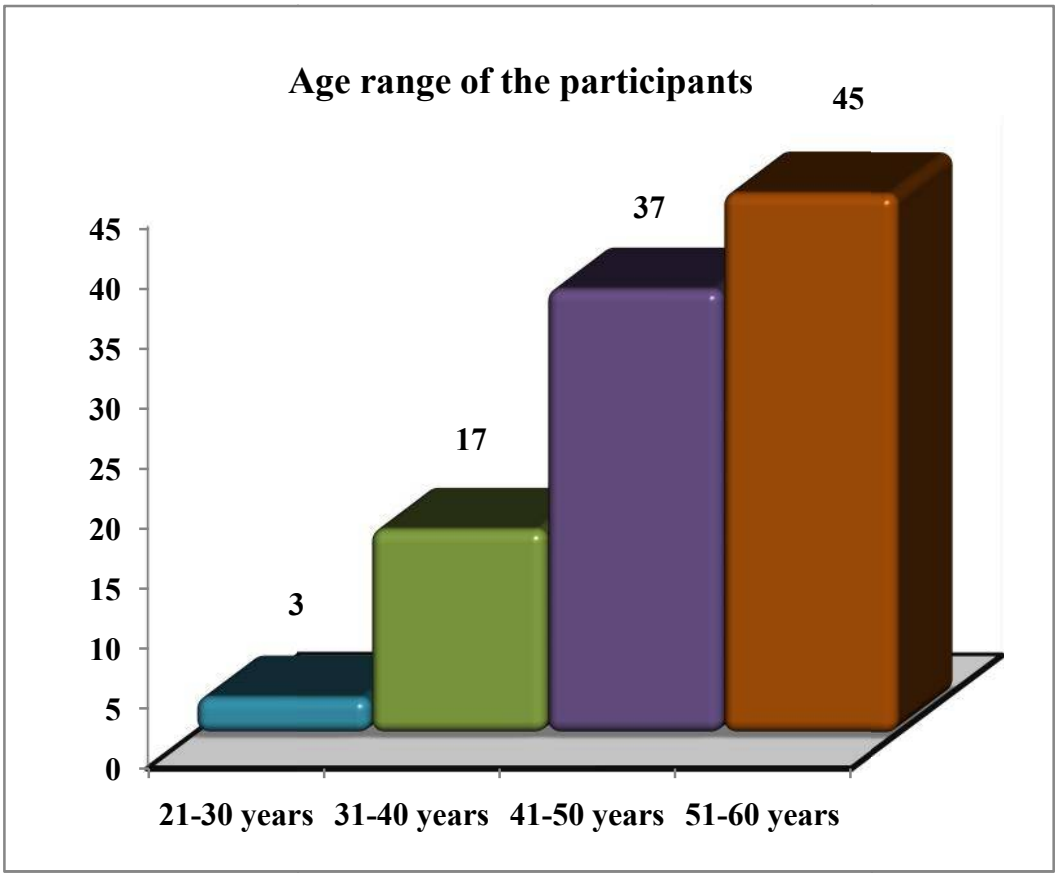

Figure -4.1: Age of the participants

4.2 Sex of the participants

In my study male were more than female. Among the 102 participants 70% (n=71) were male and 30% (n=31) were female.

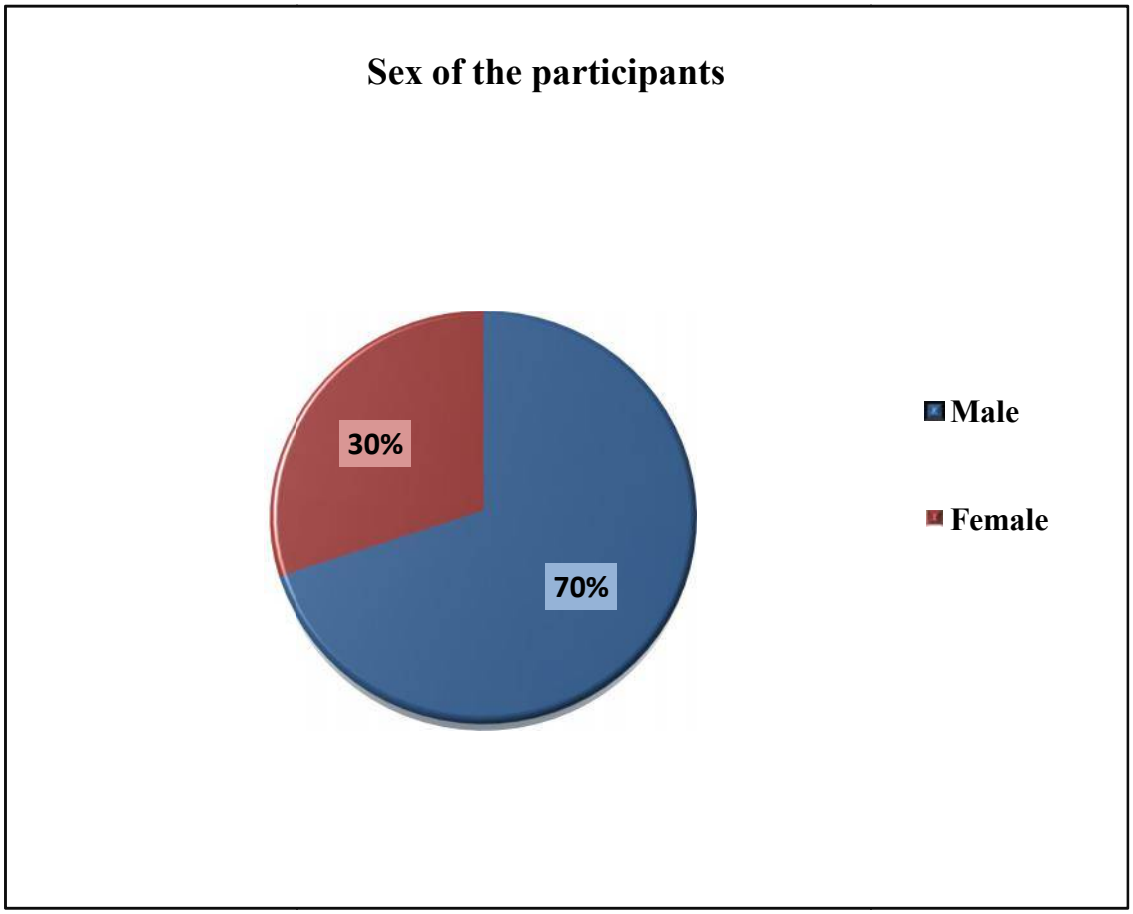

Figure- 4.2: Sex of the participants

4.3 Occupation of the participants

Among the participants 21 respondents were service holder, 22 respondents were housewife, 15 were businessman,4 participants were farmer , 6 were teacher, 3 participants were banker ,3 were advocate and 28 participants had found without any job or retired and others professions.

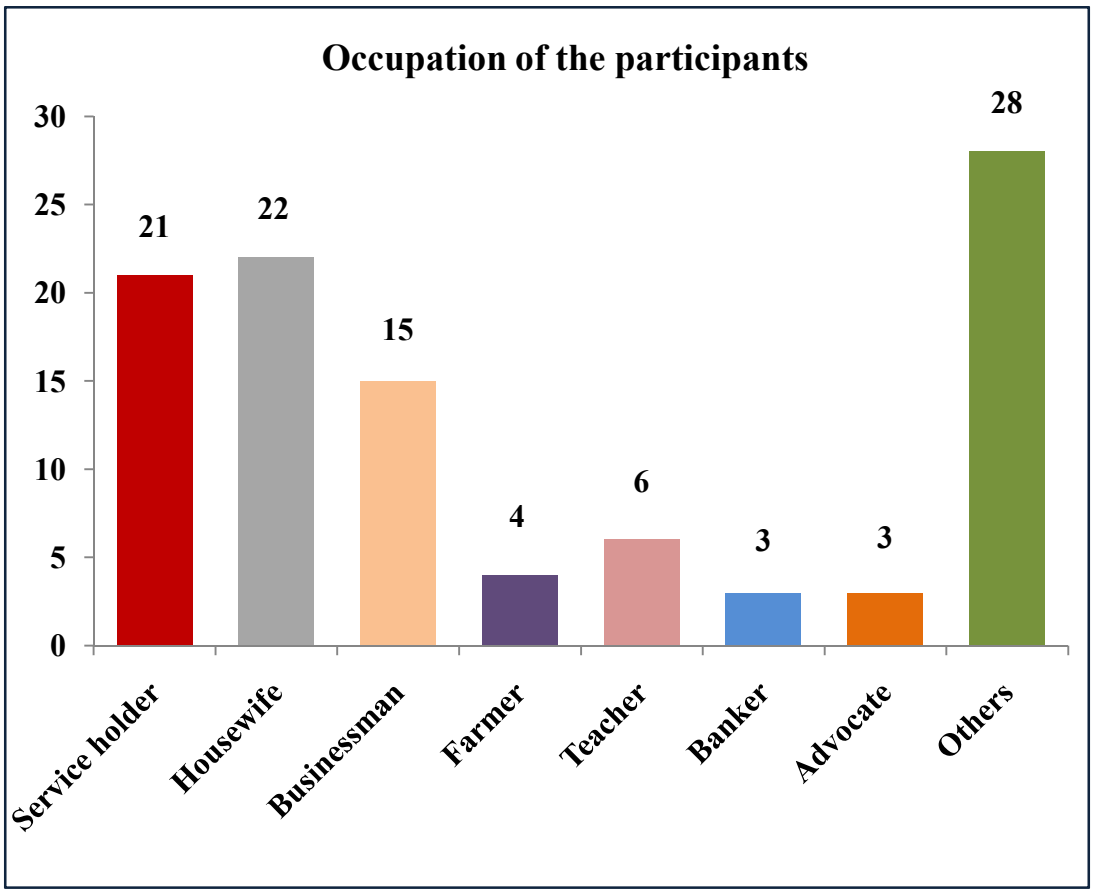

Figure-4.3: Occupation of the participants

4.4 Educational status of the participants

Among the 102 participants 8% (n=8) participants were no formal education/ Illiterate, 20% (n=20) participants were primary passed, 29% (n=29) participants were completed secondary education, 24% (n=24) participants completed HSC level, 21% (n=21) participants were completed bachelor degree or above.

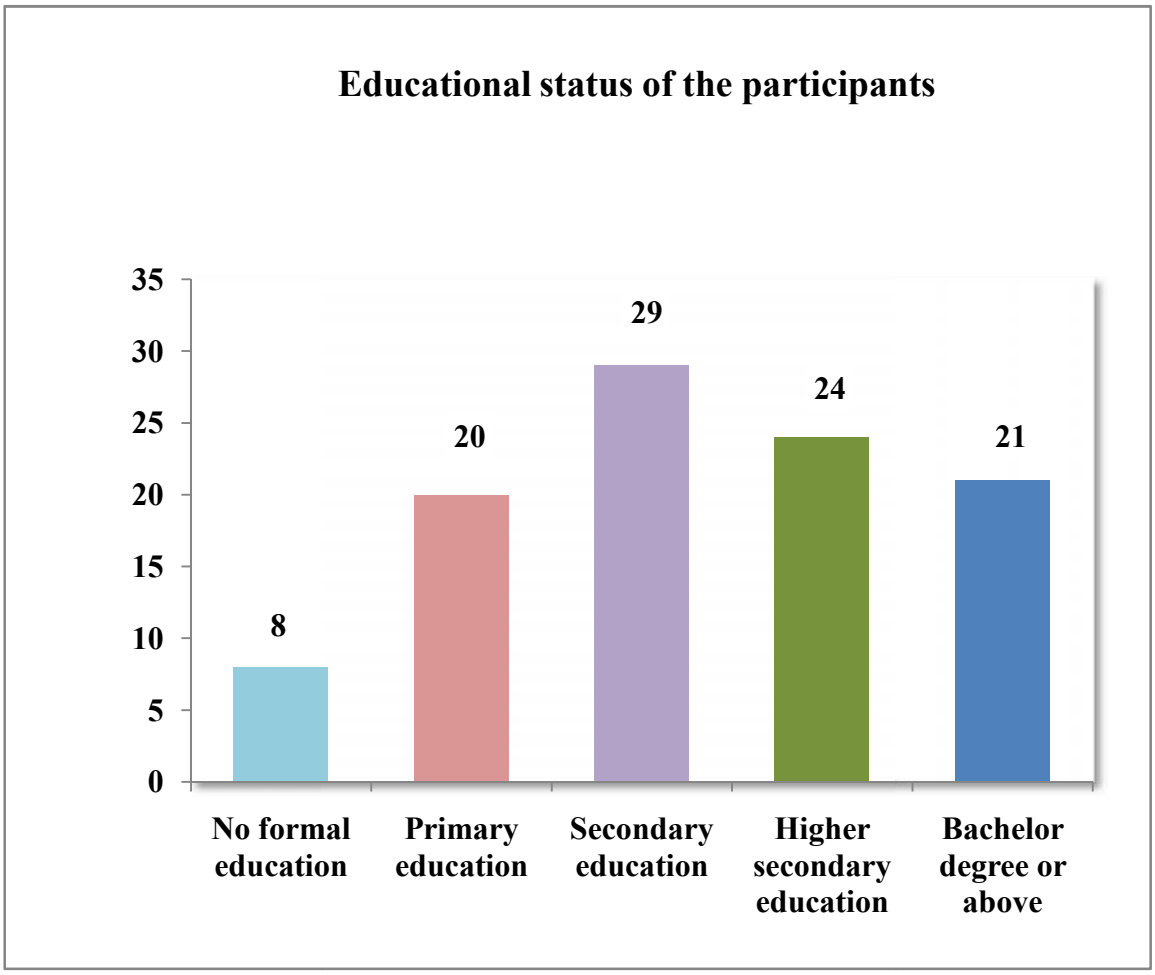

Figure-4.4: Educational status of the participants

4.5 Marital status of the participants

Among the 102 participants 97% (n=99) participants were married, 3% (n=3) participants were unmarried and no participants were widowed or divorced.

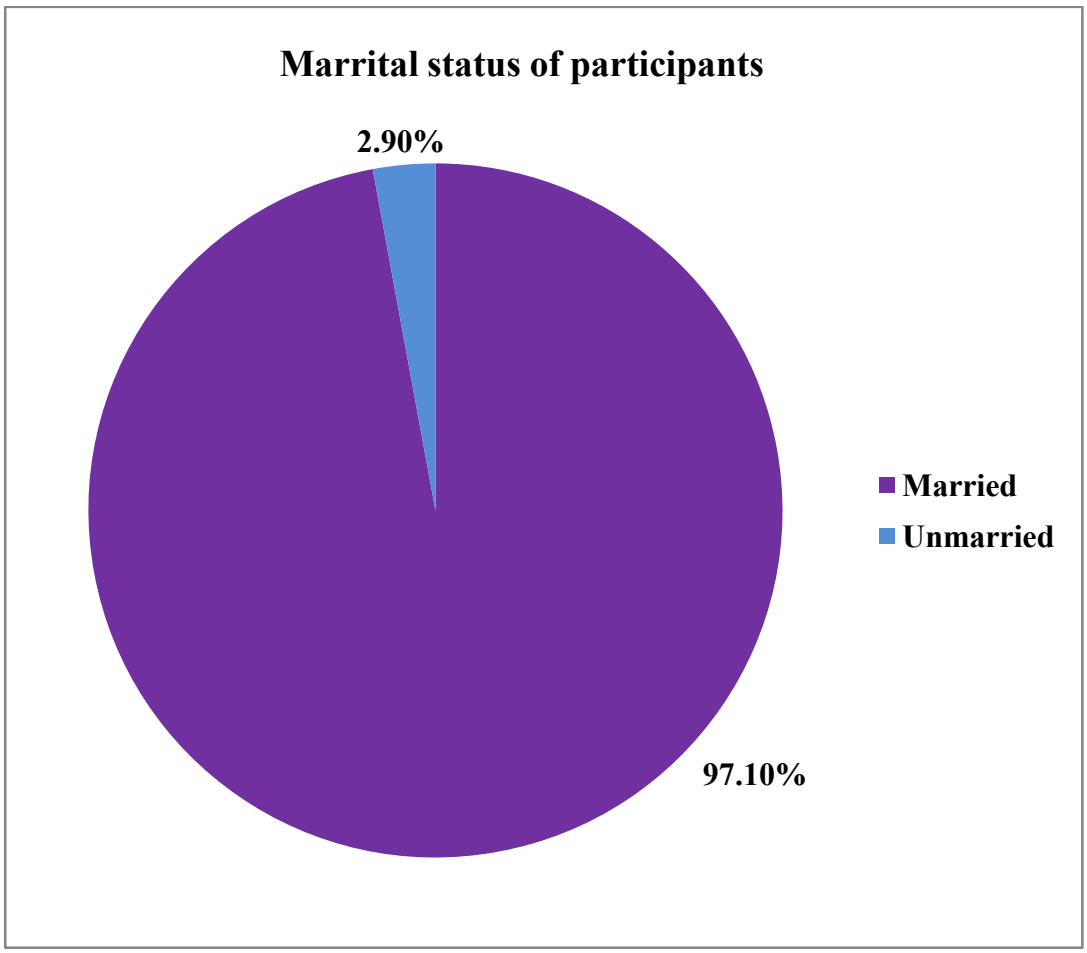

Figure-4.5: Marital status of the participants

4.6 Living area of participants

The pie chart showed that among the 102 participants it was found that 51% (n=52) were live in rural area and 48% (n=49) were live in urban area and 1% (n=1) live in hill tracks.

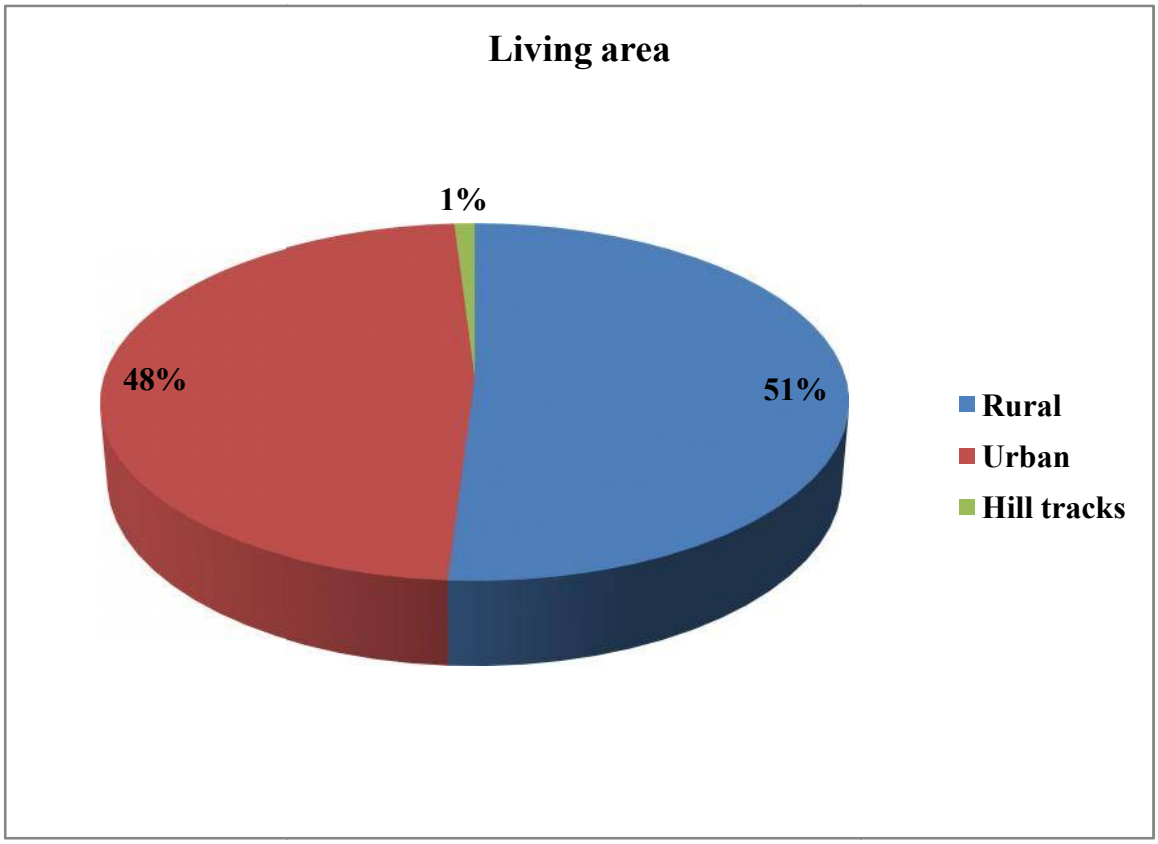

Figure-4.6: Living area of the participants

4.7 Family type

Among the 102 participants it was found that 80% (n=82) were lived in nuclear family and 20% (n=20) were lived in extended family.

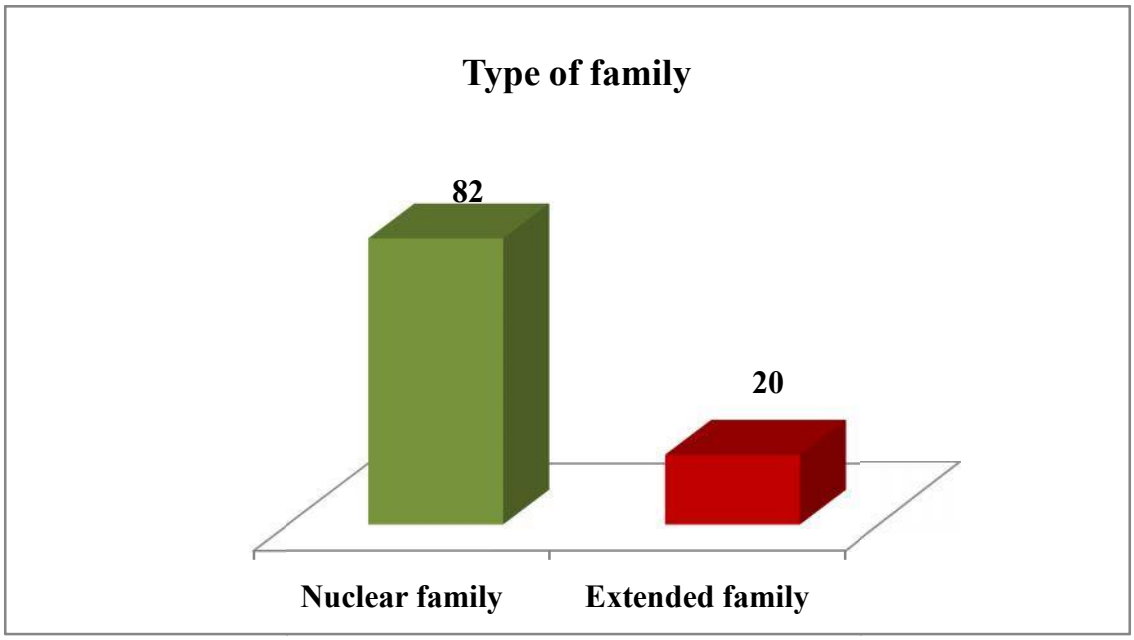

Figure-4.7: Family type of the participants

4.8 Monthly income of participants

Out of 102 participants, 26 whose income level is 10000-19000 taka, 24 participants earn in the range of 20000-29000 taka, 17 respondents earn 30000-39000 taka,8 participants earn 40000-49000 and 27 respondents of them earn > 49000 taka in a month.

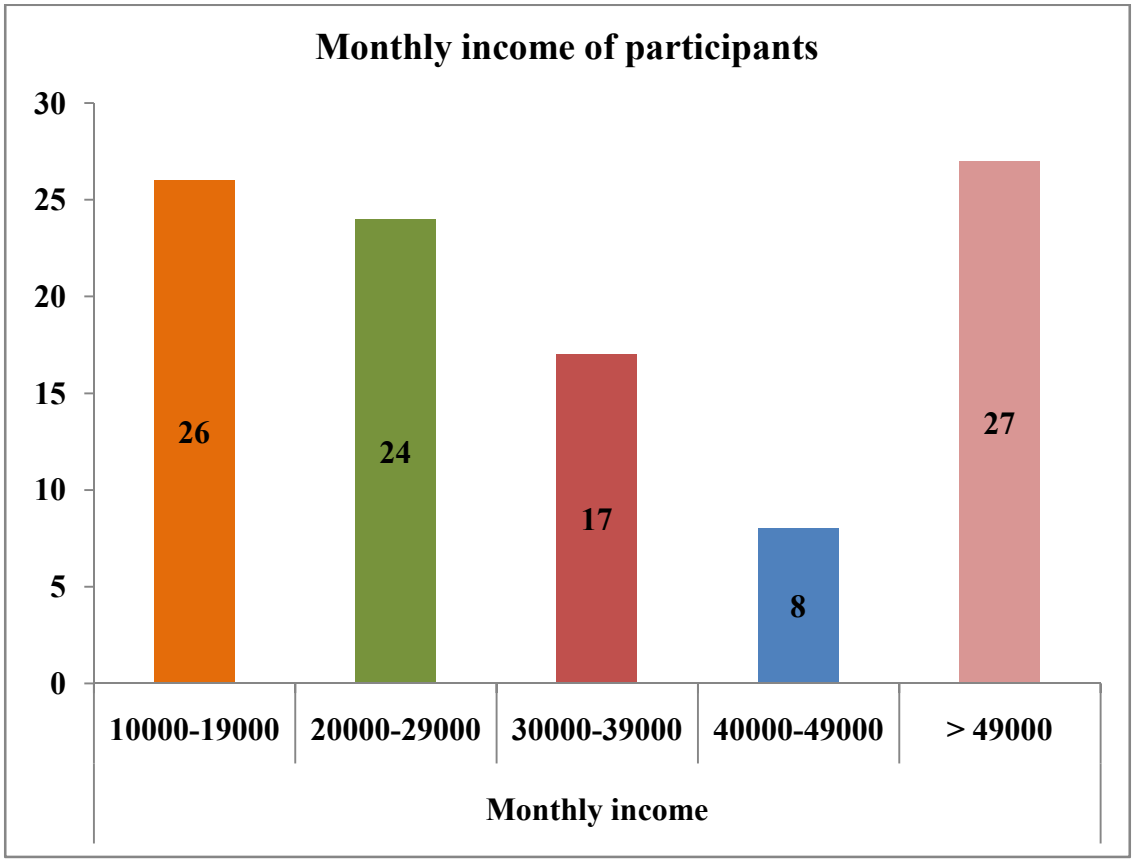

Figure-4.8: Monthly income of the participants

4.9 Type of stroke

From the 102 participants 72.50% (n=74) were affected by ischemic stroke and 27.50% (n=28) were affected by hemorrhagic stroke.

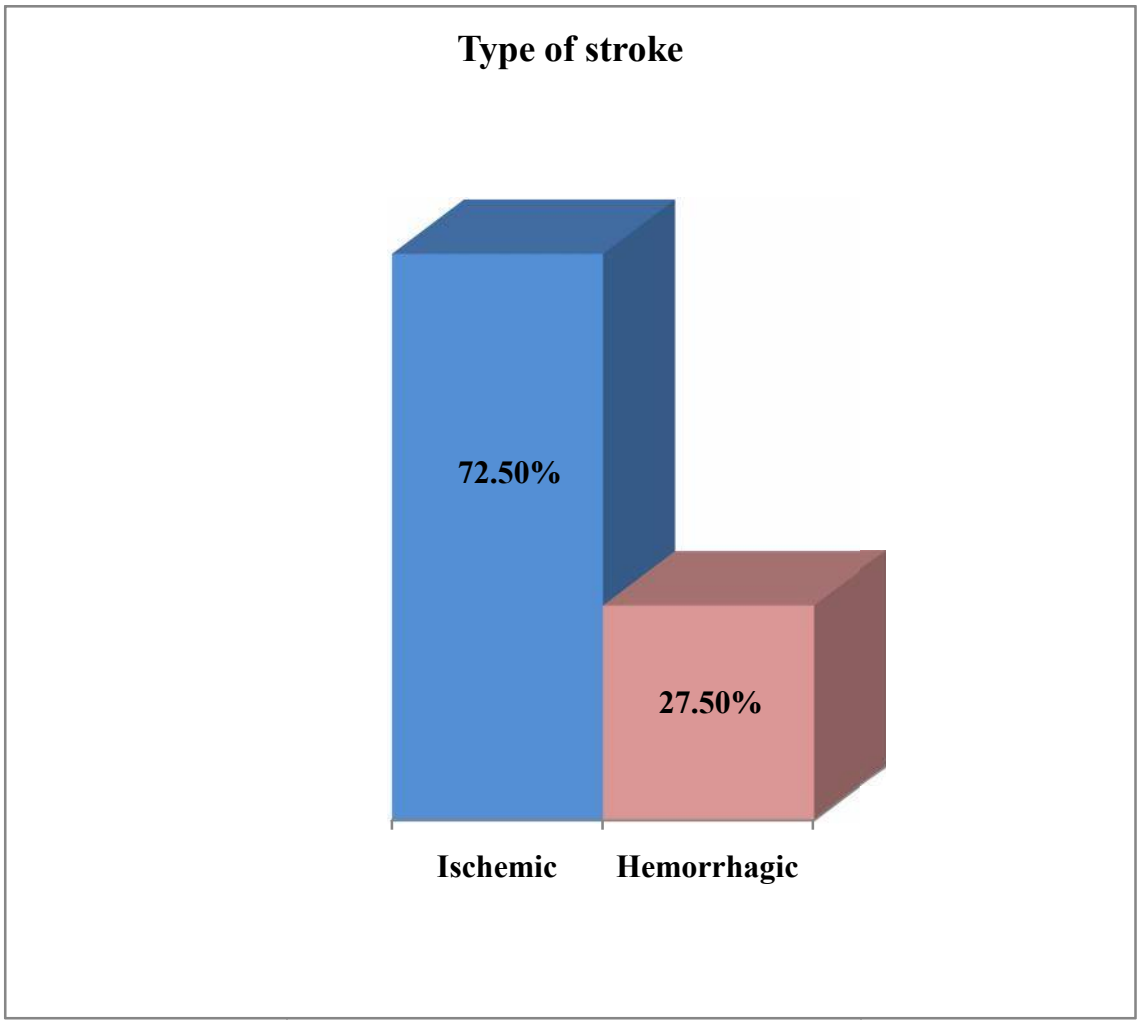

Figure-4.9: Type of stroke of the participants

4.10 Affected side of brain

Out of 102 respondents 52% (n=53) had in the right side affected and 48% (n=49) had in the left side affected in the brain.

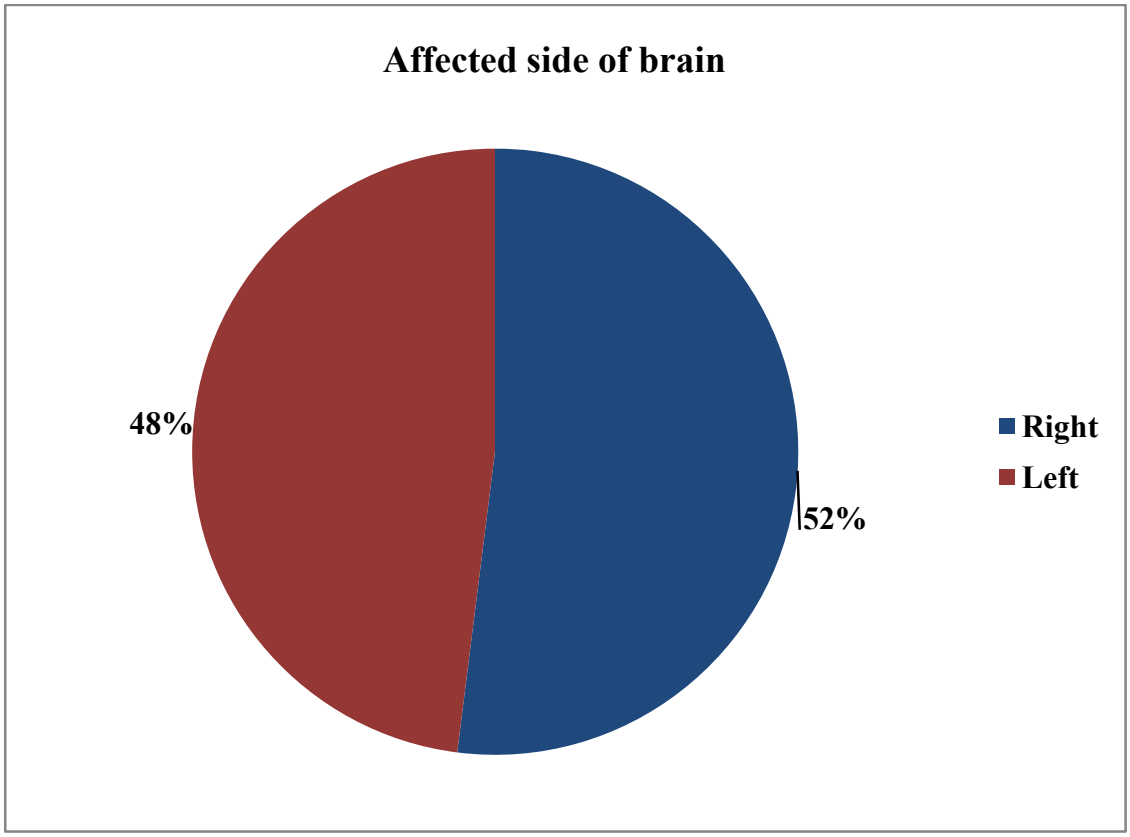

Figure- 4.10: Affected side of brain

4.11 Affected side of body

Out of 102 respondents 52% (n=53) had in the left side and 48% (n=49) had in the right side in the body.

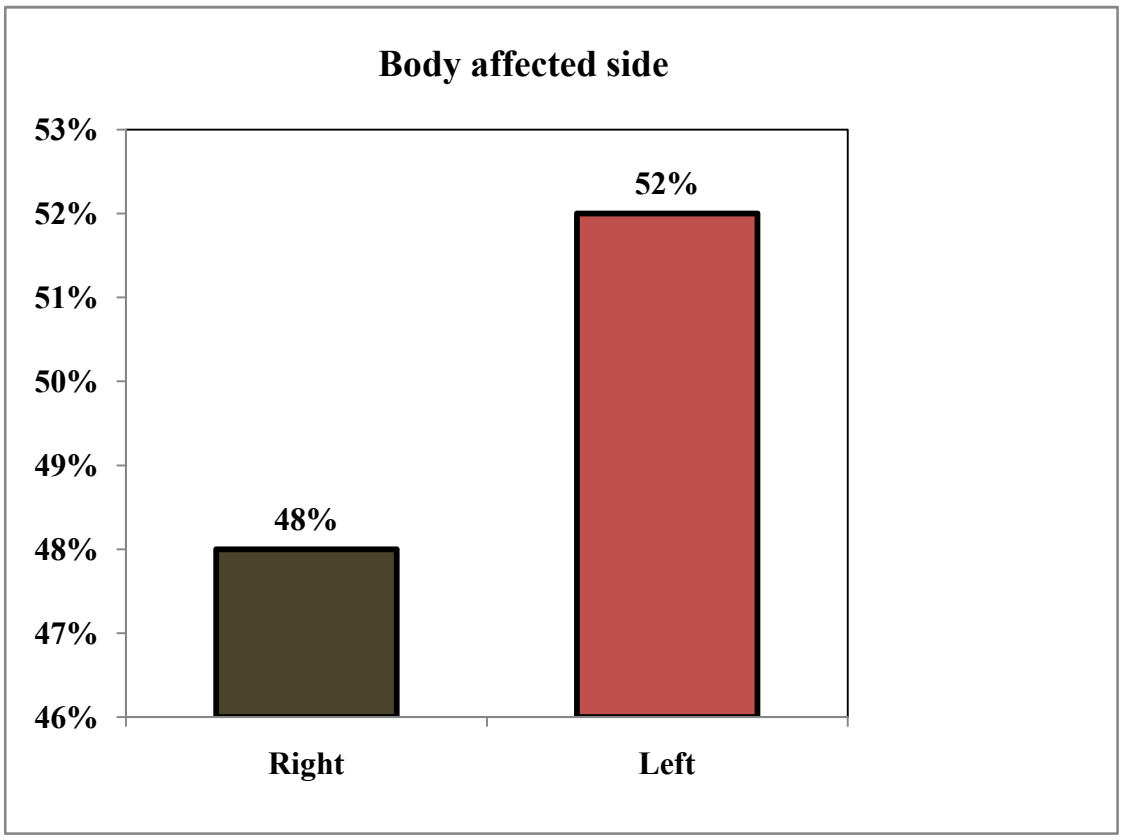

Figure-4.11: Affected side of body

4.12 Received physiotherapy treatment

Among the 102 participants 17 respondents were received 9-12 sessions, 33 respondents were received 13-16 sessions ,23 respondents were received 17-20 sessions and 29 respondents were received more than 20 sessions of physiotherapy treatment.

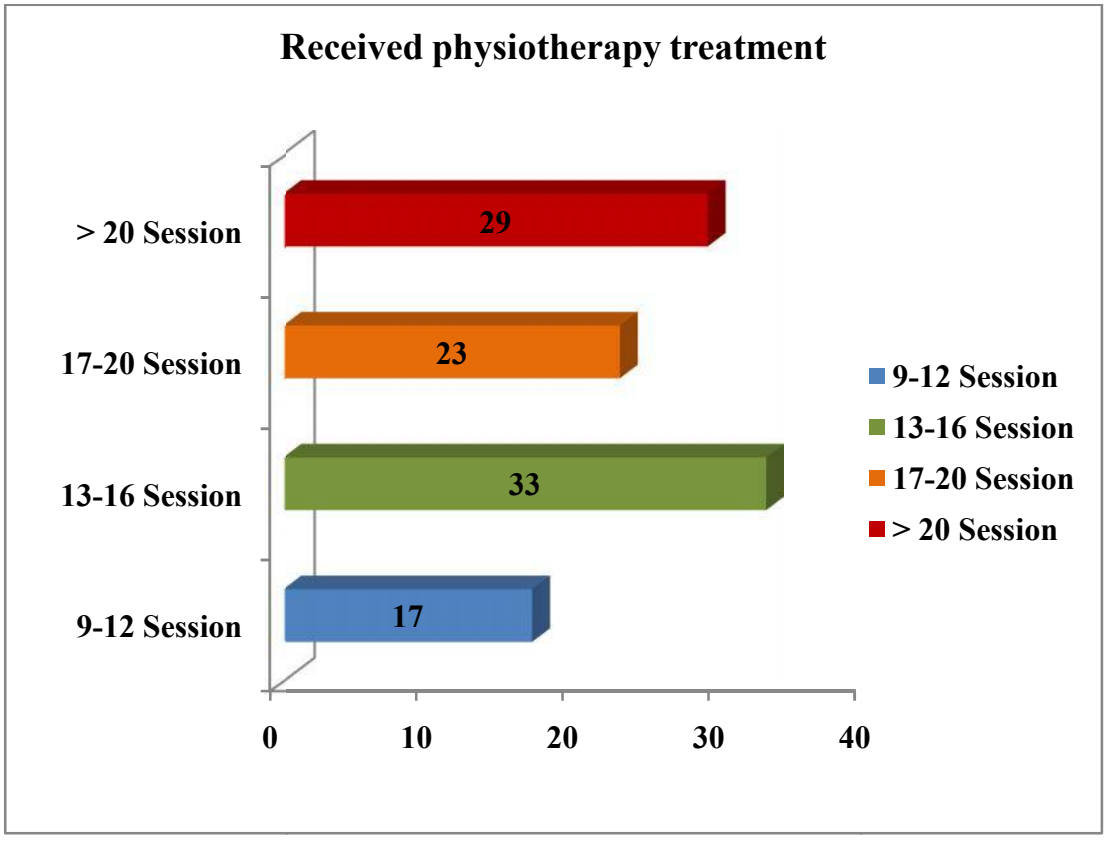

Figure-4.12: Received physiotherapy treatment

4.13 Barthel Index

4.13.1 Feeding

Among 74 participants of ischemic stroke, 33.79% (n=11) respondents were unable to feeding, 51.35% (n=38) needs help in cutting, spreading butter, or requires modified diet and remaining 14.86% (n=25) were independent in feeding.

Among 28 participants of hemorrhagic stroke, 21.44% (n=6) respondents were unable to feeding, 39.28% (n=11) needs help in cutting, spreading butter, or requires modified diet and remaining 39.28% (n=11) were independent in feeding.

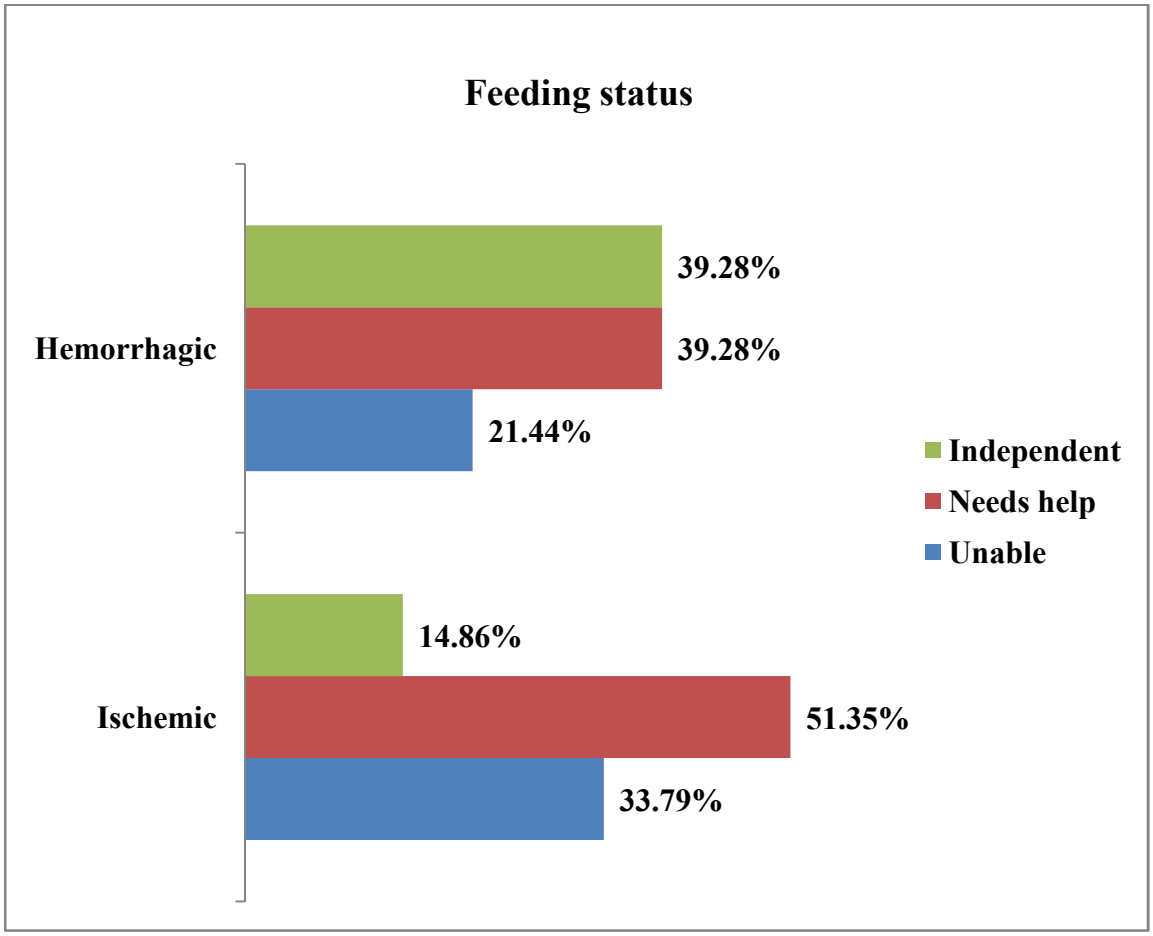

Figure-4.13.1: Feeding status of participants

4.13.2 Bathing

Out of 74 participants of ischemic stroke, 70.27% (n=52) respondents were dependent and remaining 29.73% (n=22) were independent in bathing.

Out of 28 participants of hemorrhagic stroke, 57.14% (n=16) respondents were dependent and remaining 42.86% (n=12) were independent in bathing.

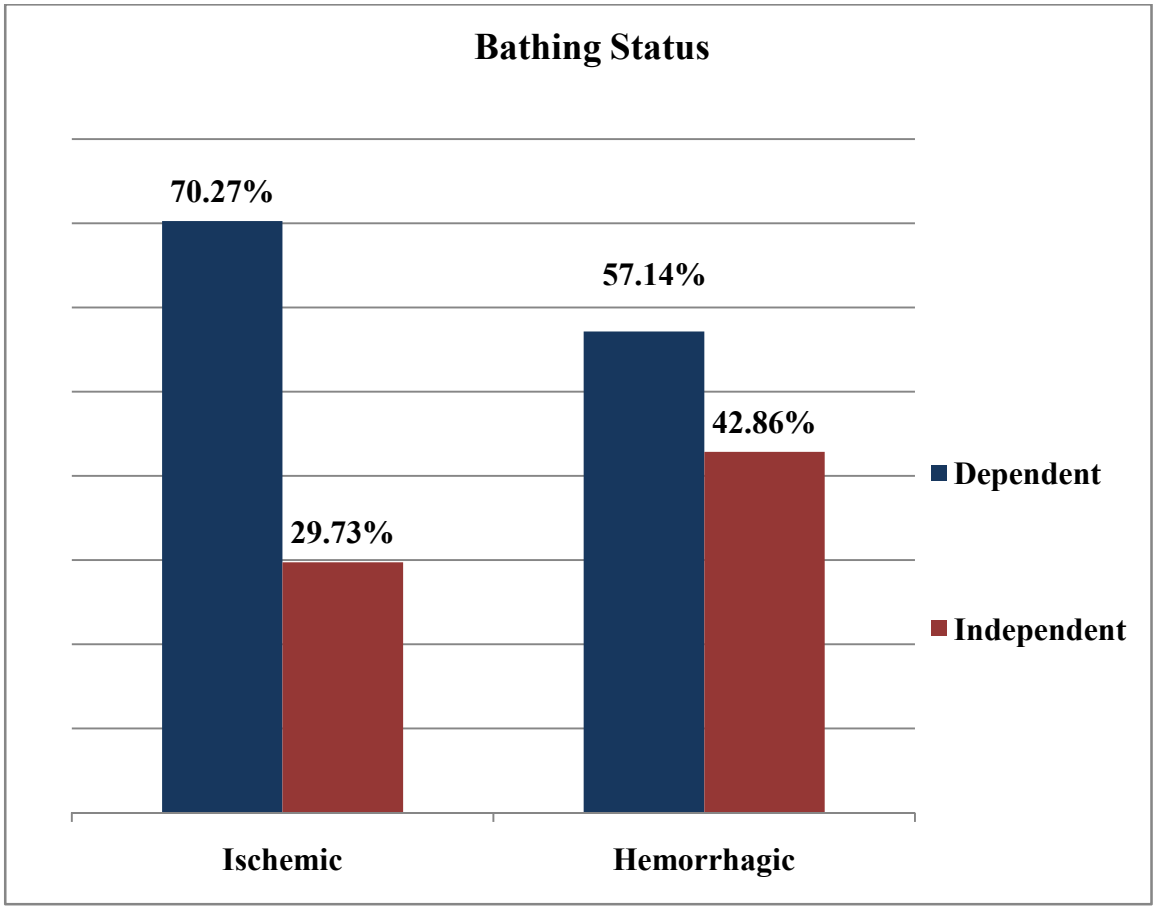

Figure-4.13.2: Bathing Status of participants

4.13.3 Grooming

Among 74 participants of ischemic stroke, 72.97% (n=54) respondents need to help with personal care and remaining 27.03% (n=20) were independent in grooming.

Among 28 participants of hemorrhagic stroke, 71.45% (n=20) respondents need to help with personal care and remaining 28.57% (n=8) were independent in grooming.

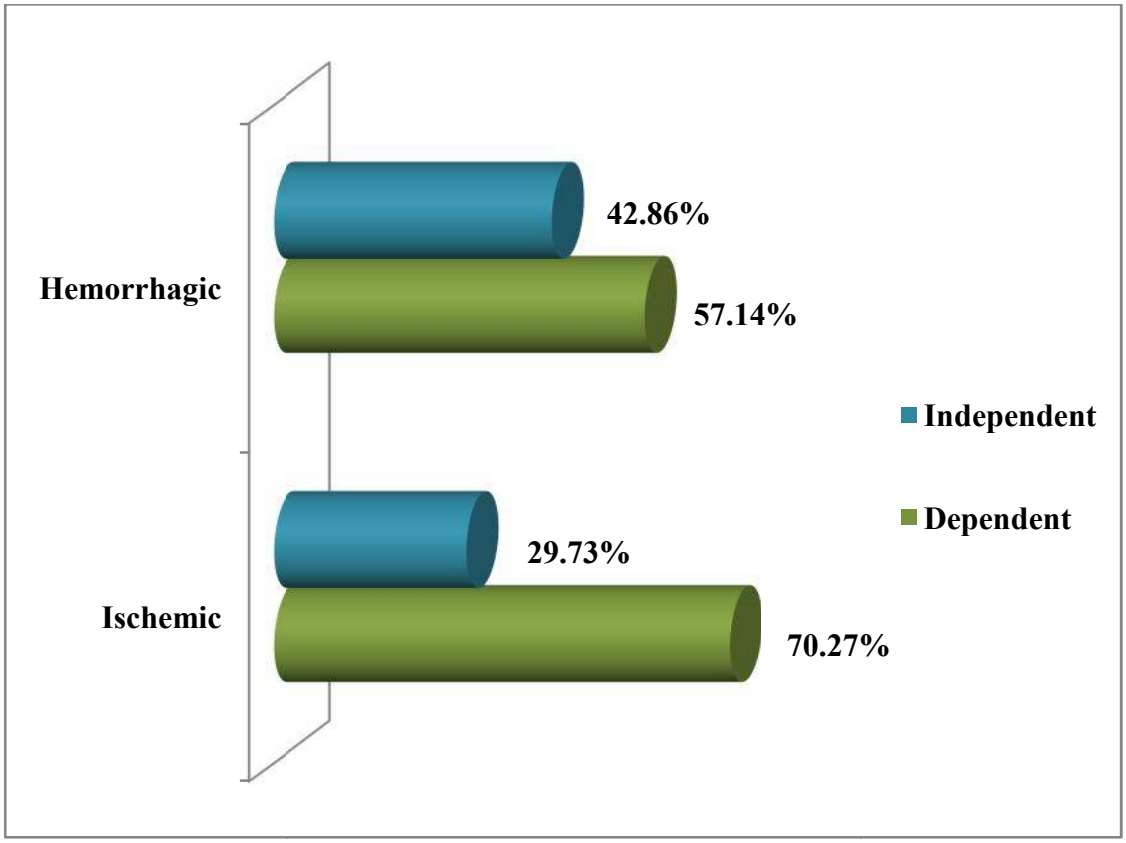

Figure-4.13.3: Grooming status

4.13.4 Dressing

Among 74 participants of ischemic stroke, 13.51% (n=10) respondents were dependent for dressing, 68.91% (n=51) respondents needs help but can do about half unaided and remaining 17.58% (n=13) respondents were independent.

Among 28 participants of hemorrhagic stroke, 10.71% (n=3) respondents were dependent for dressing, 64.85% (n=19) respondents needs help but can do about half unaided and remaining 21.43% (n=6) respondents were independent.

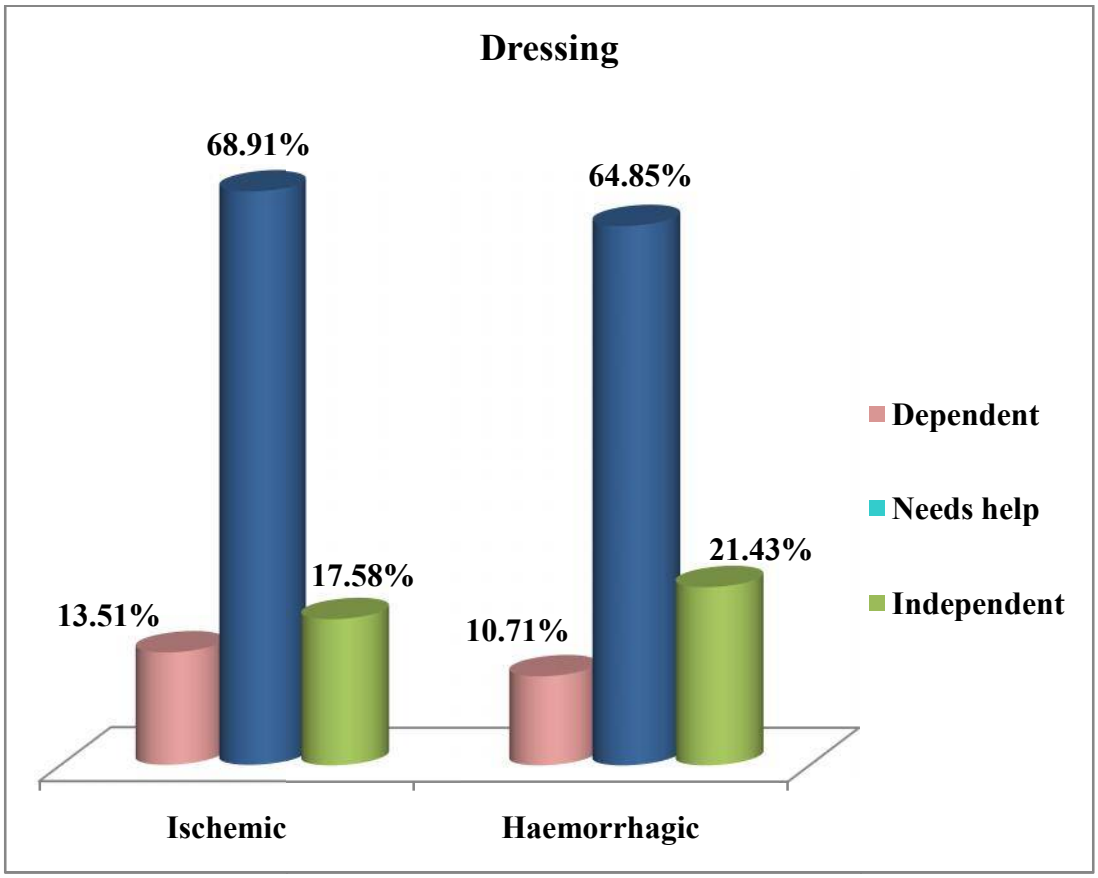

Figure-4.13.4: Dressing

4.13.5 Bowels

Among 74 participants of ischemic stroke, 8.11% (n=6) respondents having incontinence, 9.45% (n=7) faced problem with occasional accident and 82.44% (n=61) having continence in bowel.

Among 28 participants of hemorrhagic stroke, 3.57% (n=1) respondents having incontinence, 10.71% (n=3) faced problem with occasional accident and 85.72% (n=24) having continence in bowel.

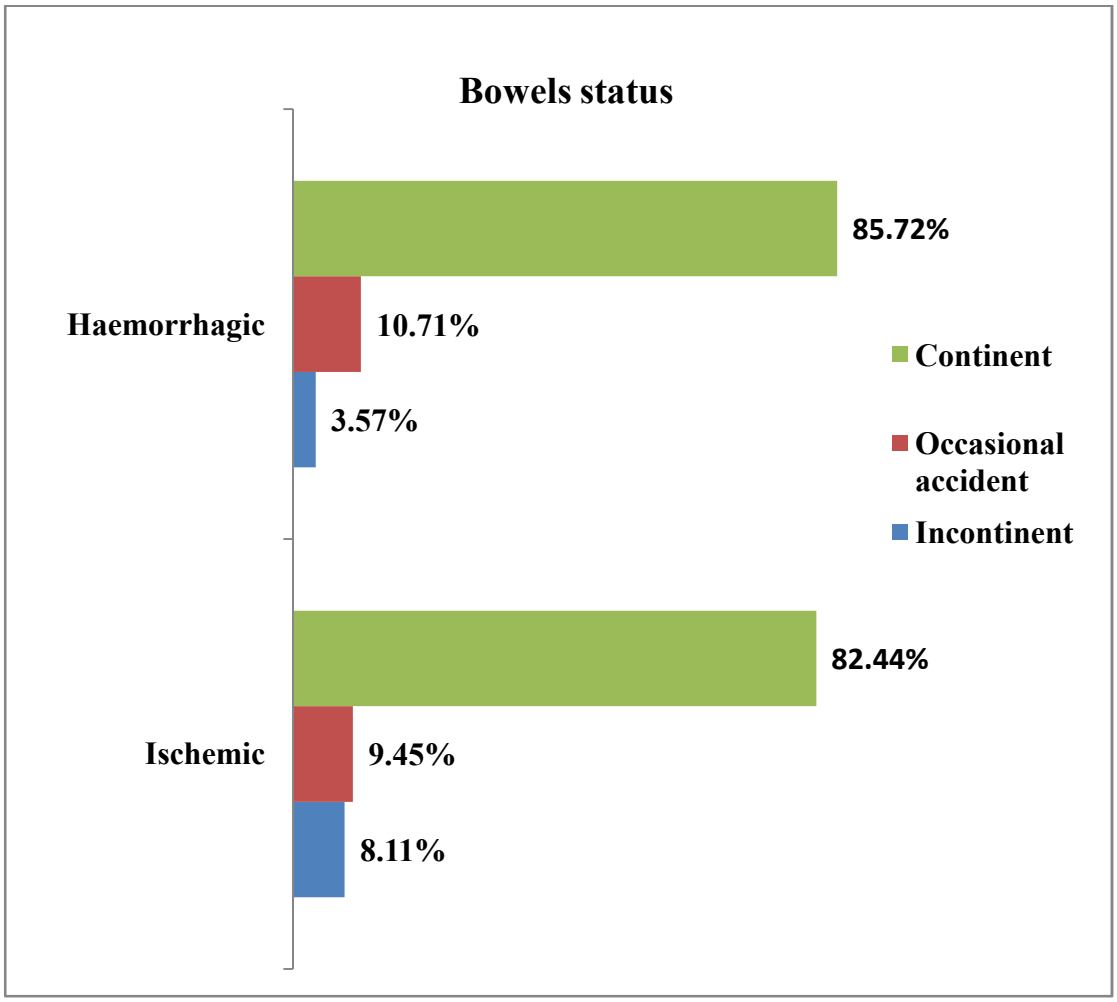

Figure-4.13.5: Bowels status

4.13.6 Bladder

Among 74 participants of ischemic stroke, 10.81% (n=8) respondents having incontinence, 8.10% (n=6) faced problem with occasional accident and 81.09% (n=60) having continence in bladder.

Among 28 participants of hemorrhagic stroke, 3.57% (n=1) respondents having incontinence, 10.71% (n=3) faced problem with occasional accident and 85.72% (n=24) having continence in bladder.

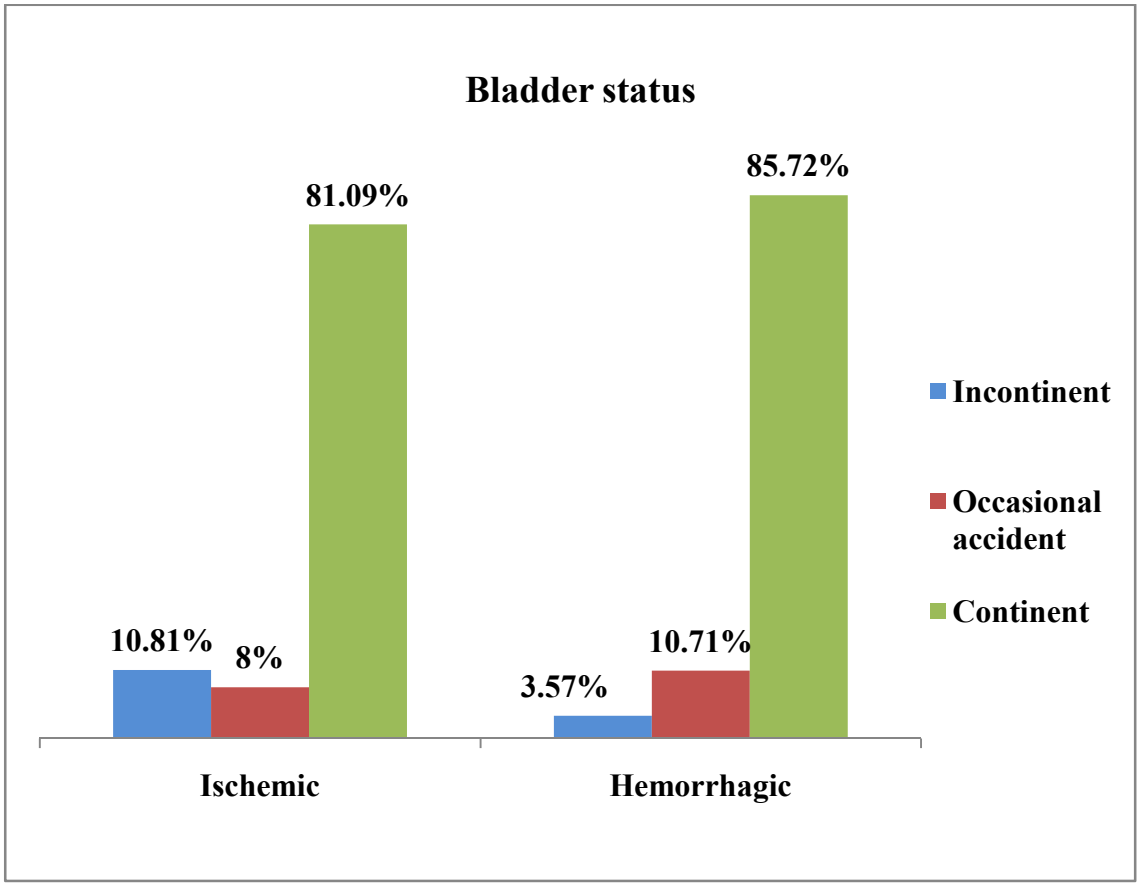

Figure-4.13.6: Bladder status

4.13.7 Toilet use

Out of 74 participants of ischemic stroke, 16.21% (n=12) respondents were dependent, 50% (n=37) needs help and remain 33.78% (n=25) were independent in using toilet.

Out of 28 participants of hemorrhagic stroke, 14.28% (n=4) respondents were dependent, 32.14% (n=9) needs help and remain 53.58% (n=15) were independent in using toilet.

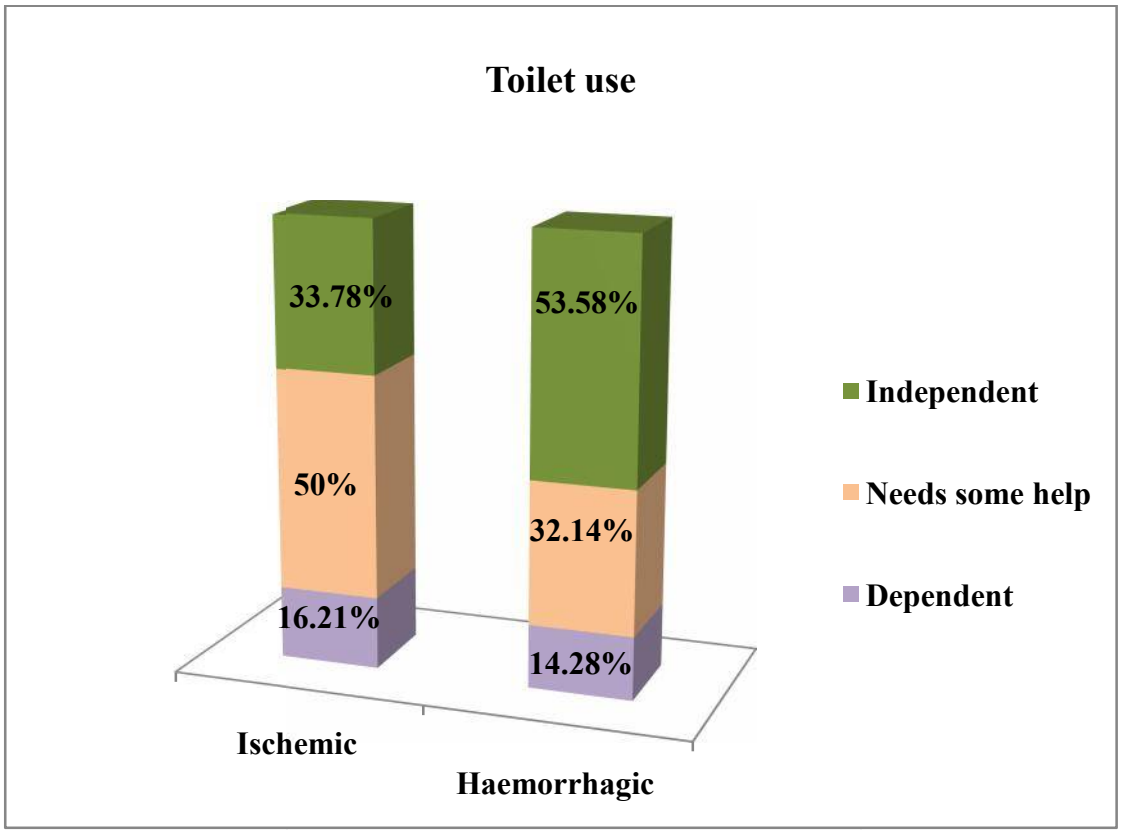

Figure-4.13.7: Toilet use

4.13.8 Transfers (Bed to chair and back)

Out of 74 participants of ischemic stroke, 1.35%(n=1) respondent was unable, 28.57%(n=21) participants had needed major help , 36.49%(n=27) participants had needed minor help and remaining 33.78%(n=25) participants were independent in transferring (bed to chair and back).

Out of 28 participants of hemorrhagic stroke, 14.28% (n=4) participants had needed major help, 28.57%(n=8) participants had needed minor help and remaining 57.15% (n=16) participants were independent in transferring (bed to chair and back).

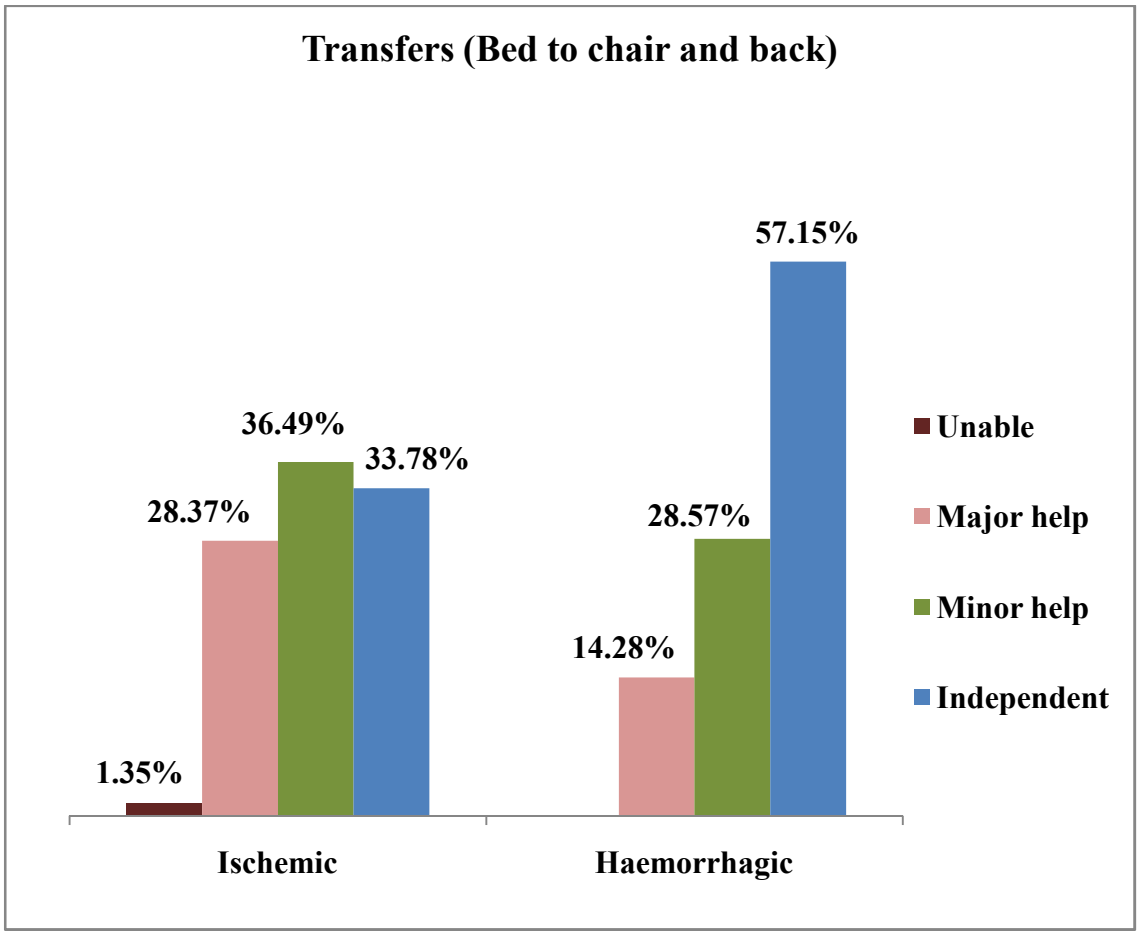

Figure-4.13.8: Transfers (Bed to chair and back)

4.13.8 Mobility (On level surface)

Out of 74 participants of ischemic stroke, 29.73% (n=22) respondents were immobile, 1.35% (n=1) were wheelchair independent, 45.94% (n=34) walked with help and 22.98% (n=17) participants were independent in mobility on level surface.

Out of 28 participants of hemorrhagic stroke, 14.29% (n=4) respondents were immobile, 7.14% (n=2) were wheelchair independent, 32.14% (n=9) walked with help and 46.43% (n=13) participants were independent in mobility on level surface.

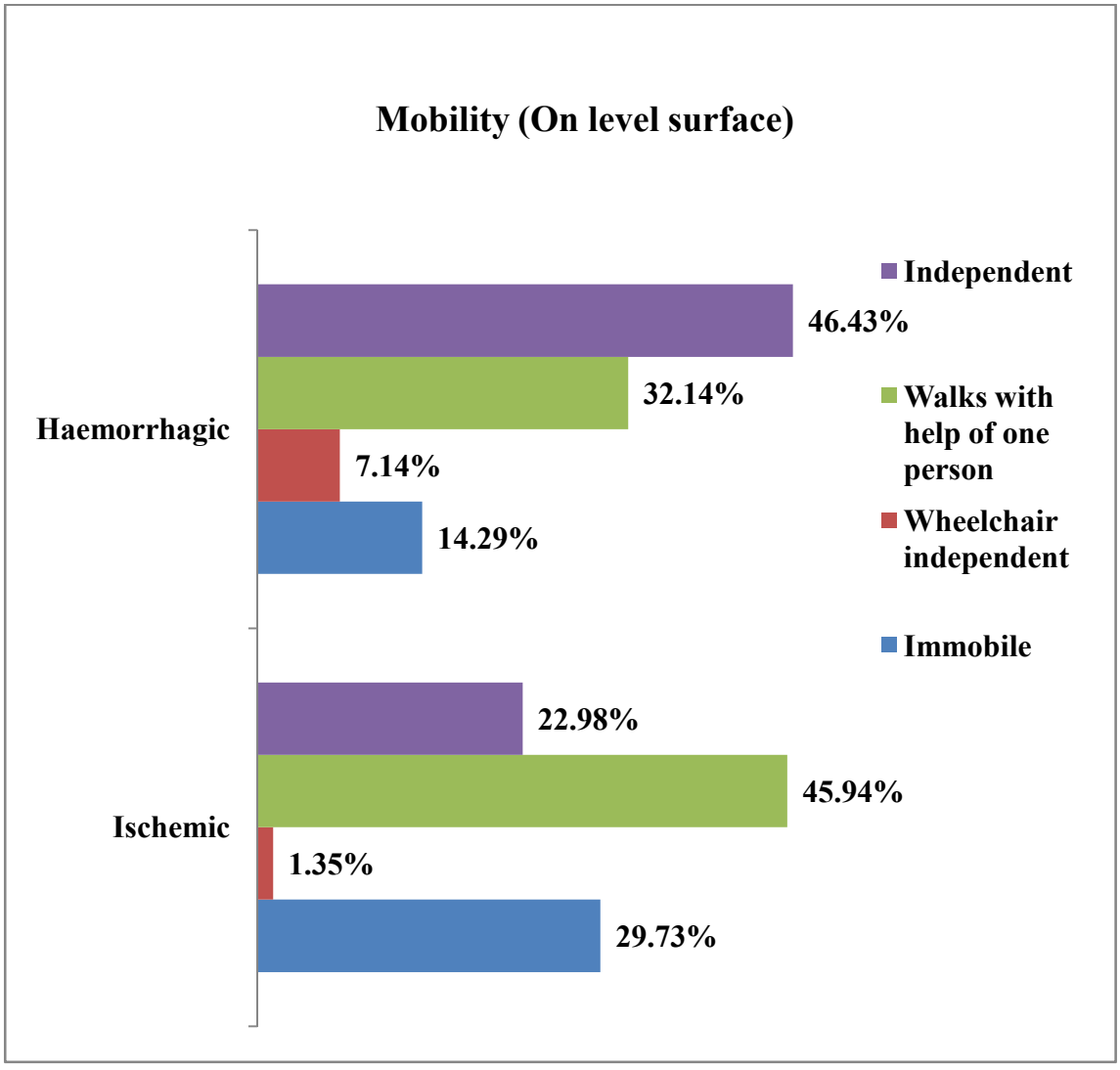

Figure-4.13.8: Mobility (On level surface)

4.13.10 Stairs

Out of 74 participants of ischemic stroke, 45.95% (n=34) respondents were unable, 41.89% (n=31) participants needed help remaining 12.16%(n=9) participants were independent in stairing.

Out of 28 participants of hemorrhagic stroke, 25% (n=7) respondents were unable, 67.86% (n=19) participants needed help remaining 7.14%(n=2) participants were independent in stairing.

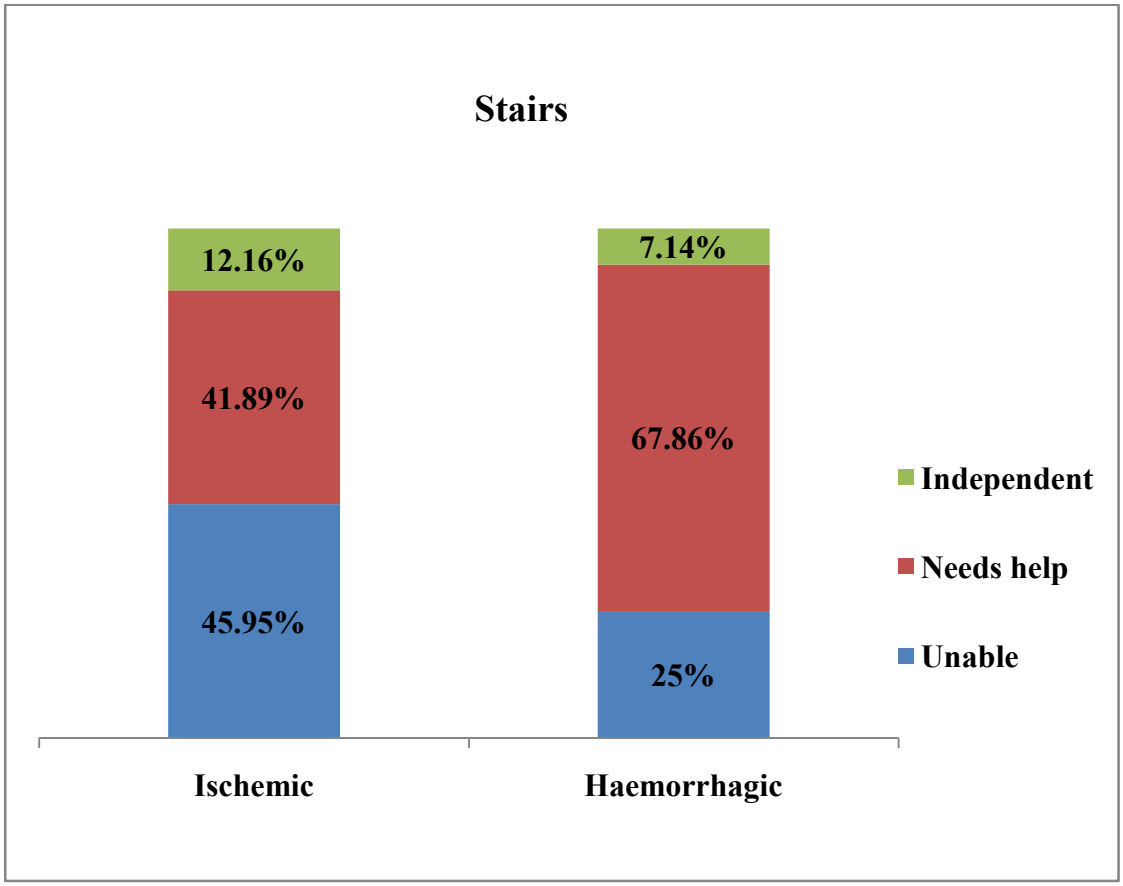

Figure-4.13.10: Stairs

4.13.11 Barthel index total

Out of 74 participants of ischemic stroke, 9.46% (n=7) respondents are functionally independent, 43.25% (n=32) respondents are minor dependent on others and remaining 47.29% (n=35) respondents are major dependent on others.

Out of 28 participants of hemorrhagic stroke, 10.71% (n=3) respondents are functionally independent, 64.29% (n=18) respondents are minor dependent on others and remaining 25% (n=7) respondents are major dependent on others.

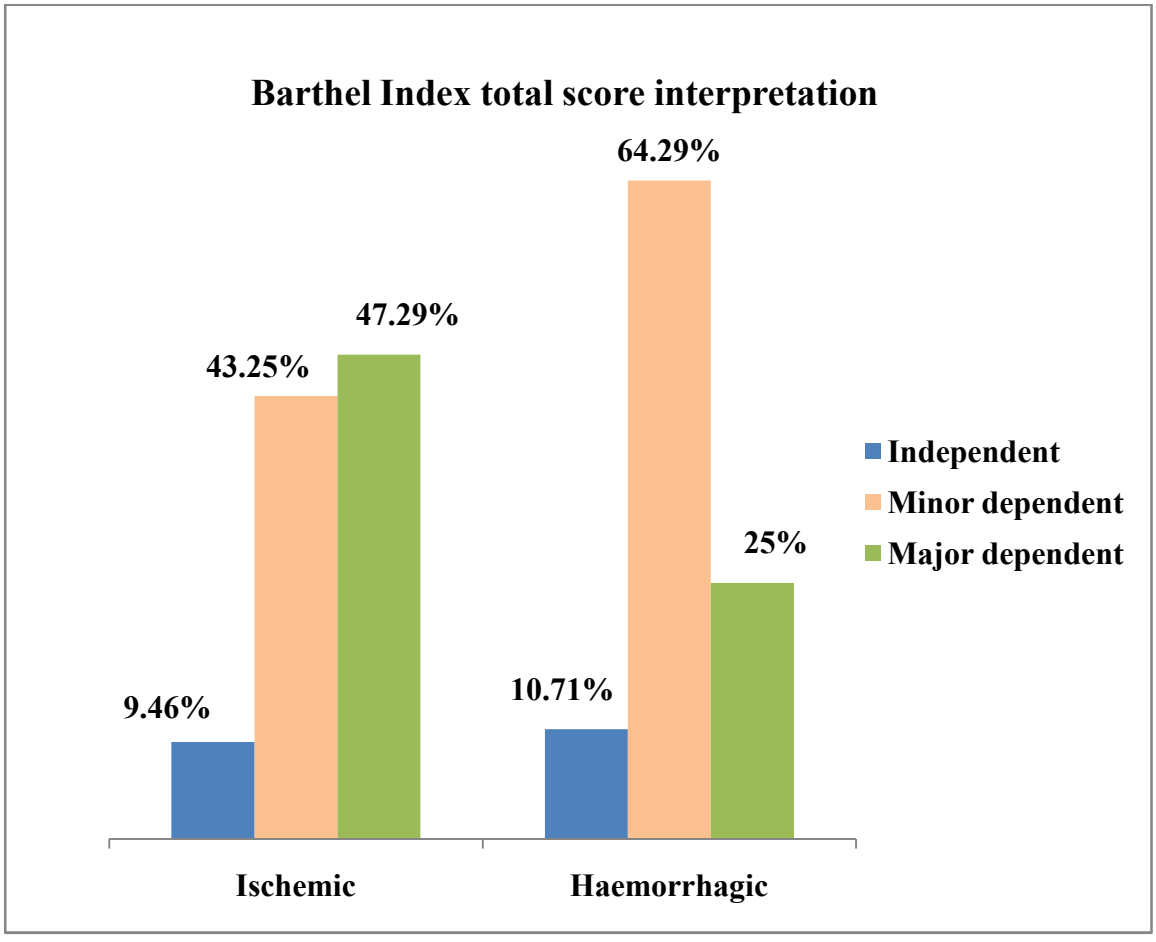

Figure-4.13.11: Barthel index total score interpretation

4.14 Patient Health Questionnaire (PHQ) total score interpretation

Among 74 participants of ischemic stroke, 28.38 % (n=21) respondents faced minimal depression, 43.24% (n=32) respondents are faced mild depression, 27.03% (n=20) respondents are faced moderately depression, 1.35% (n=1) faced moderately severe depression and there was no severely depressed participant.

Among 28 participants of haemorrhagic stroke, 7.14% (n=2) respondents faced minimal depression, 50% (n=14) respondents are faced mild depression, 28.57% (n=8) respondents are faced moderately depression, 10.71% (n=3) faced moderately severe depression and 3.58% (n=1) participants were severely depressed.

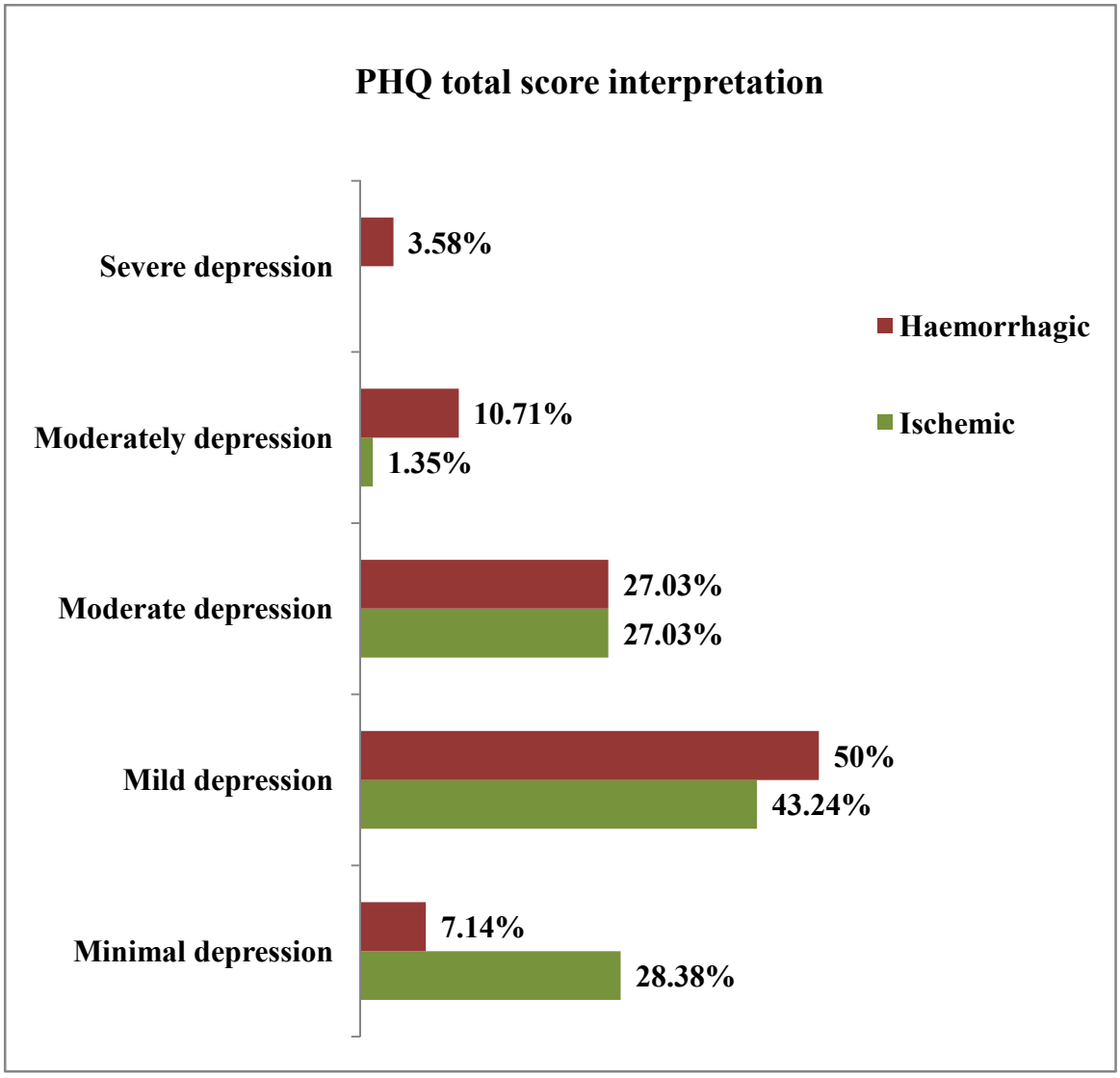

Figure-4.14: PHQ total score interpretation

4.15 Generalized Anxiety Disorder (GAD) total score interpretation

Among 74 participants of ischemic stroke, 35.13% (n=26) respondents were minimal anxious, 52.70% (n=39) respondents were mild anxious, 12.17% (n=9) respondents were moderate anxious and no participant was severely anxious.

Among 28 participants of haemorrhagic stroke, 17.86% (n=5) respondents were minimal anxious, 46.43% (n=13) respondents were mild anxious, 35.71% (n=10) respondents were moderate anxious and no participant was severely anxious.

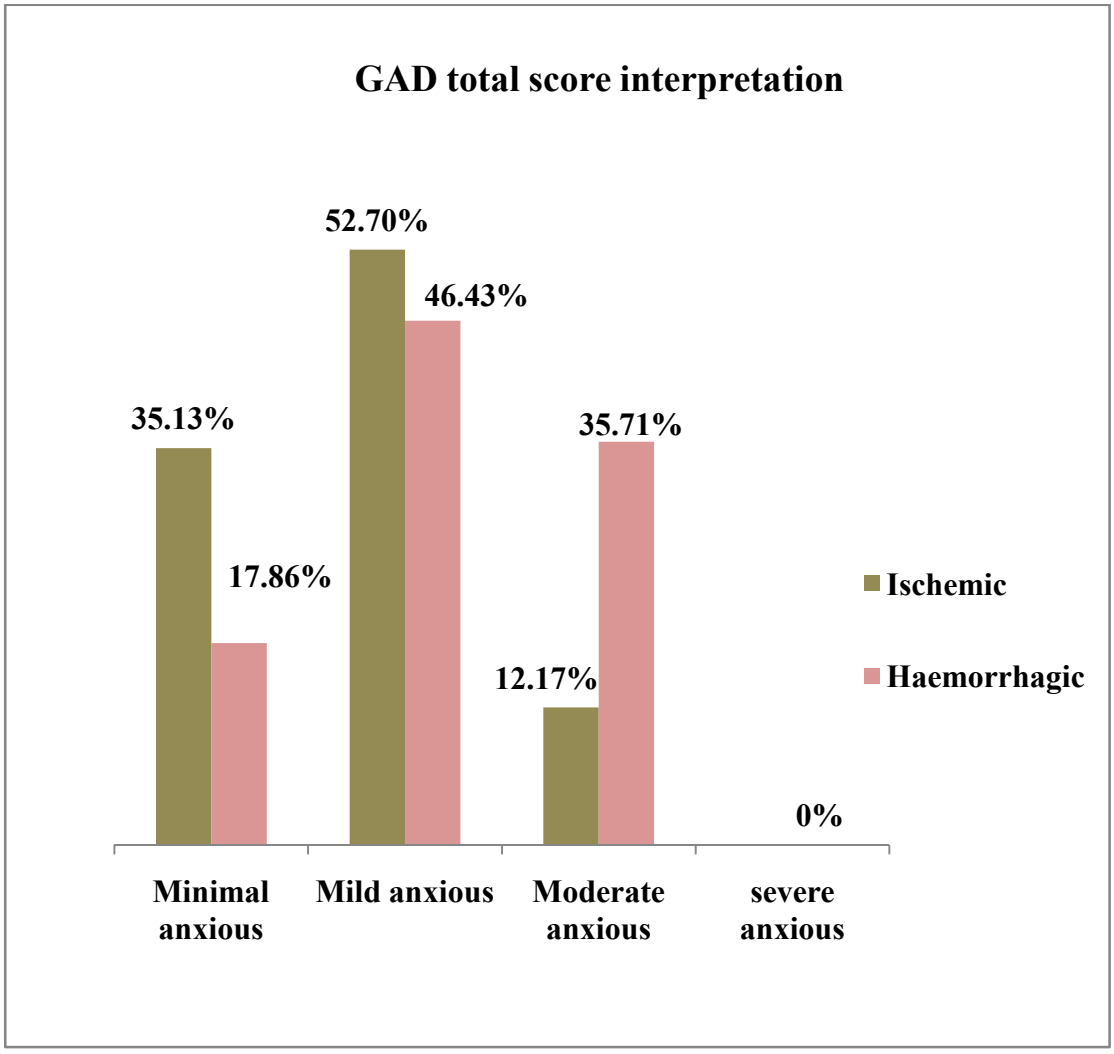

Figure-4.15: GAD total score interpretation

4.16 Association between variables

Association between variables	Chi-square	P- value
Association between Sex and GAD total score	24.45	0.04
Association between age and Barthel Index total score	83.13	0.02
Association between age and GAD total score	72.16	0.00
Association between age and PHQ total score	68.85	0.02
Association between GAD total score and PHQ total score	72.16	0.00
Association between type of stroke and mobility(on level surface)	8.94	0.03
Association between received physiotherapy treatment and mobility (on level surface).	18.77	0.03

Table-4.16: Association between variables

In chi-square test we see the association. If the p value is < 0.05 result is significant.
In association between Sex and Generalized Anxiety Disorder (GAD) total score, p value is 0.04. So the result is significant that indicate there is association between sex and Generalized Anxiety Disorder (GAD) total score.

In case of age and Barthel Index total score, p value is 0.02 which is less than 0.05. So the result is significant that indicate there is association between age and Barthel Index total score.

In between age and Generalized Anxiety Disorder (GAD) total score, p value is 0.00 which is less than 0.05. So the result is significant that indicate there is association between age and Generalized Anxiety Disorder (GAD) total score.

There is association between age and Patient Health Questionnarie (PHQ) total score because their p value is 0.02.

In between Generalized Anxiety Disorder (GAD) total score and Patient Health Questionnarie (PHQ) total score, p value is 0.00 which is less than 0.05.So the result is significant.
There is association between type of stroke and mobility (on level surface) as their p value is 0.03.
In between received physiotherapy treatment and mobility (on level surface), p value is 0.03.The result is significant. And there is association between received physiotherapy treatment and mobility (on level surface).

CHAPTER-V DISCUSSION

The analysis and discussion is about to identify published papers & determining the relevance with the acquired data. In this chapter the results of the study are discussed in relation to the research questions and objectives of the study. The objectives of the study were to find out the demographic profile, functional outcome and psychological (Anxiety, Depression level) outcome of the stroke patients who received treatment at the neurology unit physiotherapy department of CRP, Savar.

Stroke is one of the most dominant causes of morbidity and mortality worldwide and poses a major global healthcare challenge. Stroke survivors are often affected by neurological impairments causing functional disability and need of assistance, which may lead to institutionalization in nursing or residential care setting. Quality of life has been found to decline after stroke in relation to age, mood, stroke severity, urinary incontinence, functional status, and cognition (Jönsson et al., 2014). The World Health Organization (WHO) predicts that disability adjusted life years lost to stroke will rise from 38 million in 1990 to 51 million in 2020. Stroke survivors are often greatly challenged by post stroke depression, which can lengthen rehabilitation and recovery time considerably. Apart from having a deep impact on the survivors themselves, post-stroke depression also affects family and friends. Many stroke survivors experience feelings of hopelessness, helplessness, anxiety, and dehumanization. After a stroke, quality of life (QoL) is reported to decrease by more than 40% compared with pre-stroke QoL. This reduction is pronounced, even when no or minimal physical impairment is present (Raju et al., 2010).

The study was conducted on 102 participants of having stroke. In the study the minimum age of a participant was 21 and maximum age of a participant was 60. Their mean was 50.6 and standard deviation is 10.64. Participants in between 21-30 years 3, participants in between 31-40 years 17, participants in between 41-50 years 37,45 participants in between 51-60 years . Where Islam et al. (2012) reported that 0·20%, 0·30%, 0·20%, 1·00%, and 1·00% for the age groups 40–49 years, 50–59 years, 60–69 years,70–79 years, and 80 years and above respectively. Other study in France mean age was 53.3 with SD 13.7 (Pradon et al., 2013).

More than half of the participants 70% (n=71) were male and 30% (n=31) were female in this study. In one Indian study, out of 162 participants 69.8%(n=113) were male and 30.2%(n= 49) were female (Raju et al., 2010).In my study, 72.50%(n=74) patients ischemic stroke and 27.50% (n=28) patients experienced hemorrhagic stroke and 52%(n=53) and 48%(n=49) %) patients had hemiparesis on the left and right sides, respectively out of 102 patients. One study from MMCH, among 50 patients the majority of the cases (60%) were IS and the rest were HS (40%) (Islam et al., 2012).In another study, researcher found ischemic stroke (131 patients, 91%) and hemorrhagic stroke (13 patients, 9%) and Eighty-five (59%) and 59 (41%) patients had hemiparesis on the right and left sides, respectively out of 144 patients (Aydin et al., 2016).

Among 102 participants it was found that 51% (n=52) were live in rural area and 48% (n=49) were live in urban area and 1% (n=1) live in hill tracks. In Bangladesh, another study showed that 54% urban patient and 46% rural patient (Hossain et al., 2011). Among the 102 participants 97% (n=99) participants were married, 3% (n=3) participants were unmarried and no participants were widowed or divorced. In one study from Nigerian hospital among the 70 participants, 80% (n=56) are married and remaining 20% (n=14) are unmarried (Oni et al., 2018).

Out of 74 participants of ischemic stroke, 9.46% (n=7) respondents are functionally independent, 43.25% (n=32) respondents are minor dependent on others and remaining 47.29% (n=35) respondents are major dependent on others. Out of 28 participants of hemorrhagic stroke, 10.71% (n=3) respondents are functionally independent, 64.29% (n=18) respondents are minor dependent on others and remaining 25% (n=7) respondents are major dependent on others. Some studies found that better functional prognosis in survivors with hemorrhagic stroke than ischemic stroke (Perna &Temple, 2015).

Among 74 participants of ischemic stroke, 28.38 % (n=21) respondents faced minimal depression, 43.24% (n=32) respondents are faced mild depression, 27.03% (n=20) respondents are faced moderately depression, 1.35% (n=1) faced moderately severe depression and there was no severely depressed participant. Among 28 participants of hemorrhagic stroke, 7.14% (n=2) respondents faced minimal depression, 50% (n=14) respondents are faced mild depression, 28.57% (n=8) respondents are faced

moderately depression, 10.71% (n=3) faced moderately severe depression and 3.58% (n=1) participants were severely depressed. One study estimated that When using the PHQ-9 ordinal categories, 42.9%, of patients suffered from minimal depressive symptoms, 35.7% ,14.3% , 4.9% and 2.2 % suffered from mild, moderate, moderately severe and severe depression symptoms respectively (Chilcot et al., 2018).

Among 74 participants of ischemic stroke, 35.13% (n=26) respondents were minimal anxious, 52.70% (n=39) respondents were mild anxious, 12.17% (n=9) respondents were moderate anxious and no participant was severely anxious.Among 28 participants of haemorrhagic stroke, 17.86% (n=5) respondents were minimal anxious, 46.43% (n=13) respondents were mild anxious, 35.71% (n=10) respondents were moderate anxious and no participant was severely anxious.

One study estimated that when using the GAD-7 ordinal categories, 69.2% of patients had minimal anxiety symptoms, 20.3%, 7.7% and 2.7% had mild, moderate, and severe anxiety symptoms respectively (Chilcot et al., 2018).

Limitations of study:

- The study was conducted with 102 stroke patients, which was a very small number of samples.
- It was not sufficient time for the study to generalize the wider population of this condition.
- Samples were collected from only CRP, Savar.
- Some patients with co- morbid and poor health status affect the study.
- Sometimes treatment sessions were interrupted for holyday and vacation.
- Age limitation.
- Family status, family size and education level of the patients hamper the study.
- Some patients did not maintain home advice which resulting in poor outcome.
- In this study, samples were collected whose stroke duration was in between 3 month to 1.5 years only.
- Samples were same type that means not more vulnerable and not more functional. That's impact on result.

CHAPTER-VI CONCLUSION AND RECOMENDATION

6.1 Conclusion:

Stroke is increasing among people day by day. Nowadays it becomes a worldwide problem. Male are more affected than female. After stroke, people face not only functional but also psychological problem.

The researcher explored the functional and psychological outcome of stroke patients. The study was conducted on 102 participants of having stroke where maximum participants 70% (n=71) were male and remaining 30% (n=31) were female. More than half (72.50%) were with ischemic stroke. In case of ischemic stroke, 9.46% respondents were functionally independent, 43.25% were minor dependent on others and remaining 47.29% were major dependent on others where 10.71%, 64.29% and 25% respectively in hemorrhagic stroke. In ischemic stroke, most of the participants 43.24% faced minimal depression. On the other hand, maximum 50% participants faced mild depression in hemorrhagic stroke. Among the patients with hemorrhagic stroke, 35.71% participants were moderate anxious where in ischemic stroke 12.17% respondents were moderate anxious. So it is clear that, hemorrhagic stroke has poor psychological outcome than ischemic stroke. There is an association between anxiety and depression level. And age of the participants impact on the functional and psychological outcome.

6.2 Recommendations:

This study tries to assess the functional and psychological outcome of stroke patients. However, the study had some limitations. Some steps were identified that might be taken for the better accomplishment for further study. The main recommendations would be as follow:

- Researcher used only 102 participants as the sample of this study, in future the sample size should be more.
- Future studies should examine the time course of changes in functional and psychological status.
- Samples should collect from all branches of CRP and other hospitals.
- Stroke duration of sample should be larger.
- This was a cross sectional study. Experimental study will recommend.
- There will conduct a study to show relationship between type of stroke and functional and psychological status.

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Appendix

Appendix-1 (A)

Informed consent

(Please read out to the participant)

Assalamualaikum, I am Homyra Nishat, 4th year student of B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI) under Faculty of Medicine in University of Dhaka. To obtain my Bachelor degree, I shall have to conduct a thesis and it is a part of my study.

My thesis title is, **"Functional and psychological outcome of stroke survivors attended at CRP."** To fulfill my research project, I need to collect data. So, you can be a respected participant of my research and I would like to request you as a subject of my study. I would like to know about some personal and other related information. This will take approximately 20 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. Your participation in the research will have no impact on your present or future treatment. I assure that all data will be kept confidential. Your participation will be voluntary. You have the right to withdraw consent and discontinue participation at any time of the experiment.

If you have any query about the study or your right as a participant, you may contact with me or my supervisor Farjana Sharmin, Lecturer of BHPI, Junior consultant and OPD Incharge, Department of Physiotherapy, CRP, Savar, Dhaka-1343.

Do you have any questions before I start?

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

Yes No

Name of the Interviewer…….....Date.....

Signature of the Interviewer..... Date……

Appendix-1 (B)

সম্মতিপত্র

(অংশগ্রহণকারীকে পড়ে শুনাতে হবে)

আসসালামুআলাইকুম,আমি হুমায়রা নিশাত,ঢাকা বিশ্ববিদ্যালয়ের চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশনস ইন্সটিটিউট (বিএইচপিআই) এর ফিজিওথেরাপি বিভাগের ৪র্থ বর্ষের ছাত্রী। আমার ব্যাচেলর ডিগ্রী অর্জনের জন্য আমাকে একটি গবেষণা সম্পাদন করতে হবে এবং এটা আমার অধ্যয়নের একটি অংশ।

আমার গবেষণার শিরোনাম, **"সিআরপিতে আগত স্ট্রোক রোগীদের ক্রিয়ামূলক এবং মানসিক ফলাফল"**। আমার গবেষণা প্রকল্প বাস্তবায়ন করার জন্য, রোগীদের কিছু তথ্য সংগ্রহ করা প্রয়োজন। আপনাকে আমার গবেষণার একজন অংশগ্রহণকারী হওয়ার জন্য অনুরোধ করছি। এক্ষেত্রে আমি আপনার কিছু ব্যক্তিগত এবং আনুষঙ্গিক তথ্য জানতে চাচ্ছি । এতে প্রায় ২০ মিনিট সময় লাগবে।

আমি আপনাকে জানাতে চাই যে, ইহা একটি সম্পূর্ণরুপে প্রাতিষ্ঠানিক গবেষণা এবং অন্যকোন উদ্দেশ্যে ব্যবহৃত হবেনা। গবেষণায় আপনার অংশগ্রহণ আপনার বর্তমান বা ভবিষ্যত চিকিৎসায় কোন প্রভাব ফেলবে না। আমি নিশ্চিত করছি সকল উপাত্তসমূহ গোপনীয় রাখা হবে। আপনার অংশগ্রহণ হবে সম্পূর্ণ ঐচ্ছিক। আপনি যেকোন সময় নিজেকে গবেষণা থেকে প্রত্যাহার করতে পারেন।

একজন অংশগ্রহণকারী হিসেবে, অধ্যয়ন সম্পর্কে যদি কোন প্রশ্ন থাকে তাহলে আমাকে বা আমার সুপারভাইজার ফারজানা শারমিন রুমানা, জুনিয়র কনসালটেন্ট এবং ওপিডি ইনচার্জ, ফিজিওথেরাপি বিভাগ, সি আর পি, সাভার, ঢাকা, ১৩৪৩ এর সাথে যোগাযোগ করতে পারেন।

আমি শুরু করার আগে আপনার কোন প্রশ্ন আছে?

আমি কি শুরু করতে পারি?

হ্যা না

অংশগ্রহণকারীর নাম ..... তারিখ .....

অংশগ্রহণকারীর স্বাক্ষর ..... তারিখ .....

Appendix-2 (A)

Questionnaire (English Version)

Title: "Functional and psychological outcome of stroke survivors attended at CRP."

Part: 1- Personal details:

Patient's ID:

Patients name:

Permanent Address:

Village: Post office:

Thana: District:

Present Address:

Village: Post office:

Thana: District:

Mobile no:

Part: 2- Socio demographic information:

Questions	**Response**
Age	
Sex	a) Male b) Female
Educational status	a)No formal education b)Primary education c)Secondary education d)Higher secondary e)Bachelor degree or above
Occupation	
Marital status	a) Married b) Unmarried c) Widow d) Divorced
Family type	a) Nuclear family b) Extended family
Living area	a) Rural b) Urban c) Hill tracks
Family member	
Earning member	
Monthly income	
Date of incidence of stroke	
Type of stroke	a) Ischemic b) Hemorrhagic
Affected side of brain	a) Right b) Left
Affected side of body	a) Right b) Left

Received physiotherapy treatment	a) 8-12 session b) 13-16 session c) 17-20 session d) > 20 session

Part : 3- Function related questionnaire (Barthel Index)

Activity	Score
FEEDING 0 = Unable 5 = Needs help cutting, spreading butter, etc., or requires modified diet 10 = Independent	
BATHING 0 = Dependent 5 =Independent (or in shower) **GROOMING** 0 = Needs to help with personal care 5 = Independent face/hair/teeth/shaving (implements provided) **DRESSING** 0 = Dependent 5 = Needs help but can do about half unaided 10 = Independent (including buttons, zips, laces, etc.) **BOWELS** 0 =Incontinent (or needs to be given enemas) 5 = Occasional accident 10 = Continent	
BLADDER 0 =Incontinent, or catheterized and unable to manage alone 5 = Occasional accident 10 = Continent	
TOILET USE 0 = Dependent 5 = Needs some help, but can do something alone 10 =Independent (on and off, dressing, wiping)	

TRANSFERS (BED TO CHAIR AND BACK) 0 = Unable, no sitting balance 5 = Major help (one or two people, physical), can sit 10 = Minor help (verbal or physical) 15 = Independent **MOBILITY (ON LEVEL SUFACES)** 0 = Immobile or < 50 yards 5 = Wheelchair independent ,including corners,>50 yards 10 = Walks with help of one person (verbal or physical) >50 yards 15 = Independent (but may use any aid ; for example ,stick) >50 yards	
STAIRS 0 = Unable 5 = Needs help (verbal, physical, carrying aid) 10 = Independent	

Part: 4- Anxiety related questionnaire (Generalized Anxiety Disorder)

Over the last 2 weeks, how often have you been bothered by the following problems? Please √ to indicate your answer.

Serial No	**Not at all sure**	**Several days**	**Over half the days**	**Nearly every day**
1.Feeling nervous, anxious, or on edge	0	1	2	3
2.Not being able to stop or control worrying	0	1	2	3
3.Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6.Becoming easily annoyed or irritable	0	1	2	3
7.Feeling afraid as if something awful might happen	0	1	2	3
Total score				

Part: 5- Depression related questionnaire (Patient Health Questionnaire)

Over the last 2 weeks, how often have you been bothered by the following problems? Please √ to indicate your answer.

Serial No	**Not at all sure**	**Several days**	**Over half the days**	**Nearly every day**
1.Little interest or pleasure in doing things	0	1	2	3
2.Feeling down ,depressed, or hopeless	0	1	2	3
3.Trouble falling or staying asleep or sleeping too much	0	1	2	3
4.Feeling tired or having little energy	0	1	2	3
5.Poor appetite or overeating	0	1	2	3
6.Feeling bad about yourself-or that you are a failure or have let yourself or your family down	0	1	2	3
7.Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8.Moving or speaking so slowly that other people could have noticed. Or the opposite-being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9.Thoughts that you would be better off dead, or of hurting yourself **Total score**	0	1	2	3

Appendix-2 (B)

প্রশ্নাবলী (বাংলা)

গবেষণার শিরোনাম : **"সিআরপিতে আগত স্ট্রোক রোগীদের ক্রিয়ামূলক এবং মানসিক ফলাফল"**।

পর্ব ১- ব্যক্তিগত বিবরণ :

রোগীর আইডি:

রোগীর নাম :

স্থায়ী ঠিকানা :

গ্রাম : ডাকঘর :

থানা : জেলা :

বর্তমান ঠিকানা :

গ্রাম : ডাকঘর :

থানা : জেলা :

মোবাইল নাম্বার :

পর্ব ২- সামাজিক বিষয়ক তথ্যাবলিঃ

প্রশ্নসমূহ	উত্তর
ঊয়স	বছর
লিঙ্গ	ক) পুরুষ খ)মহিলা
শিক্ষাগত যোগ্যতা	ক) কোন প্রাতিষ্ঠানিক শিক্ষা নাই খ)প্রাথমিক শিক্ষা গ)মাধ্যমিক শিক্ষা ঘ) উচ্চ মাধ্যমিক শিক্ষা ঙ) স্নাতক ডিগ্রী / স্নাতকোত্তর
পেশা	
বৈবাহিক অবস্থা	ক) বিবাহিত খ) অবিবাহিত গ) বিধবা/ বিপত্নীক ঘ) বিবাহ বিচ্ছিন্ন
পরিবারের ধরণ	ক) একক পরিবার খ) যৌথ পরিবার
বসবাসের এলাকা	ক) গ্রাম খ) শহর গ) পাহাড়ি এলাকা
পরিবারের সদস্য সংখ্যা	
ঊপার্জনকারী ব্যক্তি	

মাসিক আয়	
স্ট্রোকের তারিখ	
স্ট্রোকের ধরণ	ক) ইশকেমিক খ) হিমোরেজিক
মস্তিষ্কের আক্রান্ত অংশ	ক) ডান খ) বাম
শরীরের আক্রান্ত অংশ	ক) ডান খ) বাম
গ্রহনকৃত ফিজিওথেরাপি চিকিৎসা	ক)৮-১২ সেশন খ)১৩-১৬ সেশন গ) ১৭-২০সেশন ঘ) > ২০ সেশন

পর্ব-৩ -ক্রিয়া নিরুপন :

কার্যকলাপ	স্কোর
প্রতিপালন/ খাবার: ০= সক্ষম ৫= কাটা,মাখন ছড়ানো ইত্যাদি, কাজে সাহায্য প্রয়োজন বা পরিবর্তিত খাদ্যের প্রয়োজন। ১০= স্বাধীন (□□□□ □□□□ খেতে □□□□□)	
গোসল: ০= নির্ভরশীল ৫= স্বাধীন (বা ঝরনার মাধ্যমে)	
সাজগোজ: ০= ব্যাক্তিগত যত্নের সাথে সাহায্য প্রয়োজন ৫= নিজে নিজে মুখ, চুল, দাত, শেভিং এর কার্যসাধন	
ড্রেসিং /পোশাক পরিধান: ০= নির্ভরশীল ৫= সাহায্য প্রয়োজন কিন্তু প্রায় অর্ধেক কাজ সাহায্য ছাড়াই করতে পারেন□ ১০= স্বাধীন (বোতাম, জিপ, ফিতা ইত্যাদি সহ)	
পায়খানা: ০= মল মূত্রের বেগ ধারনে অক্ষম (বা ডুস দেওয়া প্রয়োজন) ৫= কখনো কখনো অনিয়ন্ত্রিত মল ত্যাগ ১০= নিয়ন্ত্রিত	

মূত্রথলী/ প্রস্রাব: ০= মল মূত্রের বেগ ধারনে অক্ষম বা মূত্র নিষ্কাশন করা এবং একা পরিচালনা করতে অক্ষম ৫= কখনো কখনো অনিয়ন্ত্রিত মূত্র ত্যাগ ১০= নিয়ন্ত্রিত	
টয়লেট ব্যবহার: ০= নির্ভরশীল ৫= সাহায্য প্রয়োজন কিন্তু নিজে নিজে কিছু করতে পারেন ১০= স্বাধীন বা নিজে নিজে করতে পারেন (চালু ও বন্ধ করা, পোশাক পরিধান,সম্মার্জনী) 	
স্থানান্তর (বিছানা থেকে চেয়ার, চেয়ার থেকে বিছানা): ০= অক্ষম,কোন বসার ভারসাম্য নেই ৫= অধিক সাহায্য (□□ □□ ২ □□ ব্যাক্তির □□□□□ সাহায) ১০= অল্প সাহায্য (মৌখিক বা শারীরিক) □□=স্বাধীন(□□□ □□□ □□□□ □□□□)	
□□□□□□/□□□□□(□□□□ □□□□□): □= □□□□□ অক্ষম □□ □□ □□□□ □□ □= হুইলচেয়ার □□□□ সক্ষম,কোণা □□ □□ □□ □□= □□□□ ব্যাক্তির সাহায □□□ □□□□ □□□□(মৌখিক ব□ □□□□□) □□=স্বাধীন (কিন্তু কোন সাহায্যকারী যন্ত্র ব্যাবহার □□□,যেমন-লাঠি)>□□ □□	

সিঁড়ি: ০= অক্ষম ৫=সাহায্য প্রয়োজন(মৌখিক ,শারীরিক,বহনকারী যন্ত্র) ১০= স্বাধীন	

পর্ব ৪- উদ্বিগ্নতা নিরুপন :

গত ২ সপ্তাহ ধরে আপনি কতটা ঘন ঘন নীচের এই সমস্যাগুলোর মুখোমুখি হয়েছেন? আপনার উত্তর চিহ্নিত করার জন্য টিক চিহ্ন দিন।

ক্রমিক নং	প্রশ্ন	**একদমই না**	**কয়েকদিন**	**অর্ধেকরও বেশীদিন**	**প্রায় প্রতিদিনই**
১	নার্ভাস, চিন্তিত বা অস্থিরতা বোধ করেন	০	**১**	২	৩
২	চিন্তা থামাতে বা নিয়ন্ত্রন করতে পারেন না	০	**১**	২	৩
৩	বিভিন্ন বিষয় নিয়ে বেশি দুশ্চিন্তা করেন	০	**১**	২	৩
৪	আরাম করতে পারেন না	০	**১**	২	৩
৫	এতটাই চঞ্চলতা বোধ করেন যে কোথাও স্থির হয়ে বসতে পারেন না	০	**১**	২	৩
৬	সহজেই বিরক্ত হয়ে পড়েন	০	**১**	২	৩
৭	সবসময় ভয়ে থাকেন যে, কোন খারাপ কিছু ঘটতে পারে	০	**১**	২	৩
মোট স্কোর					

পর্ব ৫- বিষন্নতা পরিমাপঃ

গত ২ সপ্তাহ ধরে আপনি কতটা ঘন ঘন নীচের এই সমস্যাগুলোর মুখোমুখি হয়েছেন? আপনার উত্তর চিহ্নিত করার জন্য টিক চিহ্ন দিন।

ক্রমিক নং	প্রশ্ন	**একদমই না**	**কয়েকদিন**	**অর্ধেকরও বেশীদিন**	**প্রায় প্রতিদিনই**
১	কাজ করতে অল্প আগ্রহ বা অনন্দ পান	০	**১**	২	৩
২	মনখারাপ, বিষন্ন বা আশাহীন মনে হয় নিজেকে	০	**১**	২	৩
৩	আপনার ঘুমাতে অসুবিধা হয় বা বেশি ঘুম হয়	০	**১**	২	৩
৪	ক্লান্ত লাগে বা অল্প এনার্জী বা শক্তি পান	০	**১**	২	৩
৫	খাবার খেতে ইচ্ছা করেনা বা বেশী খাওয়া হয়	০	**১**	২	৩
৬	নিজেকে ছোট লাগে- নিজেকে ব্যর্থ মনে হয় বা মনে হয় আপনি আপনার পারিবার বা নিজেকে ছোট করছেন	০	**১**	২	৩
৭	কোন কিছুতে মনোযোগ দেয়া সমস্যা হয়- যেমন সংবাদপত্র পড়া বা টেলিভিশন দেখা	০	**১**	২	৩

৮	এত আস্তে চলাফেরা করেন বা কথা বলেন যে অন্য মানুষেরা সেটা লক্ষ্য করে না বা একবোরে উল্টা, এতটাই চঞ্চল যে আপনি সাধারণ মানুষের চেয়ে বেশী চলাফেরা করেন	০	১	২	৩
৯	আপনার মনে হয় যে মরে গেলে ভাল বা নিজেকে নিজে আঘাত করলে ভাল	০	১	২	৩
মোট স্কোর					

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

Ref. CRP-BHPI/IRB/07/19/1312

Date: 16/07/2019

To
Homyra Nishat
B.Sc. in Physiotherapy
Session: 2014-2015 Student ID: **112140254**
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the dissertation **"Functional and psychological outcome of stroke survivors attended at CRP"** by ethics committee.

Dear Homyra Nishat,
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:

Sr. No.	Name of the Documents
1	Dissertation Proposal
2	Questionnaire (English version)
3	Information sheet & consent form.

The purpose of the study is to find out the functional and psychological outcome of stroke survivors. The study involves use of a questionnaire that includes Barthel Index scale (BI), Generalized Anxiety Disorder scale (GAD-7), Patient Health Questionnaire (PHQ-9). It may take approximately 20 minutes to fill in the questionnaire and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 9.00 AM on August 11, 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

Permission letter

21st April, 2019

The Head

Department of Physiotherapy,

CRP, Chapain, Savar, Dhaka-1343.

Through: The Head of the Department, Department of Physiotherapy, BHPI.

Subject: Seeking permission to collect data to conduct 4th year physiotherapy research project.

Dear Sir,

With due respect and humble submission to state that I am Homyra Nishat, student of 4th Professional B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). The ethical committee has approved the research project entitled on **"Functional and psychological outcome of stroke survivors attended at CRP"** under the supervision of Farjana Sharmin, Lecturer of BHPI, Junior consultant and OPD Incharge, Physiotherapy Department, CRP, Savar, Dhaka-1343,Bangladesh.Conducting this research project is partial fulfillment of the requirement for the degree of B.Sc. in physiotherapy. I want to collect necessary data for the research project from the patients attending at Neurological unit, department of Physiotherapy, CRP, Savar. Therefore I need to obtain your kind written permission to initiate data collection from the targeted patients. I would like to assure ethical principle would be followed as per guidelines of my institution/department.

May I, therefore pray and hope that you would be kind enough to grant my application & permit me to collect required data to accomplish the research objectives.

Yours obediently,
Homyra Nishat
Homyra Nishat

4th professional B.Sc. in Physiotherapy

Roll No.: 22, Session: 2014-15

Bangladesh Health Professions Institute (BHPI)

(An academic Institute of CRP)

CRP, Chapain, Savar, Dhaka-1343.

Forwarded & Recommended
21.4.19
Prof. Md Obaidul Haque
Head, Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Savar, Dhaka-1343

Farjana Sharmin
FARJANA SHARMIN
Junior Consultant and OPD Incharge
Physiotherapy Department
CRP, Savar, Dhaka

21.04.19
Mohammad Anwar Hossain
Associate Professor & Head
Physiotherapy Dept., CRP
CRP,Chapain, Savar, Dhaka-1343