



**Faculty of Medicine  
University of Dhaka**

**PSYCHOLOGICAL DISTRESS AND SOCIAL DISTURBANCE OF  
STROKE SURVIVORS IN CRP**

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BHPI, CRP, Savar, Dhaka-1343



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Bangladesh

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## **Declaration**

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

**Signature:**

**Date:**

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## Acronyms

<b>ADL</b>	Activities of Daily Living
<b>BDI</b>	Beck Depression Inventory Scale
<b>CRP</b>	Centre for the Rehabilitation of the Paralyzed
<b>CVA</b>	Cardio Vascular Accident
<b>GHQ</b>	General Health Questionnaire
<b>GMD</b>	Geoscientific Model Development
<b>MSPS</b>	Multidimensional Scale of Perceived Social support
<b>SPSS</b>	Statistical Package for the Social Science
<b>TPQ</b>	Trauma Practices Questionnaire
<b>WHO</b>	World Health Organization

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## Abstract

**Purpose:** The purpose of the study is to detect the factors associated with psychological distress and social disturbance in stroke survivors. **Objectives:** This study aims to identify factors linked to psychological distress and social disruption in stroke survivors, gather sociodemographic data on ischemic stroke patients, investigate gender-related associations with post-stroke depression, explore age-specific psychological distress, assess the connection between family support and age, examine links between psychological issues and significant others, determine relationships between the family's earning member and psychological affliction, and explore the connection between psychological discomfort and friends. **Methodology:** This study employed a cross-sectional approach, selecting 105 convenient samples from CRP's Neurology unit in Savar. Data collection involved face-to-face interviews utilizing semi-structured research questions. **Results:** Among the 105 participants, 21% reported no distress, while 72.4% experienced mild distress, and 6.7% had severe distress. In terms of family support, 9.5% needed low assistance, 30.5% required moderate support, and 60% relied on high support. These findings indicate a lack of strong evidence supporting the hypothesis that gender significantly influences depression. However, a significant association was observed between age and depression. Additionally, the socioeconomic status of the family notably affected the level of support required. **Conclusion:** This study underscores the importance of addressing psychological distress and social support in stroke survivors. Our findings highlight that a significant portion of stroke survivors experience mild to moderate psychological distress, emphasizing the need for tailored interventions to address their mental well-being. Family support emerged as a critical factor, with most participants requiring substantial assistance. While gender did not significantly impact depression, age-specific care strategies are essential. Socioeconomic status also influenced support needs. These insights emphasize the need for patient-centered approaches to enhance the quality of life for stroke survivors.

**Key words:** Stroke, Depression, family support, socioeconomic status

## 1.1 Background

A stroke resulting from a cerebral infarction or cerebral hemorrhage is the primary cause of lifelong disability in people and the second most significant cause of death after a heart attack and cancer (Feigin et al. 2017). Every year, more than 25 million people worldwide are diagnosed with a stroke, and 6.5 million die from it (Feigin et al. 2016). In addition to physical disability, stroke patients might develop a variety of physiological effects, such as mental disorders, which can compromise rehabilitation and impact long-term recovery (Thompson et al. 1989). It is anticipated that one in four people may develop a psychological problem at some point (Bandelow et al. 2017). This can be a natural and appropriate response to stress and life-threatening occurrences. Dread commonly refers to anything that causes discomfort, including frustration, boredom, anxiety, despair, and guilt. Less is known about posttraumatic stress disorder and poststroke anxiety; however, evidence suggests that approximately 25 percent of stroke survivors experience chronic anxiety symptoms (Ali et al. 2021; Cumming et al. 2016; Garton et al. 2017). Stroke is responsible for major physical and psychological disabilities and is likely to increase as the world population ages. The World Health Organization (WHO) estimates that 15 million people worldwide suffer from a stroke annually and almost 30% of those afflicted will develop permanent disability (Roger & Johnson-Greene 2009). Moreover, stroke is the most common cause of disability among adults (Laska et al. 2007). More than 66% of global stroke deaths are reported in developing countries (Sagen et al. 2009). As a result, individuals with impaired emotion recognition may find everyday conversations cumbersome or confusing, while individuals in their social network may feel frustrated or discouraged by being misunderstood. Such outcomes have important clinical implications. For stroke survivors in particular, strong and supportive social networks are associated with better rehabilitation compliance (O'Connell et al. 2021)

Better understanding the effects of stroke on emotion recognition and social well-being – and how deficits in these domains can be rehabilitated – is essential given that the number of stroke survivors is projected to increase over the next decade. By 2030 an estimated 3.9% of U.S. adults will have suffered a stroke, a 22% increase relative to the 3.2% reported in 2019 (Ovbiagele et al. 2013). For stroke survivors in particular, strong and supportive social networks are associated with better rehabilitation compliance (Cheng &

Vickrey 2006) and improved long-term clinical outcomes (Moskowitz, Beckley & Anna 2007) including reduced morbidity and mortality (Northcott et al. 2016). Social isolation may be more prevalent among African Americans and whites in this population because of the complex relationship among poverty, race-ethnicity, and social support. Post stroke disability most likely leads to greater social isolation and withdrawal from community activity. Finally, the data collected on social support are limited in their ability to characterize the mechanisms by which social support impacts on outcomes (Northcott et al. 2016). Higher levels of distress are associated with a range of adverse outcomes including greater social impairments (Shimoda and Robinson 1998), poorer quality of life (Haley et al. 2006), increased risk of incident stroke (Surtees et al. 2008) and even death (Williams et al. 2004). The merits and role of psychological interventions post-stroke are poorly understood (Kneebone and Dunmore 2000; Mitchell et al. 2009). It has been frequently reported that the level of social support has a strong influence on functional recovery by leading the patients to believe they were concerned and cared for by their friends and families (Ikeda et al. 2013; Dreyer & Schwartz-Attias 2014) Previous researches also demonstrated that social support has significant positive effects on psychological health and indicated that social support intervention may help alleviate psychological distress (Liu, Xu & Wang 2017; Zhang et al. 2015; Cumming et al. 2008) Self-efficacy refers to the strength or extent of one's belief in one's own ability to reach goals (Wang, Z-Y et al. 2015). Hope is defined as confidence in one's future. It can provide mental energy through the stages of goal pursuit (Snyder 2002) Resilience is another important positive psychological factor that is considered as a particular trajectory of positive adaptation, helping to protect against psychological distress effectively (Mancini & Bonanno 2009). The associations of psychological distress with positive psychological variables and ADL following stroke is critical (Jones, Partridge & Reid 2008; Fugl-Meyer et al. 2003). In stroke patients, social support is believed to affect the quality of patient care and illness outcome, regarding patient's physical and psychosocial well-being (Williams & Freer 1986; Evans & Northwood 1983). Functional deterioration, major depression, and social disintegration after stroke often interact to reduce life satisfaction (Aström, Adolfsson & Asplund 1993). Sometimes stroke patients with great physical or emotional impairment also undergo social deterioration and need the most intense social intervention (Robinson et al. 1985). It has been noted, though, that the psychosocial status of stroke patients is not always in accordance with their functional status; sometimes a small physical disability may coexist with great difficulty in general

adaptation (Ebrahim, Barer & Nouri 1987; LAWRENCE & CHRISTIE 1979; Ahlsjö et al. 1984). It impairs social functioning and quality of life (King 1996). and interferes with the recovery of the motor (Clark & Smith 1997; Parikh et al. 1990) and language functions (Parikh et al. 1990). Whether treating depression can reduce the risk of stroke mortality is not yet known. Effective treatment of depression has been shown to enhance quality of life and to improve physical, emotional, and social functioning (Ormel et al. 1993). During the past decade, research has focused on increasing understanding of the bidirectional association between depression and stroke. Results from stroke survivor (Lindén, Blomstrand & Skoog 2007) Register (Stenager et al. 1998) and population-based (Jonas & Mussolino 2000). studies have suggested that depression commonly occurs following stroke, necessitates increased need for poststroke healthcare, is associated with an increased risk of suicide, particularly in women and in younger age groups, and following control for vascular and other risk factors, is associated with increased stroke incidence. However, the evidence that depression may confer increased risk of incident stroke is controversial (Williams 2005; Carod-Artal 2007). stroke can raise numerous ethical dilemmas for patients, families, and health care providers. Following a stroke, an individual may have impairments in emotional, cognitive, physical, and social domains. Classical ethical analyses focus on philosophical principles such as respect for autonomy, beneficence, nonmaleficence, and social justice (Hackett & Anderson 2005). In the clinical domain, ethical analyses also involve examination of complex individual responses, psychological processes, and social context. During the last two decades, the concept of social support has enjoyed the attention of social and behavioral scientists to a greater extent than any other psychosocial variable. It has been heralded as a magic bullet and attacked as a myth. There is little doubt that an association exists between social interactions and mortality (House et al. 2001,; Berkman & Syme 1979; BLAZER 1982). as well as morbidity (House, Landis & Umberson 1988; Hibbard 1985; Glass & Maddox 1992).

Stroke is responsible for major physical and psychological disabilities and is likely to increase as the world population ages. The World Health Organization (WHO) estimates that 15 million people worldwide suffer from a stroke annually and almost 30% of those afflicted will develop permanent disability (Roger & Johnson-Greene 2009). Moreover, stroke is the most common cause of disability among adults (Laska et al. 2007). More than 66% of global stroke deaths are reported in developing countries (Sagen et al. 2009).

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Better understanding the effects of stroke on emotion recognition and social well-being – and how deficits in these domains can be rehabilitated – is essential given that the number of stroke survivors is projected to increase over the next decade. By 2030 an estimated 3.9% of U.S. adults will have suffered a stroke, a 22% increase relative to the 3.2% reported in 2019 (Ovbiagele et al. 2013). For stroke survivors in particular, strong and supportive social networks are associated with better rehabilitation compliance (Cheng & Vickrey 2006) and improved long-term clinical outcomes (Moskowitz, Beckley & Anna 2007) including reduced morbidity and mortality (Northcott et al. 2016). Social isolation may be more prevalent among African Americans and whites in this population because of the complex relationship among poverty, race-ethnicity, and social support. Post stroke disability most likely leads to greater social isolation and withdrawal from community activity. Finally, the data collected on social support are limited in their ability to characterize the mechanisms by which social support impacts on outcomes (Northcott et al. 2016)

## **1.2 Rationale**

Psychological distress and social disturbance are significant issues faced by individuals who have experienced a chronic stroke. Bangladesh, as a developing country, has limited resources and support systems in place for stroke survivors, making it crucial to investigate the psychological and social implications of chronic stroke within this context. This research aims to shed light on the psychological well-being and social functioning of chronic stroke survivors in CRP, thereby identifying the challenges they face and providing insights to develop appropriate interventions and support strategies. Chronic stroke survivors often experience psychological distress, including depression, and reduced quality of life. Moreover, they may face social disturbances such as social isolation, stigmatization, and reduced social participation. Understanding the extent and nature of these issues is vital to improve the overall well-being and quality of life for stroke survivors. Bangladesh, like many developing countries, faces unique challenges in providing comprehensive healthcare and rehabilitation services for stroke survivors. The limited availability of specialized stroke care facilities and the lack of awareness among the general population about stroke-related issues contribute to the psychological and social difficulties faced by chronic stroke survivors in this country. This knowledge can help develop targeted interventions and support programs that address the challenges faced by stroke survivors, enhance their psychological well-being, and promote social reintegration. Social disturbance is a significant issue for stroke survivors, as it affects their social relationships, participation in daily activities, and community integration. By investigating the social disturbances faced by chronic stroke survivors in Bangladesh, this research can contribute to raising awareness about the importance of social inclusion for this population. Despite the growing global recognition of the psychological and social consequences of stroke, research in this area remains limited, particularly in developing countries like Bangladesh. This study aims to bridge the existing research gap by providing empirical evidence on the psychological distress and social disturbance experienced by stroke survivors in this specific context. The findings can contribute to the existing body of knowledge and stimulate further research on stroke rehabilitation and mental health support in similar settings. The findings will inform healthcare practices, promote social inclusion, and contribute to the overall well-being and quality of life of stroke survivors in CPR and potentially in other similar settings. From the literature review done for this study, no articles were found that show research on psychological distress

and social disturbance in stroke survivors in CRP. Few reports have been published on these topics, which is not enough.



### **1.3 Research question**

What factors are associated with psychological distress and social disturbance in chronic stroke?

#### **1.4 Aims of the study**

The aim of the study is to detect the factors associated with psychological distress and social disturbance in chronic stroke survivors in CRP.

## **1.5 Objectives**

General objective:

- i. To identify the factors associated with psychological distress and social disturbance in chronic stroke survivors.

Specific objectives:

- 4.1 To find out sociodemographic information of ischemic stroke patients.
- 4.2 To discover relationship between different gender and depression after stroke
- 4.3 To determine relationship between gender and psychological distress.
- 4.4 To explore the different age level psychological distress after stroke
- 4.5 To identify relationship between family psychological support and age
- 4.6 To determine relationship between earning member and psychological affliction
- 4.7 To come across connection between psychological discomfort and friends
- 4.8 To relate relationship between of stroke occurrence and family psychological support

More than 24,000 years ago, Hippocrates, the founder of Western medicine, described Stroke as a neurological disorder characterized by the sudden onset of muscle paralysis on one or both sides of the body (NINDS, 2004).

The pathogenesis and clinical determinants of ischemic stroke and hemorrhagic stroke are distinct, and the incidence rate of ischemic stroke in East China was significantly higher than that of hemorrhagic stroke (Zhang et al. 2011). Pathophysiological terms differentiate between infarction and hemorrhage. An infarction is the most prevalent and affects approximately 80% of all stroke patients, whereas a hemorrhage affects 20% of all stroke patients. Depending on the extent and location of the brain lesion, the clinical presentation can range from mild neurological symptoms to severe deficits (Kuriakose & Xiao 2020).

The risk factors for stroke fall into two categories. There are two categories of factors: those that are modifiable or reversible and those that are not modifiable or irreversible. Non-modifiable or irreversible risk factors include age, gender (male > female except in the very young and very old), previous vascular events such as myocardial infarction, stroke, or peripheral embolism (Boehme, Esenwa & Elkind 2017), high fibrinogen, race (Afro-Caribbean > Asian > European), and heredity (Albert et al. 2009). Hypertension, diabetes, heart disease (atrial fibrillation, heart failure, endocarditis), hyperlipidemia, smoking, excessive alcohol consumption, polycythemia, and oral contraception are modifiable or reversible risk factors (Aune et al. 2023). Smoking cigarettes and drinking alcohol have long been recognised as significant risk factors for stroke. Their multifactorial pathophysiological effects involve systemic vasculature and blood rheology (Juvela et al. 1993).

Individuals who have suffered a Cerebrovascular Accident (CVA) may experience cognitive and sensitive impairments, but motor impairments such as muscular weakness, hypertonia, aberrant movement patterns, and physical deconditioning are the most prevalent. Individuals with CVA have musculoskeletal disorders that are regarded as significant impairments and typically result in limitations in functional and daily living activities such as walking, stair climbing, and descending. Stroke can also cause language difficulties such as aphasia (difficulty understanding speech or writing) and dysarthria (knowing words but having trouble saying them clearly), problems with memory, thinking, attention, or learning, possible inability to comprehend objects, recognise

affected body parts or understand commands, and difficulty swallowing (Chohan, Venkatesh & How 2019).

The diagnosis and treatment of a stroke are both urgent medical needs (Amanullah et al. 2009). There is currently no cure for stroke. Early identification and mitigation of modifiable risk factors can reduce the risk of stroke. This is important for the backdrop of our nation, where little healthcare resources and facilities exist and the vast majority of people live in poverty (Hossain et al. 2011). Numerous biological and environmental factors play a role in stroke recovery, and each person's recovery trajectory is unique (Romero, Morris & Pikula 2008).

Stroke is the primary cause of long-term disability in the West, and the severity of the stroke affects the functional consequences. According to estimates, 460 stroke survivors out of every 100,000 will experience incomplete recovery, and one-third will be in charge of at least one ADL. In the three months following a stroke, 50% to 70% of survivors regain functional independence, but 15% to 30% are totally incapacitated. The remaining 20% need institutional care. 85% of stroke victims lose the ability to use their upper limbs in the beginning of the disease (Ahmed Chohan, Kappaganthu Venkatesh & How How 2019). By offering a safe, gradual treatment that is customized to each patient and indicating that physical therapy employs the disused brain pathways, rehabilitation aims to get the patient back home and to maximize recovery (Han, Song & Kim 2011).

Poststroke depression (PSD) is not only a common sequel after stroke but also one of the most frequent complications of stroke, with a prevalence ranging between 20 and 60%. Poststroke depression has the same signs and symptoms as does major depressive disorder (MDD) (Altieri et al. 2012). According to Van Peppen et al. (2004), rehabilitation of stroke patients entails a thorough assessment of medical issues, impairments, and disabilities, active physiological management, early mobilization and avoidance of bed rest, skilled nursing care, early organization of rehabilitation plans involving caregivers, and early assessment and planning for discharge. In order to set appropriate therapy goals, create efficient treatment plans, and encourage discharge planning, it is necessary to make assumptions about the patients' anticipated level of recovery (Canning et al. 2003). Physiotherapy plays a significant role in the recovery process. Some of the approaches used to encourage healing and restore movements include exercise, manipulation, massage, skills training, and treatment using electrical therapies.

The major objective of physical therapy following a stroke is to assist patients in regaining

as much strength and mobility as possible by teaching them to use both sides of their bodies once more (Stroke association, 2012). By using the abilities they have acquired throughout their education and professional growth to assess and treat stroke-related issues according to scientific principles, physiotherapists play a vital role in the physical management of stroke (Hattem et al. 2016). After a stroke, coordinated multidisciplinary treatment and (Van Peppen et al. 2004) Rehabilitation increases patient survival and self-determination while decreasing hospital stays. Since our brains cannot regenerate new cells to replace those that have been damaged by a stroke, recovery depends on the brain's capacity to reorganize its undamaged cells and compensate for what has been lost. The term neuroplasticity describes this phenomenon. For the promotion of this phenomenon, physiotherapy can offer expert advice. Physiotherapists frequently collaborate with other members of the stroke team to ensure that they are able to assist with the vast array of stroke-related issues. The team may include occupational therapists, speech and language therapists, physicians, nurses, social workers, and other specialists. This group is known as the multidisciplinary stroke rehabilitation team (Stroke association, 2012). Physiotherapy concepts typically focus on regaining and enhancing motor control of the afflicted limb and postural control (Outermans et al. 2010).

Approximately 85.5% of all stroke fatalities worldwide occurred in low- and middle-income countries. According to the evidence, one in twenty adults (aged 14 and older) in developed nations suffer from a stroke. Despite the fact that stroke mortality and load rates vary considerably among low-income countries (Abd-Allah & Moustafa 2014), there is a correlation between the two. Stroke is a chronic neurological condition, yet the majority of research has focused on measuring short-term outcomes in the domains of impairments and disability. 1980 saw the development of the international classification of impairments, disabilities, and handicaps by the World Health Organization (WHO). The number of fatalities is 76%, the number of impairments is 76%, the number of disabilities is 42%, and the number of handicaps is 2% (Patel et al. 2006).

Stroke is the third leading cause of death among women and the fourth among males in the United States. Men may have slightly higher stroke rates, but women have higher overall stroke mortality rates due to their older average age. Numerous studies have found that women who have suffered a stroke fare worse than males. Women have a greater prevalence of physical impairments and limitations in activities of daily living (ADL), which are the fundamental components of self-care (Rexrode et al. 2022) . More than 700,000 strokes occur annually in the United States, resulting in more than 4.8 million

stroke survivors and more than 160,000 fatalities. Between 1988 and 1997, the age-adjusted stroke hospital increased by 18.6%, while the total stroke hospital increased by 38.2%. The estimated cost of stroke was \$53.6 billion in 2004, the average life expectancy was \$140,048. Also among the primary causes of functional impairments (Fang & Alderman 2001) is a stroke.

In the United Kingdom, stroke is also a prominent cause of illness and death. In England, Approximately 110,000 strokes occur annually; according to recent studies, the incidence rate between 2002 and 2004 was 1.36 per 1000 individuals per year and 1.62 per 1000 individuals per year, respectively. In 2008, over 46,000 individuals perished in England and Wales (9 percent of all deaths). The current British health policy gives stroke prevention a high priority. These main risk factors, including high blood pressure, high cholesterol, atrial fibrillation, and diabetes, must be managed more effectively (Lee, Shafe & Cowie 2011).

Every year, 200,000 individuals in Germany suffer their first stroke, and another 60,000 suffer a stroke after one or more pre-stroke events; in less than five years, the risk of suffering a stroke at any point in one's life is extremely high. Eighty percent of strokes are ischemic, while twenty percent are hemorrhagic. More than a quarter of stroke patients are younger than 65 years old. Risk factors (hypertension, smoking, lack of exercise, weight, and other risk factors) play a crucial role in the development of vascular diseases (WHO 2022). According to standard mortality statistics, there are a number of differences in the number of stroke fatalities between European nations, with the majority of eastern European nations faring much better. According to projections for the European region, the proportion of 65-year-olds, who account for the majority of stroke occurrences, will increase to 35% in 2050 from 20% in 2000, while the middle-aged population will increase from 37.7 years in 2000 to 47.7 years in 2050 (Wafa et al. 2020).

Over the age of 50, 4.03 percent of Singapore's population of 1.8 million is affected by stroke. Stroke is becoming more prevalent in Singapore as a result of the state's accelerated urbanization, and stroke will exacerbate the outbreak of survivors. Almost forty percent of stroke survivors are severely disabled, which has a substantial impact on their social and health-related wellbeing. Rehabilitation by a multidisciplinary team significantly improves functional outcomes after a stroke, reducing the likelihood of institutionalization and mortality (Wafa et al. 2020). In China, the lifetime prevalence of stroke was 2.08% in 2017, culminating in 2.9 million patients (Wang et al. 2017). In Korea, the second leading cause of mortality is stroke (Kim et al. 2019). In Thailand,

stroke is the third leading cause of mortality. Despite initial resistance to progress, many of the effects of stroke on survivors have worsened:

Approximately half of 12-month stroke survivors rely on others for self-care and are unable to provide for themselves.

Personal pursuits in daily existence. It maintains a substantial demand for healthcare via re-hospitalization, community support requirements, and rehabilitation organizations. (Suwanwela 2014) Stroke patients must deal with the problem of strokes as well as functional limitations and diminished social interactions.

In 2008, a study conducted in the Netherlands identified 26,556 patients who had their first stroke (20,798 hospitalized patients and 5,758 fatalities outside of hospitals). The estimated number of non-fatal, non-hospitalized first-time stroke patients is 12,255. When the data was extrapolated to the entire Dutch population, the result was an estimate of approximately 41,000 first-time stroke patients. Except for the youngest (45 years) and oldest (> 85 years) age categories, the incidence of stroke increased with age and was higher in men than in women as people aged (Vaartjes et al. 2008). A study conducted in Europe found population projections for the European Union and three selected European Free Trade Association (EFTA) countries assuming stable incidence rates, a 2% increase in incidence every five years, and a 2% decrease in incidence every five years, based on estimates from the World Health Organization (WHO). Even if stable rates can be maintained, demographic changes in these countries will result in a substantial increase in the number of stroke cases, from approximately 1.1 million per year in 2000 to more than 1.5 million per year in 2025 (Truelsen et al. 2006).

A study conducted in 2017 revealed that the incidence of stroke in India ranged from 105 to 152/100,000 people per year, with the countrywide prevalence of stroke spanning from 44.29 to 559/100,000 people over the previous decade. These figures surpassed those of countries with high incomes (Kamalakannan et al. 2017).

For the years 2000 to 2016, the crude age- and gender-adjusted incidence of stroke in Pakistan was 95 per 100,000 people per year, with individuals aged 75 to 85 having the highest incidence (Khan 2018).



### **3.1 Study Design**

A cross-sectional design was selected for the investigation. A cross-sectional study is a descriptive study in which disease and exposure status are measured concurrently in a given population, and its primary benefits are that it is fast and inexpensive.

In a cross-sectional survey, data are collected from a sample of a predetermined population. This design involves identifying a group of individuals who utilize a particular service and then collecting the data needed by the researcher.

This form of data can be used to determine depression and anxiety and social disturbance in a population. One of the most common forms of research, survey research entails asking a large number of people questions about a topic or issue of interest to the participant. A survey is a method of data collection involving the measurement of relevant sample variables (often via a questionnaire) without manipulation or systemic interference.

### **3.2 Study area**

The Centre for the Rehabilitation of the Paralyzed (CRP) was chosen for this study. This place was chosen because it was suitable for the study and there were samples which met inclusion and exclusion criteria of my study. At this place a patient with Stroke came for rehabilitation from a different area of Bangladesh. The Neurology Unit of the Physiotherapy department at the Centre for the Rehabilitation of the Paralyzed (CRP) in Savar, Dhaka was selected for this study.

### **3.3 Study Population**

In this study, stroke patients were the sample population discharged from rehabilitation intervention in the Neurology Unit of Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka.

### **3.4 Study duration:**

Data were collected by conducting an interview with a structured questionnaire paper. The questionnaire sought information on socio-demographic information, depression and anxiety related questions, social disturbance related questions. Data were collected from 03-05-2023 to 30-07-2023. The English questionnaires were converted into Bengali to ask questions to the participants during interviews. Researchers must take permission from each volunteer participant by using a written consent form in Bengali.

### **3.5 Sampling procedure:**

For this research, convenience sampling was used due to time constraints, the small size of the population, and because it was the simplest, cheapest, and quickest method of sample selection. Using informed assent, samples were collected from the Centre for the Rehabilitation of the Paralyzed (CRP) in Savar, Dhaka. It was not possible to study the entire population in the allotted period due to the large number of patients; therefore, 105 samples were selected from this population based on inclusion and exclusion criteria.

### **3.6 Inclusion criteria:**

- The study will include stroke patient age range between 20-70 years
- First time stroke
- Taking Rehabilitation services for more than 6 months.
- Admitted to CRP with a primary diagnosis of stroke
- Ability to speak

### **3.7 Exclusion criteria:**

- The study will exclude the patient who has Aphasia, Cognitive problem.
- Age more than 70 years old and less than 20 years old.
- Taking Rehabilitation services less than 6 months
- Pregnancy or lactation

### 3.8 Sample Size:

The equation of sample size calculation is given below-

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

Here,

n= Required sample size.

z =confidence level at 95% (Standard value is 1.96).

p = Prevalence 23.3% (Weerasinghe et al. 2022, p.156)

d = margin of error at 5% (Standard value is 0.05).

q = (1-p)

So,

$$n = \frac{(1.96)^2 \times 0.233 \times 0.767}{(0.05)^2}$$

n= 274.6 or 275

According to this equation the sample should be 275 more than people but due to lack of opportunity the study sample was 105 patients with stroke who had come to CRP for physiotherapy treatment.

### **3.9 Data collection tools**

The tools were used for collecting data are Patient's Socio-demographic Information, The General Health Questionnaire (GHQ), Multidimensional Scale of Perceived Social Support (MSPSS), pen, pencils, white paper, approved forms and consent forms, clip board and a bag for storing these tools.

### **3.10 Measurement tools**

#### **3.10.1 General Health Questionnaire (GHQ)**

The General Health Questionnaire (GHQ) is a widely used psychological screening tool designed to assess an individual's mental health and identify potential psychological distress or psychiatric disorders. It was developed by Dr. David Goldberg and his colleagues in the 1970s. The GHQ is a self-report questionnaire that consists of a series of questions aimed at capturing a person's recent experiences and feelings related to their psychological well-being (Furnham & Cheng 2019).

The GHQ is designed to be a brief and practical tool for use in various settings, including clinical practice, research, and community surveys. It is used to detect a wide range of mental health issues such as anxiety, depression, social dysfunction, and somatic symptoms. The questionnaire is typically available in different versions, each with a varying number of items, making it adaptable to different research or clinical needs.

There are several versions of the GHQ, but one of the most common is the GHQ-12, which consists of 12 questions. Respondents are asked to indicate whether a particular symptom or feeling has been present in their life during a recent period (usually the past few weeks or months). The GHQ-12 often uses a 4-point Likert scale, where respondents rate their experiences on a scale ranging from "Not at all" to "Much more than usual."

The GHQ is often categorized into two main scoring methods: the traditional Likert scoring method and the binary method. In the traditional scoring, each response is assigned a specific weight, and the total score is calculated. In the binary method, the responses are usually dichotomized into two categories (e.g., 0 and 1), and the total score is calculated by summing up the individual item scores (Campbell, Walker & Farrell 2003).

A higher score on the GHQ indicates a higher level of psychological distress or potential mental health issues. However, it's important to note that the GHQ is a screening tool and

not a diagnostic instrument. A high score on the GHQ suggests the need for further assessment by a qualified mental health professional to determine the presence and nature of any mental health disorder (Comotti et al. 2023).

The GHQ has been translated into numerous languages and has been used in various cultural contexts. It has been validated and found to have good reliability and validity in identifying psychological distress across different populations. The questionnaire has been utilized in both clinical and non-clinical settings, including primary care, occupational health, and research studies (Anjara et al. 2020).

While the GHQ is a useful tool for identifying potential mental health issues, it's important to interpret the results cautiously and consider other factors when making clinical decisions.

### **3.10.2 Multidimensional Scale of Perceived Social Support (MSPSS)**

The Multidimensional Scale of Perceived Social Support (MSPSS) is a psychological assessment tool developed in 1988 by Zimet, Dahlem, Zimet, and Farley. It aims to measure an individual's perception of the support they receive from their social network, particularly from family, friends, and significant others (Zimet et al. 1990).

The MSPSS consists of 12 items that are divided into three subscales: Family Support, Friend Support, and Significant Other Support. Each subscale contains four items that assess the perceived level of support from each respective source. Respondents rate their agreement with each statement on a 7-point Likert scale (Kuru & Piyal 2018).

To score the MSPSS, the items within each subscale are summed to create scores for Family, Friend, and Significant Other Support. Higher scores indicate a greater perceived level of support from that specific source. An overall score can also be calculated by summing the scores from all three subscales (Shao et al. 2021).

Researchers and clinicians use the MSPSS to understand an individual's perception of social support and its potential impact on psychological well-being. It has been applied in various studies to examine the relationship between perceived social support and outcomes like stress, anxiety, depression, and overall quality of life (Merino-Soto et al. 2022).

The MSPSS is valuable for assessing social support, but it should be used alongside other measures and within a broader assessment to gain a comprehensive understanding of an individual's mental health and social support network. For more detailed information and

references about the Multidimensional Scale of Perceived Social Support (MSPSS), it is advisable to consult reputable psychological assessment literature and research articles.

### **3.11 Data collection procedure**

At first the researcher will take permission from the head of the department of Physiotherapy Therapy in CRP-Savar to collect data from outpatient unit and Stroke Rehab Unit. Researchers reviewed the schedule of patients with stroke from unit in-charge and then made a daily potential participant list to check the inclusion criteria. Before collecting data, researchers provided information sheets and consent forms to participants. Participants got the 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 cell phone and face to face. Through this process researchers asked questions and filled up questionnaires.

### **3.12 Data Analysis**

Data were analyzed by using Statistical Package for the Social Science (SPSS) version 27 software. The variables were labeled in a list and the researcher created a computer-based data definition record file that contained a list of variables in order. The researcher inputted the name of the variables and defined the types, values, decimal, label alignment and data measurement level in the variable view of SPSS. The next task was to check the inputted data set to confirm that all data had been correctly copied from the questionnaire paper to the SPSS data view. The raw data were then ready to be analyzed in SPSS. Data were analyzed by descriptive statistics and calculated as percentages and presented by using tables, bar charts, column charts, pie charts etc. Microsoft office Excel 2013 was used to decorate the column charts, bar charts and pie charts. By this study a lot of information was collected. All results gave an idea about the depression & anxiety among stroke patients and also about their social disturbance. To find out the association among the different variables Chi- Square test and independent sample-t test was performed.

### **3.13 Ethical consideration**

An oral dissertation presentation was presented in front of members of Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI). The research proposal was then submitted for approval to the Institutional Review Board (IRB). The ethical review board approved this research. At first the researcher applied for official permission for the study to the authority of Bangladesh Health Professions Institute (BHPI) and Department of Physiotherapy (Clinical) to collect data from Neurology Unit of Physiotherapy department, CRP, Savar. During the course of this study, interested participants were given written consent forms and also they were informed about the purpose of the study and the

The consent form was explained to them verbally in Bengali. The participants were made aware that their participation was entirely voluntary and they had the unrestricted right to withdraw or discontinue at any time without any kind of hesitation. They were also ensured about maintaining confidentiality of their identity. The participants were informed that the information would be collected through a written questionnaire. The consent form and questionnaire were also checked by the supervisor. For this study researchers took permission from every interested participant. The participants were given information about their role in the study. Aim of the research and procedures involved in the study were also described to the participants. The study information was only discussed with the supervisor and it was never shared with anyone else. These materials will be exposed after completion of the study. Although the findings of the study may not have a direct impact on the participants, rehabilitation professionals may benefit from it in the future.

### **3.14 Inform Consent**

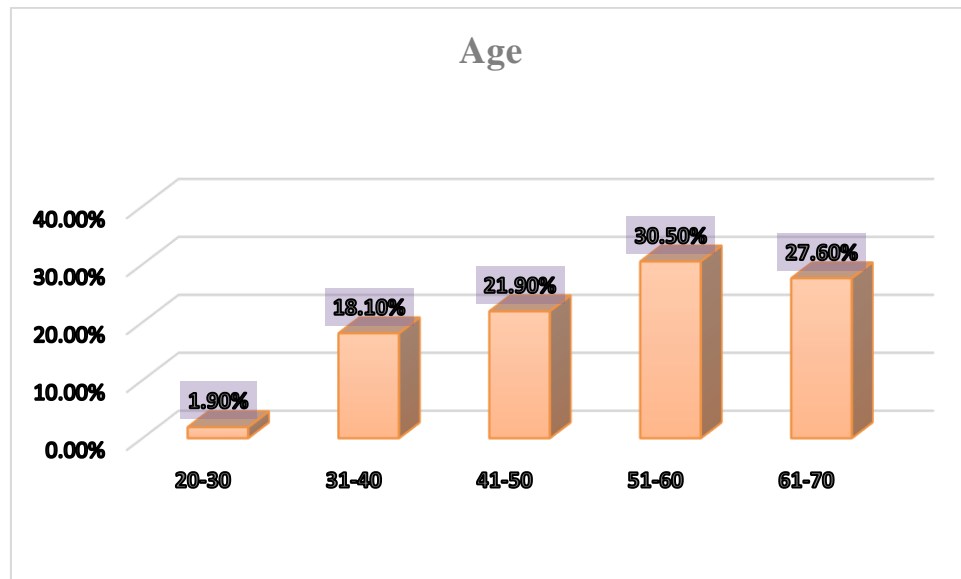
**Informed Consent** The researcher obtained consent to participate from every subject. A signed informed consent form was received from each participant. The participants were informed that they have the right to meet with outdoor doctor if they think that the treatment is not enough to control the condition or if the condition become worsen. The participants were also informed that they were completely free to decline answering any question during the study and were free to with draw their consent and terminate participation at any time.



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

## Socio demographic information

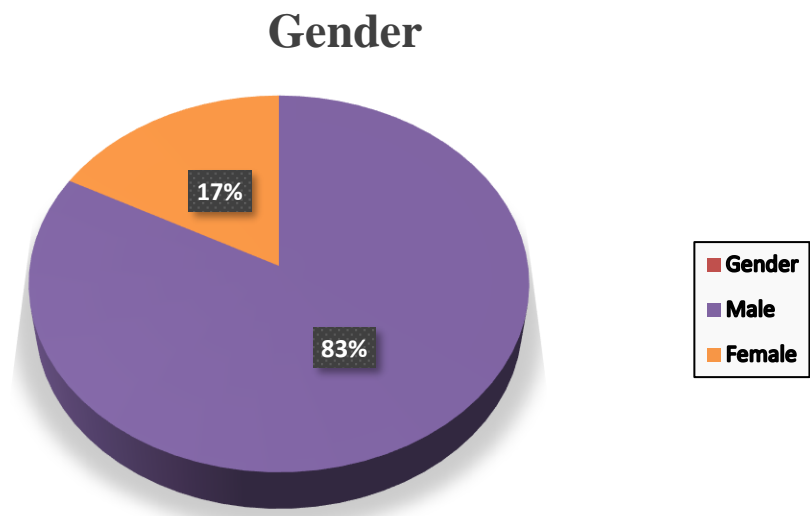
### 4.1 Age of the participants



**Figure-4.1: Age of the participants**

The study was conducted on 105 participants having Ischemic Stroke. In the study the minimum age of a participant was 20 and maximum age of a participant was 70. Participants in between 20-30 years were found 1.90% (n=2), participants in between 31-40 years were found 18.10% (n=19), participants in between 41-50 years were found 21.9% (n=23), participants in between 51-60 years were found 30.5% (n=32), participants in between 61-70 years were found 27.6% (n=29). Here most age group people are in between 51-60 years.

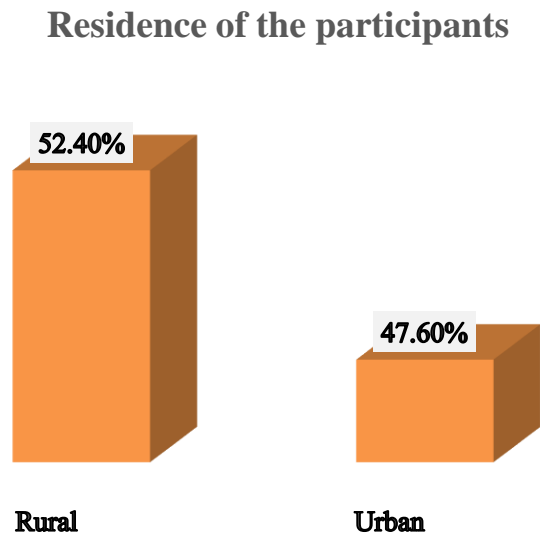
## 4.2 Gender of the participants



**Figure-4.2: Gender of the participants**

In my study male were more males than females. Among the 105 participants 83% (n=87) were male and 17% (n=18) were female. Here males are more than female.

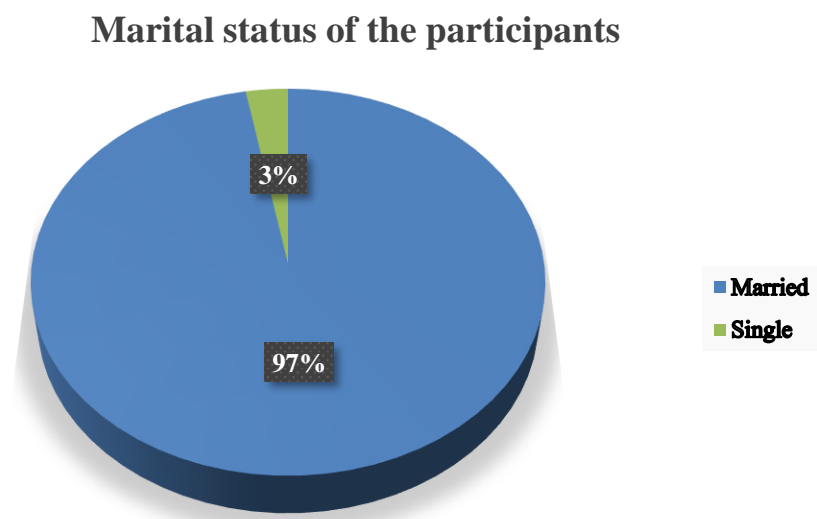
### 4.3 Residence of the participants



**Figure-4.3: Residence of the participants**

The column chart showed that among the 105 participants it was found that 47.6% (n=50) lived in urban areas, 52.4% (n=55) lived in rural areas. Here more people live in rural area than urban area.

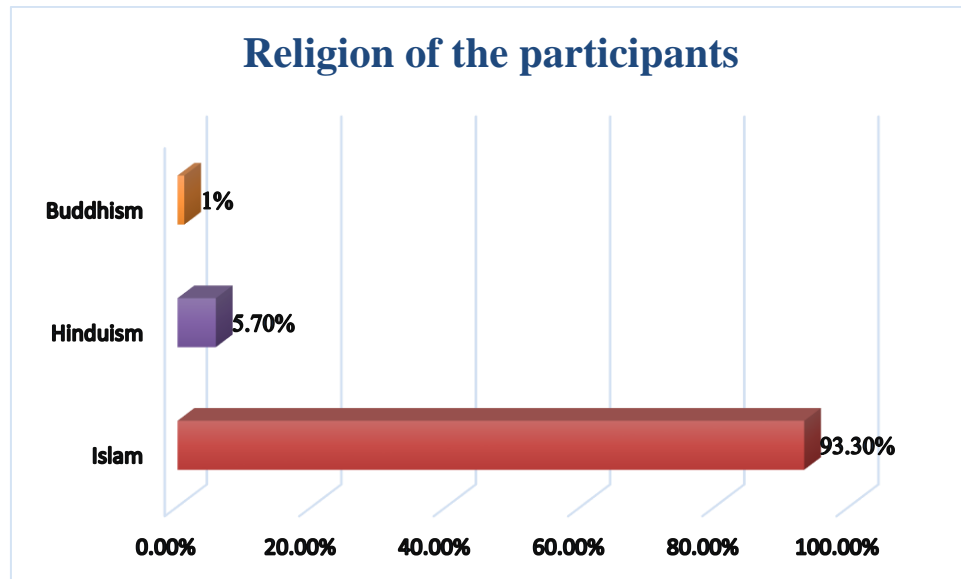
### 4.4 Marital status of the participants



**Figure-4.4: Marital status of the participants**

Among the 105 participants 97% (n=102) participants were married, 3% (n=3) participants were single.

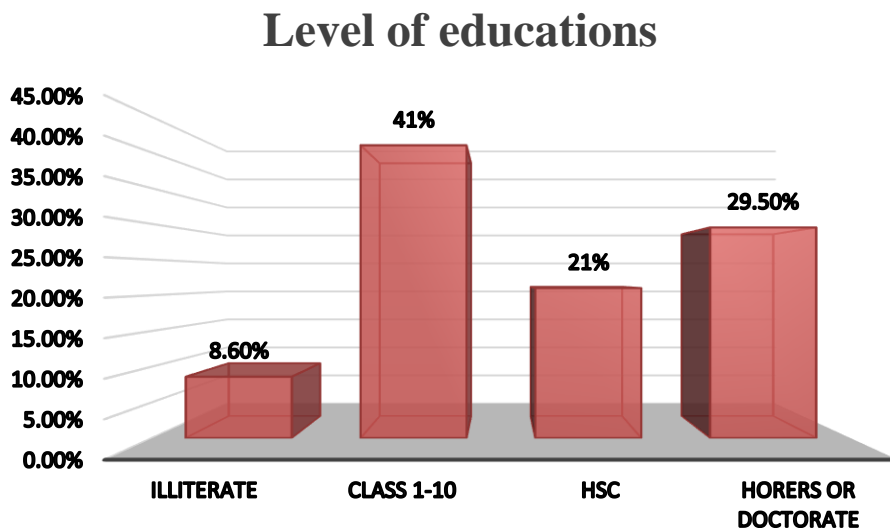
#### 4.5 Religion of the participant



**Figure-4.5: Religion of the participants**

The bar chart showed that among 105 patients it was found that the religion of 93.3% (n=98) were Islam, 5.7% (n=6) were Hinduism and 1% (n=1) were Buddhism. Here most of the person religion are Islam then Hindu and least amount of Buddhism.

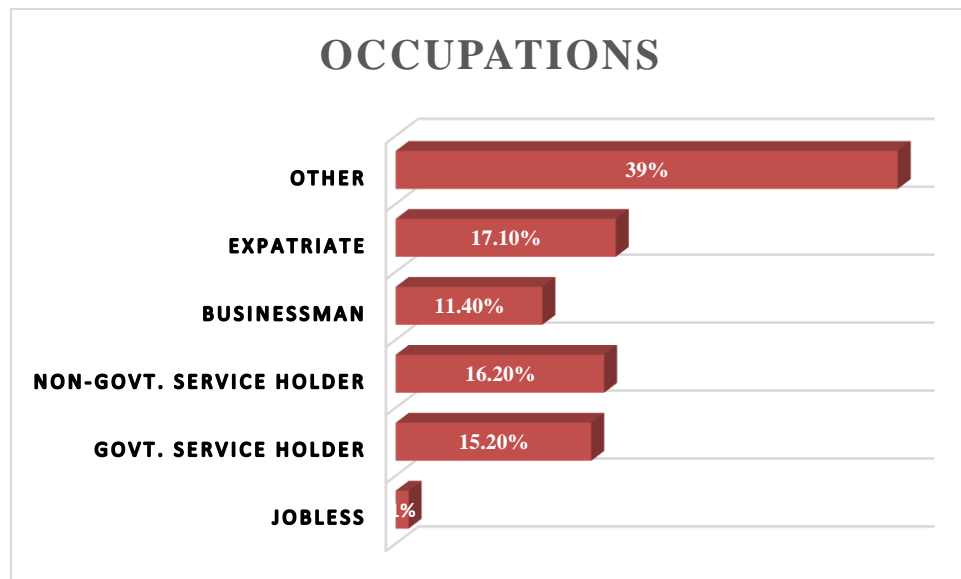
#### 4.6 Education



**Figure-4.6: Educational level of the participants**

Among the 105 participants 8.6% (n=9) participants were no formal schooling / illiterate, 41% (n=43) participants were primary or SSC completed, 21% (n=22) participants were HSC completed, 29.5% (n=31) participants have graduate completed or have Master's or doctorate degree completed. Here most of the people have completed SSC level.

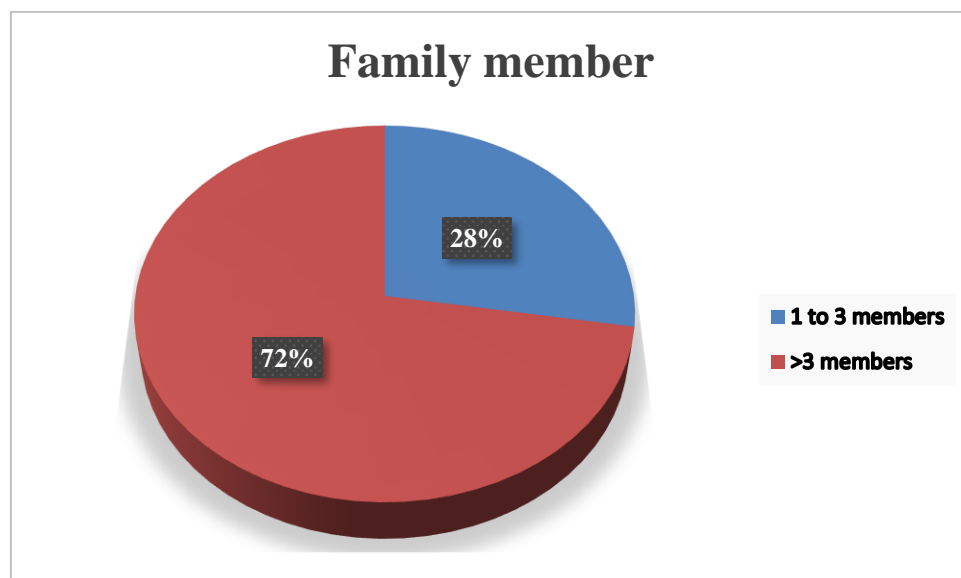
#### 4.7 Occupation



**Figure-4.7: Occupation**

Among the participants a highest number of respondents 39% (n=41) found those were other professions, 1% (n=1) participants were jobless, 15.20% (n=16) respondents were govt. service holders, 16.20% (n=17) were non govt. service holders, 11.40% (n=12) participants were businessmen and 17.10% (n=18) had found expatriates.

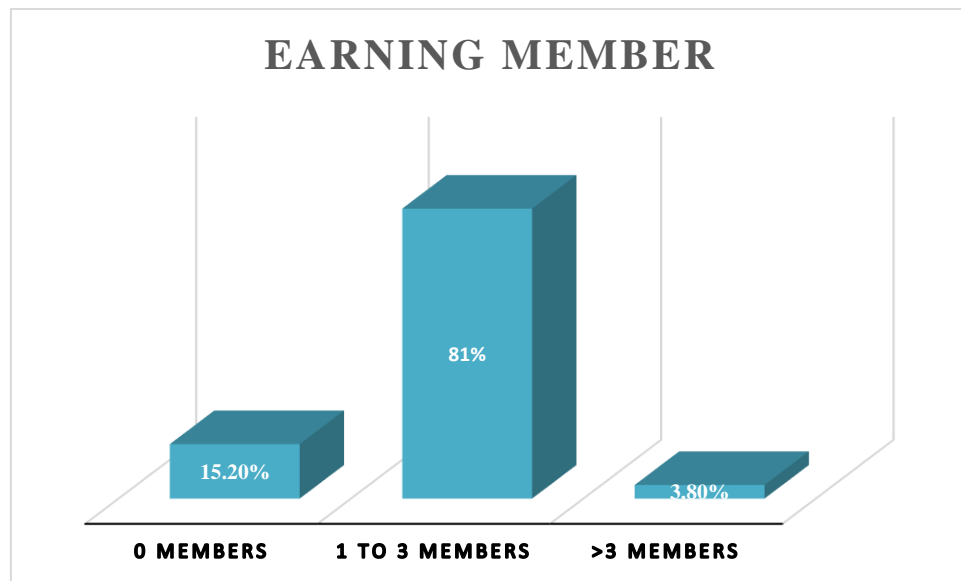
#### 4.8 Total number of family member



**Figure-4.8: Total number of family member**

In my study it was found that 72.5% (n=76) of the participants have family member of more than three persons and 27.6% (n=29) of the participants have family members of between one and three. Here most of the people have more than 3 family members.

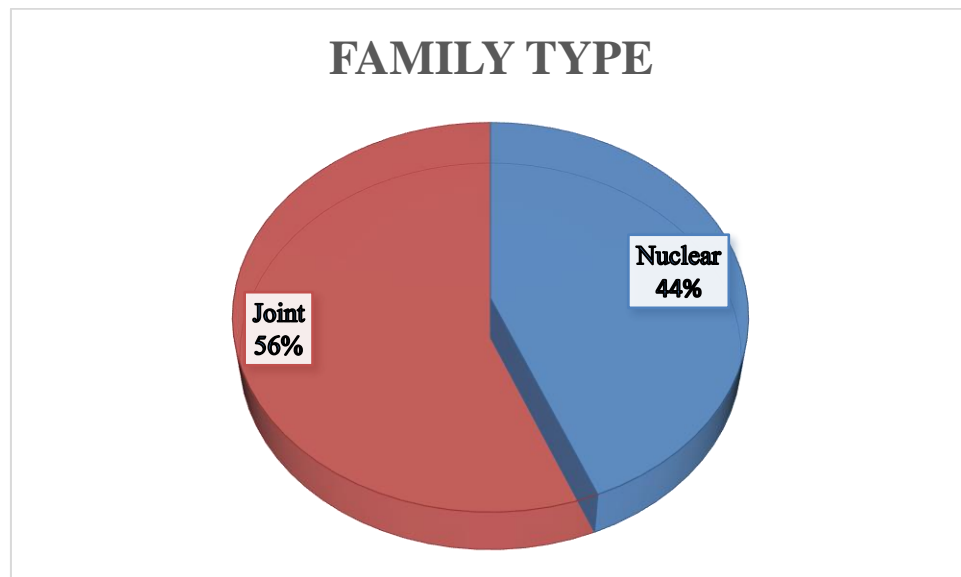
#### 4.9 Total number of earning member



**Figure-4.9: Total number of earning member**

The column chart showed that among 105 participants there were 81% (n=85) participants who had an earning member of 1 to 3 in their family, 15.2% (n=17) had no earning member in their family and 3.8% (n=4) had more than three earning members in their family. Here most family has 1 to 3 earning members.

#### 4.10 Family type of the participants

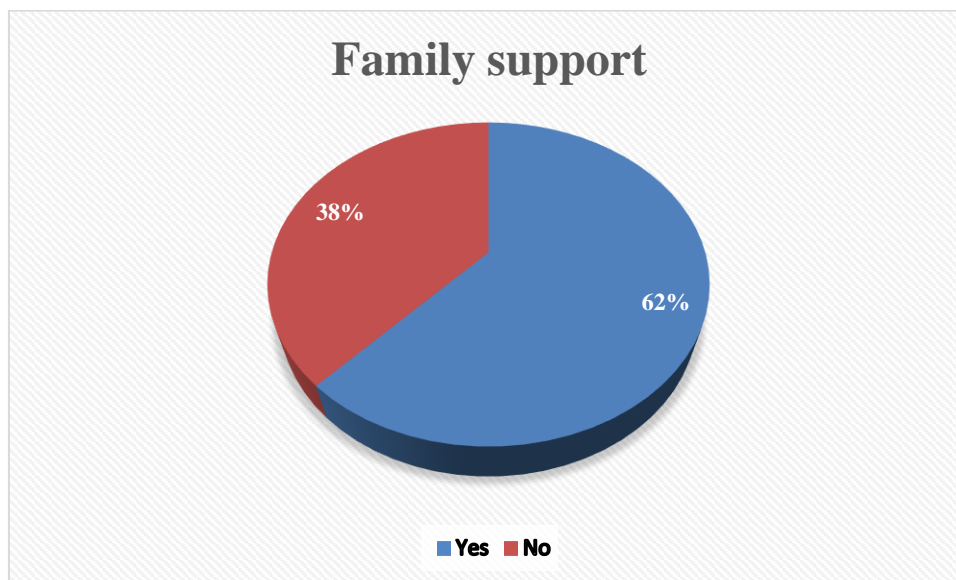


**Figure-4.10: Family type of the participants**

Among the 105 participants it was found that the number of nuclear family is greater than joint families. In which 56% (n=82) of the respondents have a nuclear family and 44%

(n=23) of the respondents have a joint family. Here most of the people are in joint family then nuclear family

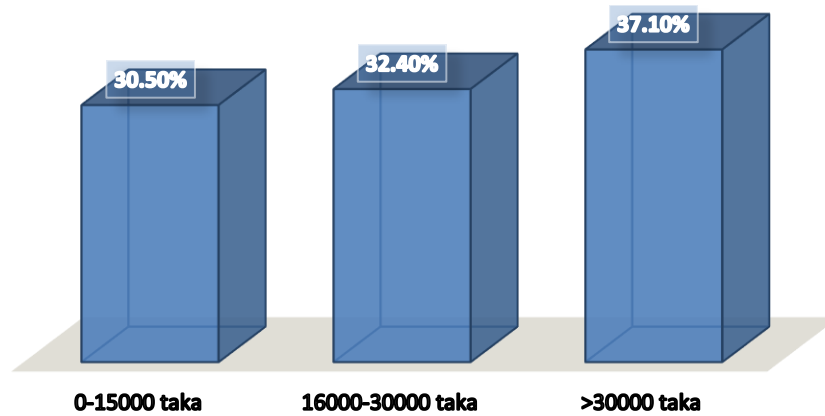
#### 4.11 Expected Family support



**Figure-4.11: Expected family support**

It is found in my study that among 105 participants 61.9% (n=65) of them have enough family support as expected but 38% (n=40) of the respondents didn't have enough family support as per their expectation. Here most people have enough family support.

## 4.12 Average monthly income

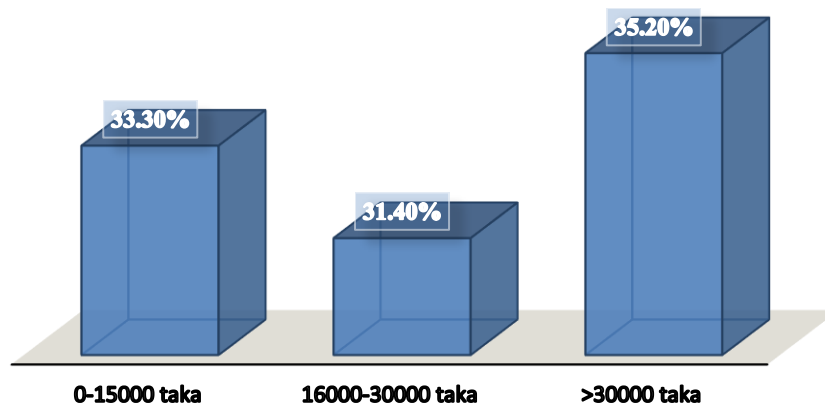


**Figure-4.12: Average monthly income**

In my study it was found that among 105 participants 32.4% (n=34) of the respondents have their total family income in average 16000 to 30000 taka monthly, 37.1% (n=39) of the respondents have their total family income in average above 30000 taka monthly and 30.5% (n=32) of the respondents have their total family income in average 0 to 15000 taka monthly. Here most people have their monthly income more than 30000 taka.

## 4.13 Average monthly expenditure

### FAMILY EXPENDITURE



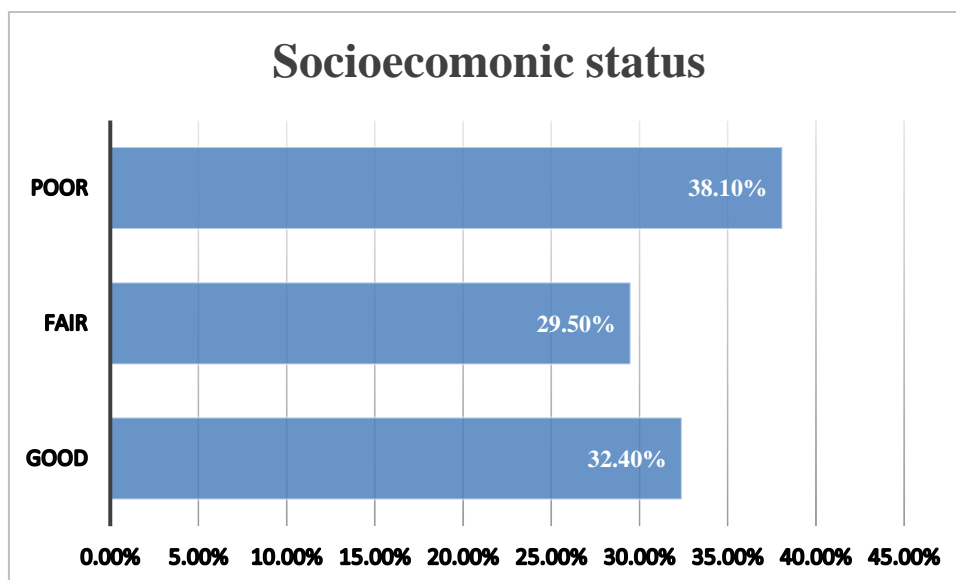
**Figure-4.13: Average monthly expenditure**

Among the 105 participants 31% (n=58) of the respondents have their total monthly expenditure in average 16000 to 30000 taka, 35% (n=33) of the respondents have their



total monthly expenditure in average above 30000 taka and 33% (n=14) of the respondents have their total expenditure in average 0 to 15000 taka monthly. Here most of the patient's monthly expense more than 30000 taka.

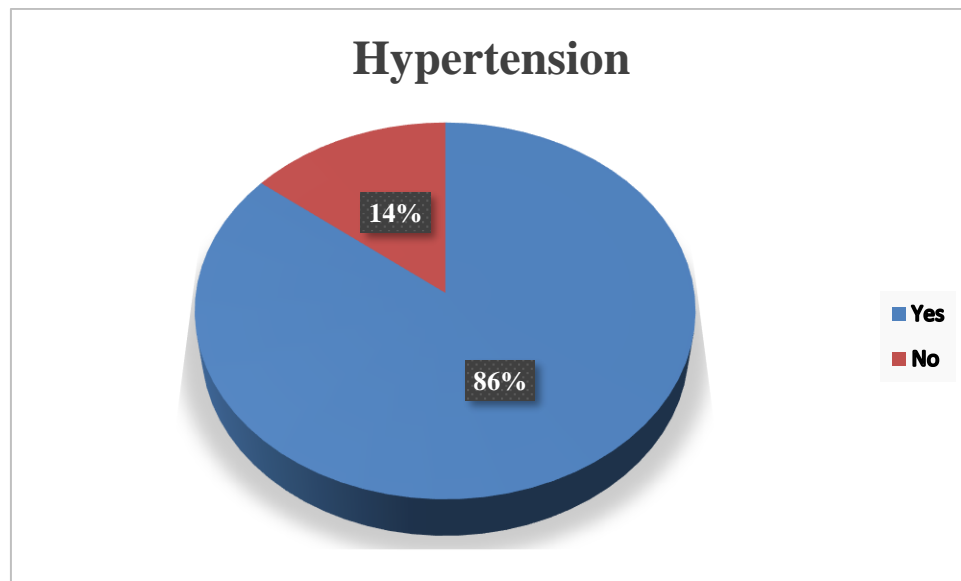
#### 4.14 Family socioeconomic status



**Figure-4.14: Family socioeconomic status**

Among the 105 respondents 32.4% (n=34) participants reported their socioeconomic status good by him/herself, 29.5% (n=31) participants reported their socioeconomic status was fair by him/herself and 38.1% (n=40) reported their socioeconomic status was poor. Here most of the people are poor.

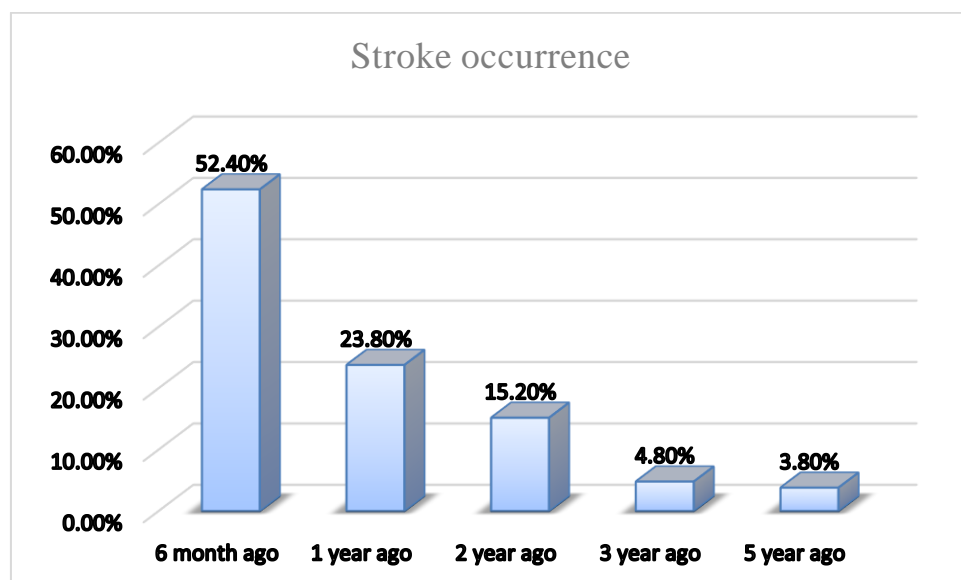
#### 4.15 Hypertension



**Figure-4.15: Hypertension**

It is found in my study that among 105 participants 85.7% (n=90) of them have hypertension but 14.3% (n=15) of the respondents didn't have any hypertension as per their expectation. Here more people have hypertension.

#### 4.16 Stroke occurrence

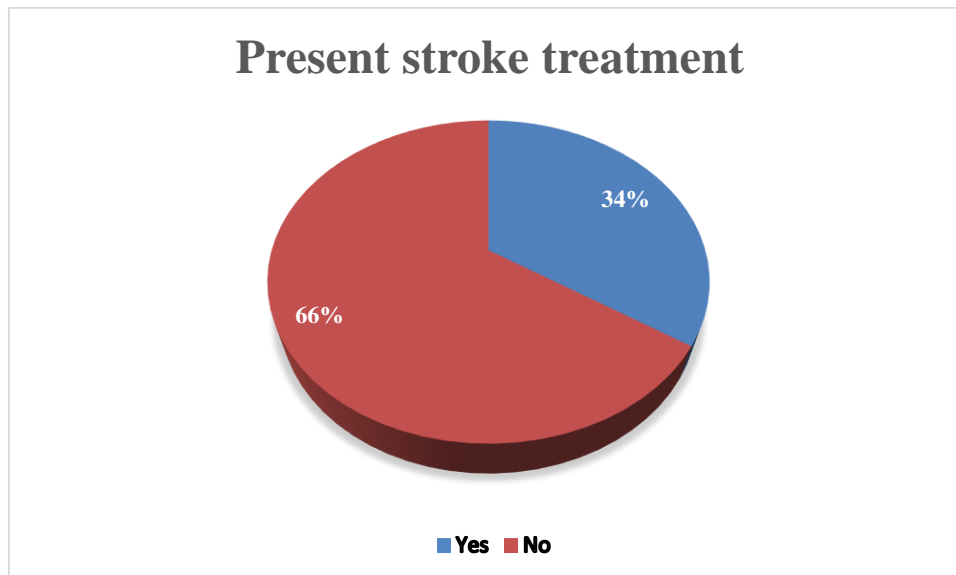


**Figure-4.16: Stroke occurrence**

Among the 105 participants 52.4% (n=55) participants has stroke occurred 6 month ago, 23.8% (n=25) participants has stroke occurs 1 year ago, 15.2% (n=16) participants had stroke occurred 2 year ago, 4.8% (n=5) has stroke occurred 3 year ago and 3.8% (n=4)

participants had stroke occurred 5 year ago. Here most of the patients got stroke in 6 months ago.

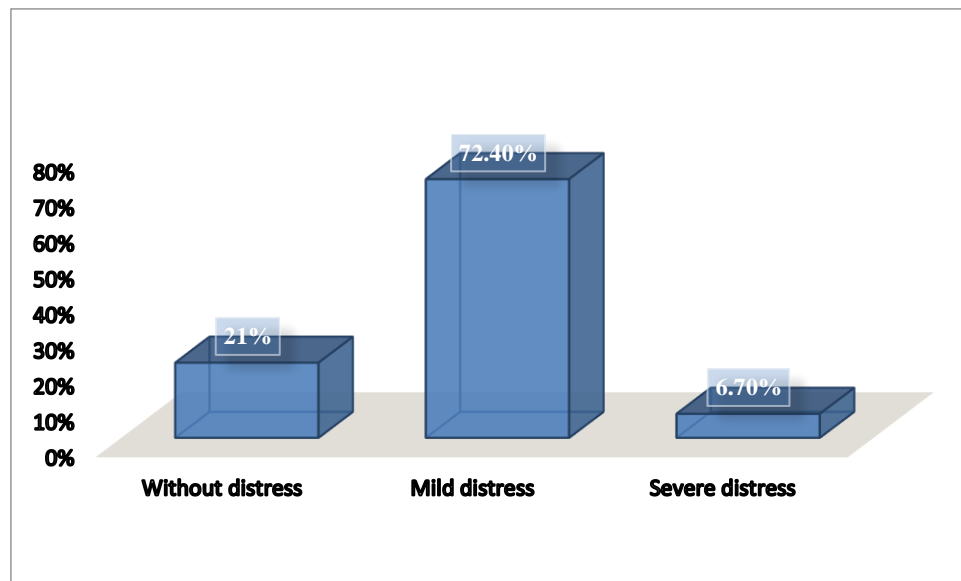
#### 4.17 Present stroke treatment



**Figure-4.17: Present stroke treatment**

It is found in my study that among 105 participants 66% (n=69) of them have present stroke treatment but 34% (n=36) of the respondents didn't get any stroke treatment as per their expectation. Here more people are taking stroke treatment after stroke.

#### 4.18 General Health Questionnaire (GHQ) total score

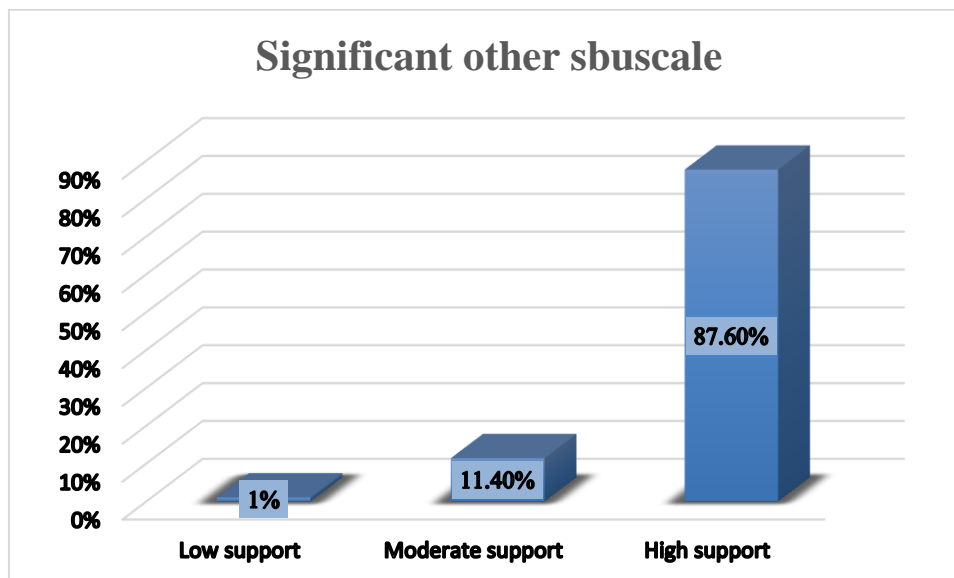


**Figure-4.18: General Health Questionnaire (GHQ) total score**

The column chart showed that among 105 respondents there were 21% (n=22) of the respondents who had without distress, 72.4% (n=76) of the respondents had mild distress, and 6.7% (n=7) of the respondents had severe distress. Here most of the patients have psychological milder distress in their stroke life.

## 4.19 Multidimensional Scale of Perceived Social Support (MSPSS) score

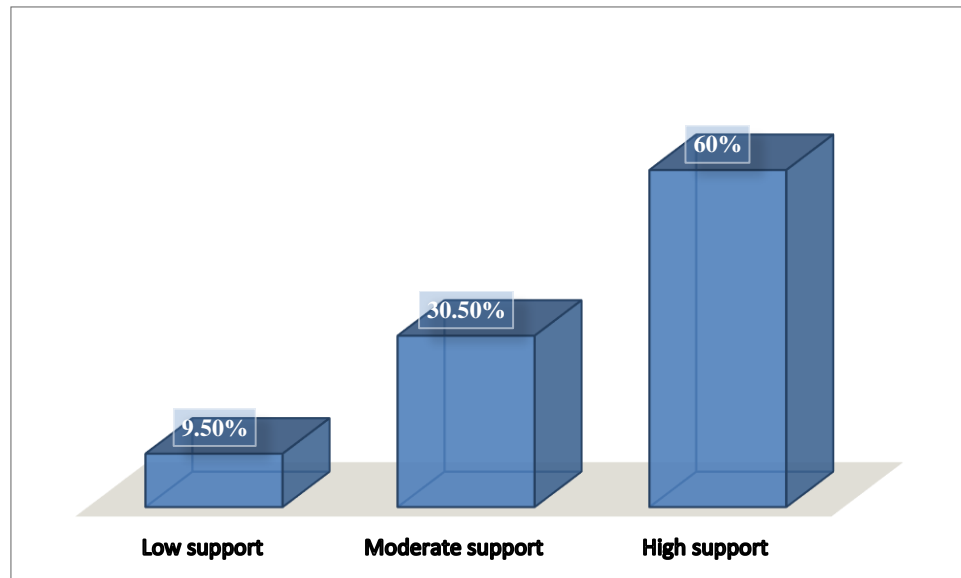
### 4.19.1 Significant Other Subscale



**Figure-4.19.1: significant other subscale total score**

In my study it was found that among all 105 participants there were 1% (n=1) of participants who needed low support, 11.4% (n=12) of the participants who required moderate support and 87.6% (n=92) of the participants who needed high support for daily activities. Here most of the people need high support from others.

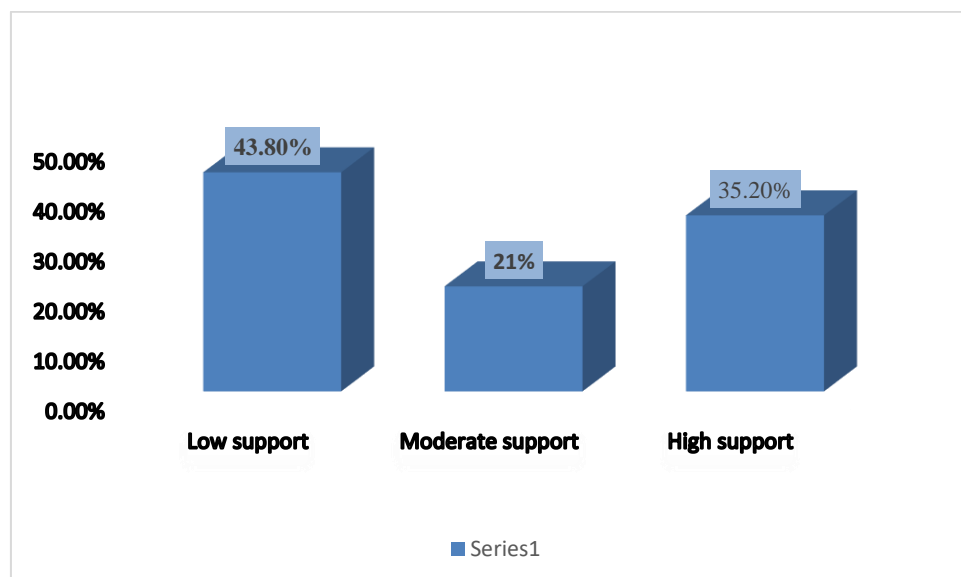
### 4.19.2 Family subscale



**Figure-4.19.2: Family subscale total score**

The bar chart showed that among the 105 participants 9.5% (n=10) of participants needed low support to perform the task, 30.5% (n=32) of the participants required moderate support in doing the task, 60% (n=63) of the participants needed high support help to perform the task. Here maximum number of patients need more family support.

### 4.19.3 Friends subscale



**Figure-4.19.2: Friends subscale total score**

The column chart showed that among the 105 participants 43.8% (n=46) of participants needed low support, 21% (n=22) of the participants required moderate support, and 35.2%

(n=37) of the participants needed high support. Here most people require low support from their friends.

#### 4.20 Analysis between subjects for association

In the independent sample t-test and chi-square test we see the association. If the P-value is  $<0.05$  then the result is significant which means there is association between the variables.

**Table 4.20.1 Association of male and female depression by using General Health Questionnaire (GHQ)**

##### Independent sample t-test

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p-value</i>
Male	87	18.53	4.097	0.539	0.591
Female	18	17.94	4.621	0.498	

The independent samples t-test revealed that there was no statistically significant difference between the male and female groups in terms of the variable under investigation p value is more than 0.05. This suggests that there is no strong evidence to support the hypothesis that gender has a significant impact on the depression. The means of the two groups are quite close, with male participants having a slightly higher mean ( $M = 18.53$ ) compared to female participants ( $M = 17.94$ ), but this difference is not statistically significant given the p-value exceeding the conventional significance level (e.g.,  $p > 0.05$ ).



**Table 4.20.2: Association of gender and General Health Questionnaire (GHQ) total score**

<b>Chi-square</b>	<b>P-value</b>
1.508	0.471

The observed p-value for the association between gender and the General Health Questionnaire (GHQ) total score is 0.471, which is greater than 0.05. This suggests that there is no significant association between gender and the GHQ total score. In simpler terms, the data does not provide enough evidence to conclude that gender has a notable impact on the GHQ total score; they appear to be unrelated.

**Table 4.20.3: Association of age and General Health Questionnaire (GHQ) total score**

<b>Chi-square</b>	<b>P-value</b>
101.051	0.004

The observed p-value for the association between age and the General Health Questionnaire (GHQ) total score is 0.004, which is less than the commonly used significance level of 0.05. This suggests that there is a significant association between age and the GHQ total score. In simpler terms, the data indicates that there is a relationship between a person's age and their GHQ total score, meaning that age does influence the GHQ total score in a meaningful way.

**Table 4.20.4: Association of age and family subscale total score**

Chi-square	P-value
88.819	0.032

The analysis has revealed a strong association between age and the family subscale total score, with a p-value of 0.032, which is less than the commonly used significance level of 0.05. This means that age and the family subscale total score are significantly related. In simpler terms, the data suggests that age plays a notable role in influencing the family subscale total score, indicating a meaningful connection between the two variables.

**Table 4.20.5: Association of Total number of earning member and General Health Questionnaire (GHQ) total score**

Chi-square	P-value
4.824	0.306

The analysis indicates that there is no significant association between the total number of earning members and the General Health Questionnaire (GHQ) total score, as the observed P-value is 0.306, which is above the conventional significance threshold of 0.05. That means there is no connection between total number of earning member and General Health Questionnaire (GHQ) total score.

**Table 4.20.6: Association of General Health Questionnaire (GHQ) total score and Friends subscale**

Chi-square	P-value
2.618	0.624

In this instance, the Pearson Chi-Square value was calculated as 2.618, and the corresponding P-value was found to be 0.624, which is higher than the predetermined significance level of 0.05. As a result, there is no evidence of an association between the

General Health Questionnaire total score and the Friends subscale. So, There is no relationship between psychological distress and friend's support.

**Table 4.20.7: Association of Family socioeconomic status and Family subscale**

Chi-square	P-value
10.302	0.036

There is a strong association between Family socioeconomic status and the Family subscale, as indicated by a p-value of 0.036, which is less than the commonly used significance level of 0.05. This means that Family socioeconomic status and the Family subscale are significantly related. In simpler terms, the data suggests that the socioeconomic status of the family has a notable impact on the Family subscale, indicating a meaningful connection between these two variables.

**Table 4.20.8: Association of stroke occurrence and Family subscale**

Chi-square	P-value
27.779	0.001

The analysis shows that there is a significant link between stroke occurrence and the family subscale. This conclusion is based on an observed p-value of 0.001, which is lower than the standard significance level of 0.05. In simpler terms, the data suggests that the occurrence of stroke is meaningfully connected to the family subscale score, indicating that they have a significant relationship.

The objective of the analysis and discussion is to identify previously published research and assess its applicability to the collected data. This chapter contains a discussion of the study's findings in relation to the study's research queries and objectives. The discussion focuses on identifying the level of depression, anxiety, and social disturbance in patients with stroke, as well as their association.

In terms of the investigated variable, the independent samples t-test revealed that there was no statistically significant difference between the male and female groups; p value is greater than 0.05. This indicates that there is insufficient evidence to support the hypothesis that gender has a substantial effect on melancholy. Male participants have a slightly higher mean ( $M = 18.53$ ) than female participants ( $M = 17.94$ ), but this difference is not statistically significant because the p-value is greater than the conventional significance level (e.g.  $p > 0.05$ ). Fixed effects analysis indicated that women scored higher than men in rumination (Johnson & Whisman 2013). Which is contradictory to our study. But another study shows that No gender differences were found in prevalence of depression or depressive symptoms among the self-reported depressed subjects using the GMDS or the BDI. No gender differences existed in all three TPQ dimensions in depressed subjects using the GMDS. With the BDI, we found that only total scores of reward dependence were significantly higher among females than among male depressed subjects and that significant correlations exist-ed between HA scores and severity of depression in both genders (Wang et al. 2023). Which is making relationships in our study. Among 105 participants in my study, it was found that among 105 respondents there were 21% ( $n=22$ ) of the respondents who had without depression, 72.4% ( $n=76$ ) of the respondents had mild depression, and 6.7% ( $n=7$ ) of the respondents had severe depression. According to the World Health Organization, an estimated 3.8% of the global population experiences depression, including 5% of adults and 5.7% of adults older than 60 years. It's also worth noting that depression is about 50% more common among women than among men globally. The prevalence of depression varies by age, peaking in older adulthood (above 7.5% among females aged 55-74 years, and above 5.5% among males). (Woody et al. 2017; Evans-Lacko et al. 2017). Which did not match in this study which we have conducted.

The study conducted among 164 post-stroke patients attending two hospitals in Dhaka city between January and June 2011 found that the prevalence of depression was 70% and

32% had mild and severe depression (Mohammad et al. 2019). survey a diverse population of adults, 75% of respondents fell within the range of mild to moderate depression (Wray et al. 2018). which shows both of the studies have similarity with my study.

#### **Association of enough family support as expectation and family subscale total score**

The computed P-value concerning the relationship between anticipated sufficient family support and the aggregate score of the family subscale stands at 0.085. Consequently, the outcome lacks statistical significance, implying the absence of a notable connection between the expectation of ample family support and the cumulative score of the family subscale. Good family functioning provides rapport, moral support and someone to fall back on in times of trouble, creating a strong base for a high sense of self-efficacy. The study found that there is a significant relationship between family support expectations and family functioning (Tam & Tay 2007). Effective family functioning fosters a sense of connection, moral encouragement, and a dependable support system during challenging times. This solid foundation contributes significantly to cultivating a robust self-efficacy. In contrast, our study diverges from these sentiments due to variations in research methodologies, as the outcomes conflict with established patterns. For instance, while our findings deviate, previous research has demonstrated a meaningful relationship between projected family support expectations and the overall functionality of families.

#### **Association of Total number of earning member and General Health Questionnaire (GHQ) total score**

The findings derived from the analysis suggest the absence of a noteworthy correlation between the overall count of earning members within a household and the total score of the General Health Questionnaire (GHQ). This conclusion emerges from the computed P-value of 0.306, which exceeds the widely accepted threshold for statistical significance set at 0.05. Low levels of household income are associated with several lifetime mental disorders and suicide attempts, and a reduction in household income is associated with increased risk for incident mental disorders (Sareen et al. 2011). It's noteworthy that our study's outcome contradicts prevailing research in this domain, where diminished levels of household income have been consistently linked to various mental disorders over the course of individuals' lifetimes. Furthermore, such reduced income has been associated with a heightened susceptibility to suicide attempts, and a decrease in household income has demonstrated an increased propensity for the onset of new mental disorders. This

discrepancy in our study's results could be attributed to divergent study designs, illustrating the intricacies that can arise due to methodological distinctions.

### **Association of General Health Questionnaire (GHQ) total score and Friends subscale**

In this instance, the Pearson Chi-Square value was calculated as 2.618, and the corresponding P-value was found to be 0.624, which is higher than the predetermined significance level of 0.05. As a result, there is no evidence of an association between the General Health Questionnaire total score and the Friends subscale. Several studies have found that perceived social support plays a crucial role in the psychological and physical wellbeing of young people. A number of instruments measuring perceived social support have been developed and validated, including the Perceived Social Support from Family and Friends subscales. The psychometric properties of the Perceived Social Support from Family and Friends subscales have been demonstrated in a range of samples, although not in Ghana (Glozah & Pevalin 2016). Socio-economic and cultural factors may be behind the difference. This rate may also vary due to methodological differences in research.

### **Association of Family socioeconomic status and Family subscale**

A compelling and substantial correlation is discernible between Family socioeconomic status and the Family subscale, as indicated by the computed P-value of 0.036, which surpasses the established threshold of significance at 0.05. Existing evidence has clearly established a link between socio-economic characteristics (ethnicity, gender, social position, educational and wealth status and standard of living, etc.) and rates of mental health service utilization (Braveman & Gottlieb 2014). This empirical result harmoniously resonates with prevailing scholarship that has conclusively delineated an intricate interconnection between socio-economic determinants—ranging from ethnicity, gender, educational achievement, and economic prosperity to social standing and living standards—and the utilization patterns of mental health services.

## **Association of stroke occurrence and Family subscale**

The analysis of our research data has yielded a compelling discovery: a significant and noteworthy association between the occurrence of strokes and the family subscale. This revelation is supported by the observed p-value of 0.001, which falls well below the conventional threshold of significance at 0.05. Family support service organizers can help increase awareness of risk factors and minimize recurrence of stroke (Richardson et al. 1996). This section delves into the implications, interpretations, and practical applications of this significant association, and draws parallels to a referenced study to underscore the resonance of our findings. In this situation we came to the conclusion that family support is crucial for reduce stroke occurrence.

## **5.1 Limitations:**

In relation to this study, it is important to acknowledge the presence of situational limitations or hurdles that may have influenced the outcomes of the research. The limitations of the study are outlined as follows:

The research conducted utilized a limited sample size. The study consisted of a total of 105 samples. The sample size of 105 is insufficient to accurately reflect the condition of stroke patients across the entire country. To enhance the efficacy, it is advisable to increase the sample size. One of the primary constraints was time. Due to the limited time frame available for conducting the research, it was not feasible to handle a substantial quantity of samples for the investigation. The specimens were exclusively obtained from the CRP, Savar, Dhaka. The reliability and appropriateness of the findings regarding the association between psychological distress, social disturbance, and functional outcome among stroke patients in Bangladesh would be enhanced if data were collected from multiple institutes and rehabilitation centers throughout the country. This broader scope of data collection would provide a more comprehensive understanding of the topic. While convenience sampling has its advantages in terms of practicality and cost-effectiveness, it comes with limitations. One major drawback is that the sample may not be representative of the larger population, which limits the generalizability of the findings. Convenience sampling is sometimes used in the early stages of research, especially when the goal is exploratory or preliminary. Conducting random sampling can be logistically challenging and resource-intensive. It may involve creating a comprehensive sampling frame, contacting a large number of potential participants, and ensuring their cooperation. In situations where we choose convenience sampling.



## 6.1 Conclusion

The researcher conducted an investigation on the psychological despair and social disruption that occur as a result of stroke. Additionally, they sought to identify any potential correlation between post-stroke depression and social disturbances. The findings of the study indicate that individuals frequently encounter symptoms of despair and psychological distress during a three-month period post-stroke. The researchers did not uncover any significant link between male and female depression, the association between gender and depression, or the association between the total number of earning members and depression. However, they did identify a significant association between other variables. The relationship between age and depression. The relationship between age and family support, and the relationship between stroke occurrence and family support. In addition, the findings of our study carry substantial implications for those experiencing psychological discomfort and facing social obstacles. This study provides insight into the experiences of stroke patients, contributing to a more comprehensive understanding of factors such as demographic information, depression, family support, and support from friends. It is imperative to recognize the constraints inherent in this study, such as the restricted sample size and the unique geographic focus. These identified shortcomings indicate potential avenues for future investigation. Given the solvability of depression and the significant role of family support, it is imperative that Efforts should be undertaken to facilitate early identification and support mechanisms aimed at assisting this substantial population. Individuals who have experienced a stroke and afterwards develop symptoms of depression. Post-stroke social support may possess comparable potential for facilitating functional recovery, notwithstanding any differences that may exist. The conclusion is more unfavorable in their particular situation. The prompt emphasizes the importance of timely and efficient evaluation, identification, and intervention.

## **6.2 Recommendation**

Upon the conclusion of the inquiry, the researcher identified several recommendations. Individuals may argue that technology has had a negative impact on society, while others may argue. Key considerations that should be taken into account to enhance the achievement of future research. The primary recommendations are as follows:

It is recommended to increase the number of samples in order to enhance the validity and reliability of the generated results. The collection of samples should encompass various institutes and rehabilitation centers across different locations. To provide a comprehensive analysis, it is necessary to consider the many districts within Bangladesh in order to generalize the findings. In order to determine an optimal and proficient. In order to obtain a more comprehensive understanding, it is advisable to use alternative measurement scales. Increasing the sample size has the potential to enhance the statistical significance of certain findings. The user's text is too short to be rewritten in an academic manner. A comprehensive longitudinal assessment can offer insights into the enduring impact of depression and its long-term consequences. There is a significant concern over the anxiety experienced by individuals in relation to the functional result that follows an ischemic stroke. There were several. The study's limitations are discussed in the appropriate area, and it is advised to consider them. Addressing these restrictions is crucial for future research endeavors.

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## APPENDIX

### Appendix-1 (A)

Date: March 30, 2023

To

The principal.

Bangladesh Health Professions Institute

Chapain, Savar, Dhaka-1343

Through: Head, Department of Physiotherapy, BHPI

**Subject: Prayer for seeking permission to collect data for conducting a research project.**

Sir,

With due respect and humble submission to state that I am Md. Fahim Abrar Khan, student of 4<sup>th</sup> year B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). The Ethical committee has approved my research project entitled: "Psychological distress and social disturbance of chronic stroke survivors in CRP" under the supervision of Fabiha Alam, Assistant professor, Department of Physiotherapy, Bangladesh Health Professions Institute (BHPI), CRP, Savar, Dhaka-1343. Conducting this research project is partial fulfillment of the requirement for the degree of B.Sc. in Physiotherapy. I want to collect data for my research project from the community who have discharged from CRP. I would like to assure that nothing of the study would be harmful for the participants.

I therefore, pray and hope that your honor would be kind enough to grant my application and give me permission for data collection and oblige thereby.

Sincerely

Md. Fahim Abrar Khan

Md. Fahim Abrar Khan

4<sup>th</sup> Year

B.Sc. in Physiotherapy

Class Roll: 09; Session: 2017-18

Bangladesh Health Professions Institute (BHPI)

(An academic institution of CRP)

Chapain, CRP, Savar, Dhaka, 1343.

Forward  
Fabiha  
30.03.23

Approved  
[Signature]  
30/3/23

Recommended  
Shafiq  
30.03.2023

Md. Shafiqul Islam  
Associate Professor & Head  
Department of Physiotherapy  
Bangladesh Health Professions Institute (BHPI)  
CRP, Chapain, Savar, Dhaka-1343  
Dr. Mohammad Anwar Hossain  
Senior Consultant & Head  
Physiotherapy Department  
Associate Professor, BHPI  
CRP, Savar, Dhaka-1343

## Appendix-2 (A)

### সম্মতিপত্র

(অংশগ্রহণকারীকে পড়ে শোনাতে হবে)

আসসালামু আলাইকুম,

আমার নাম মোঃ ফাহিম আবরার খান। আমি বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বি এইচ পি আই) এর চতুর্থ বর্ষের একজন নিয়মিত ছাত্র। আমি পক্ষঘাতগ্রস্ত রোগীদের হতাশা এবং সামাজিক প্রতিবন্ধকতা বিষয়ক একটি গবেষণা পরিচালনা করছি। আমি আপনার ব্যক্তিগত এবং অন্যান্য বিষয় সম্পর্কিত কিছু তথ্য জানতে চাই। এটা প্রায় ১৫-২০ মিনিট সময় নেবে।

আমি আপনাকে জানাতে চাই যে এটা বিশ্বস্তভাবে পেশাদার গবেষণা এটা অন্য কোনো উদ্দেশ্য ব্যবহার হবে না। আপনার প্রদত্ত সব তথ্যকে গোপনীয় হিসেবে বিবেচনা করা হবে এবং কোনো প্রতিবেদন বা প্রকাশের ক্ষেত্রে এটি নিশ্চিত করা হবে যে এই তথ্যের উৎস বেনামি।

এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছাসেবী এবং আপনি এই অধ্যয়নে যে কোনো সময় কোনো নেতিবাচক পরিনতি ছাড়াই প্রত্যাহার করতে পারেন। সাক্ষাৎকারের সময় আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন কোনো নির্দিষ্ট প্রশ্নের উত্তর না দেওয়ার অধিকার আপনার রয়েছে।

আপনার যদি অংশগ্রহণকারী হিসেবে অধ্যয়ন বা আপনার অধিকার সম্পর্কে কোনো প্রশ্ন থাকে তবে আপনি আমার সাথে বা আমার সুপারভাইজার ফবিহা আলম, সহকারী অধ্যাপক, ফিজিওথেরাপি বিভাগ, বি এইচ পি আই, সিআরপি সাভার ঢাকা – ১৩৪৩, এর সাথে যোগাযোগ করতে পারেন।

আমি শুরু করার আগে আপনার কোন প্রশ্ন আছে?

আমি কি সাক্ষাৎকার শুরু করতে পারি?

হ্যাঁ

না

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

তথ্য সংগ্রহকারীর স্বাক্ষর ..... তারিখ .....

## Appendix-2 (B)

### Informed consent

(Please read out to the participant)

Assalamu Alaikum,

My name is Md. Fahim Abrar Khan. I am conducting this research study which is the part of B.Sc. in Physiotherapy program and my research title is “Psychological Distress And Social Disturbance Of Stroke Survivors In CRP” under Bangladesh Health Professions Institute (BHPI), University of Dhaka. Because of that I would like to know about some personal and other related information. This will take approximately 15-20 minutes.

I would like to inform you that this is a purely professional study and will not be used for any other purpose. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous.

Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview. If you have any query about the study or your right as a participant, you may contact with me or my supervisor Fabiha Alam, Assistant professor, 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

Signature of the Participant's..... Date.....

Signature of the Data collector's..... Date.....



### Appendix-3 (A)

#### Questionnaire- বাংলা

#### পর্ব ১: রোগীর সামাজিক জনসংখ্যাভিত্তিক তথ্য

প্রশ্নের নম্বর	প্রশ্ন এবং ফিলটার	কোডিং এবং বিভাগমূহ	কোড নং.
১.১	বয়স	আপনার সম্পূর্ণ বয়স	<input type="text"/>
১.২	লিঙ্গ	১= পুরুষ ২= মহিলা	<input type="text"/>
১.৩	সাধারণত বসবাস	১= গ্রামীণ ২= নগর	<input type="text"/>
১.৪	বৈবাহিক অবস্থা	১= বিবাহিত ২= অবিবাহিত ৩= বিধবা ৪= পৃথক ৫= তালাক প্রাপ্ত ৬= বিপত্নীক	<input type="text"/>
১.৫	ধর্ম	১ = ইসলাম ২ = হিন্দু ৩ = খ্রিস্টান ৪ = বৌদ্ধ	<input type="text"/>
১.৬	শিক্ষার স্তর	১ = নিরক্ষর ২ = শ্রেণী ১-১০ ৩ = এইচএসসি ৪ = স্নাতক-ডক্টরেট	<input type="text"/>
১.৭	পেশা	১ = বেকার ২ = সরকার সেবা ধারক ৩ = বেসরকারি সেবা ধারক ৪ = ব্যবসায়ী ৫ = প্রবাসী ৬ = অন্যান্য	<input type="text"/>
১.৮	আপনার পরিবারে কতজন সদস্য আছে?	১ = ০ জন ২ = ১-৩ জন ৩ = >৩ জন	<input type="text"/>
১.৯	আপনোর পরিবারে কতজন সদস্য উপার্জন করে?	১ = ০ জন ২ = ১-৩ জন ৩ = >৩ জন	<input type="text"/>
১.১০	আপনার পরিবারের ধরণ কি?	১= ক্ষুদ্র ২= যৌথ	<input type="text"/>
১.১১	আপনি কি প্রত্যাশা অনুযায়ী এই পরিস্থিতিতে যথেষ্ট পারিবারিক সহায়তা পাচ্ছেন?	১ = হ্যাঁ ২= না	<input type="text"/>
১.১২	আপনার পরিবারের গড় মাসিক আয় কত?	১= ০- ১৫০০০ টাকা ২= ১৬০০০- ৩০০০০ টাকা ৩= > ৩০০০০ টাকা	<input type="text"/>
১.১৩	গড়ে আপনার পরিবারের মাসিক ব্যয় কত?	১= ০- ১৫০০০ টাকা ২= ১৬০০০- ৩০০০০ টাকা ৩= > ৩০০০০ টাকা	<input type="text"/>
১.১৪	আর্থ-সামাজিক অবস্থা	১= ভাল ২= মোটামোটি ৩= দরিদ্র	<input type="text"/>
১.১৫	আপনার কি উচ্চ রক্তচাপ	১= আছে	<input type="text"/>

	আছে?	২= নাই	
১.১৬	আপনার কবে স্ট্রোক হয়েছিলো?	১= ছয় মাস আগে ২= এক বছর আগে ৩= দুই বছর আগে ৪= তিন বছর আগে ৫= পাঁচ বছর আগে	<input type="text"/>
১.১৭	আপনি কি স্ট্রোকের চিকিৎসা নিচ্ছেন?	১= হ্যা ২= না	<input type="text"/>

পার্ট-২: সাধারণ স্বাস্থ্য প্রশ্নাবলী (GHQ)

নামঃ	একদমই না	বেশ কিছু দিন	দিনের অর্ধেকেরও বেশি	প্রায় প্রতিদিন
তারিখঃ				
২.১ আপনি যা করছেন তাতে কি আপনি ভালভাবে মনোনিবেশ করতে পারছেন?	০	১	২	৩
২.২ আপনার কি দৃষ্টিভঙ্গির কারণে ঘুম কি ঘুম কম হচ্ছে?	০	১	২	৩
২.৩ আপনার কি মনে হচ্ছে যে আপনি জীবনের জন্য গুরুত্বপূর্ণ ভূমিকা পালন করছেন?	০	১	২	৩
২.৪ আপনি কি যেকোনো সিদ্ধান্ত নেওয়ার ক্ষেত্রে নিজেকে সক্ষম মনে করেন?	০	১	২	৩
২.৫ আপনি কি সবসময় চাপ অনুভব করেন?	০	১		
২.৬ আপনি কি মনে করেন যে আপনি আপনার অসুবিধাগুলি কাটিয়ে উঠতে পারবেন না?	০	১	২	৩
২.৭ আপনি কি আপনার স্বাভাবিক দৈনন্দিন কাজকর্মগুলো উপভোগ করতে পারছেন?	০	১	২	৩
২.৮ আপনি কি ভালোভাবে আপনার সমস্যাগুলি মোকাবেলা করতে সক্ষম হয়েছেন?	০	১	২	৩
২.৯ আপনি কি অসুখী বা বিষণ্ণ বোধ করেন?	০	১	২	৩
২.১০ আপনি কি নিজের উপর আস্থা হারিয়ে ফেলছেন?	০	১	২	৩
২.১১ আপনি কি ভাবছেন যে আপনি একজন মূল্যহীন ব্যক্তি?	০	১	২	৩
২.১২ আপনি কি জীবনের সমস্ত পরিস্থিতি বিবেচনা করা পর খুশি বোধ করেন?	০	১	২	৩

পার্ট-৩: মাল্টিডিমেনশনাল স্কেল অফ পারসিভড সোশ্যাল সাপোর্ট (MSPSS)

	খুব দৃঢ়ভাবে অসম্মতি	দৃঢ়ভাবে অসম্মতি	মৃদু অসম্মতি	নিরপেক্ষ	মৃদু একমত	দৃঢ়ভাবে একমত	খুব দৃঢ়ভাবে একমত
৩.১ একজন বিশেষ ব্যক্তি আছেন যাকে আমার প্রয়োজন এ কাছে পাই।	১	২	৩	৪	৫	৬	৭
৩.২। আমার সঙ্গে একজন বিশেষ	১	২	৩	৪	৫	৬	৭

ব্যক্তি রয়েছেন যার সাথে আমি সুখ-দুঃখ ভাগাভাগি করতে পারি।							
৩.৩। আমার পরিবার সত্যিই আমাকে সাহায্য করার চেষ্টা করে।	১	২	৩	৪	৫	৬	৭
৩.৪। আমি আমার পরিবারের কাছ থেকে প্রয়োজনীয় মানসিক সাহায্য এবং সমর্থন পাই।	১	২	৩	৪	৫	৬	৭
৩.৫। আমার একজন বিশেষ ব্যক্তি আছেন যিনি আমার আরামের উৎস	১	২	৩	৪	৫	৬	৭
৩.৬। আমার বন্ধুরা সত্যিই আমাকে সাহায্য করার চেষ্টা করে।	১	২	৩	৪	৫	৬	৭
৩.৭। কিছু ভুল হলে আমি আমার বন্ধুদের উপর নির্ভর করতে পারি।	১	২	৩	৪	৫	৬	৭
৩.৮। আমি আমার পরিবার সাথে সমস্যার কথা বলতে পারি।	১	২	৩	৪	৫	৬	৭
৩.৯। আমার বন্ধুদের সাথে আমি আমার সুখ দুঃখ ভাগ করতে পারি।	১	২	৩	৪	৫	৬	৭
৩.১০। আমার জীবনে একজন বিশেষ মানুষ আছে যারা আমার অনুভূতি সম্পর্কে যত্নশীল।	১	২	৩	৪	৫	৬	৭
৩.১১। আমার পরিবার আমাকে সিদ্ধান্ত নিতে সাহায্য করে।	১	২	৩	৪	৫	৬	৭
৩.১৩। আমি আমার বন্ধুদের সাথে আমার	১	২	৩	৪	৫	৬	৭

সমস্যার কথা বলতে পারি।							
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## Appendix-3 (B)

### Questionnaire- English Part- 1: Patient's Socio-demographic Information

Question Number	Questions/ Information on	Coding categories	Code no.
1.1	Age	Age in completed yours	Years <input type="text"/>
1.2	Sex	1=Male 2=Female	<input type="text"/>
1.3	Usually reside	1=Rural 2=Urban 3=semi urban	<input type="text"/>
1.4	Marital status	1=Married 2=Single 3=Widow 4=Separated 5=Divorced 6=widower	<input type="text"/>
1.5	Religion	1=Islam 2=Hinduism 3=Christianity 4=Buddhism	<input type="text"/>
1.6	Level of education	1= Illiterate 2= Class 1-10 3= HSC 4= Graduation-Doctorate	<input type="text"/>
1.7	Occupation	1= Jobless 2= Govt. Service holder 3= non-Govt. service holder 4= Businessman 5= Expatriate 6= Others	<input type="text"/>
1.8	How many members are there in your family?	1= 0 2= 1 to 3 3= >3	<input type="text"/>
1.9	How man earning members are there in your family?	1= 0-15000 tk 2= 16000-30000 tk 3= >30000 tk	<input type="text"/>
1.10	What is your family type?	1=Nuclear 2=Joint	<input type="text"/>
1.11	Are you getting enough family support in this situation as you expected?	1= Yes 2= No	<input type="text"/>
1.12	What is the average monthly income of your household?	1= 0-15000 tk 2= 16000-30000 tk 3= >30000 tk	<input type="text"/>
1.13	How much on average is your monthly family expenditure?	1= 0-15000 tk 2= 16000-30000 tk 3= >30000 tk	<input type="text"/>

1.14	Socio-economic status	1=Good 2=Fair 3=Poor	<input type="checkbox"/>
1.15	Do you have high blood pressure?	1=Yes 2=No	<input type="checkbox"/>
1.16	When did you have a stroke?	1 = six months ago 2 = One year ago 3 = two years ago 4 = three years ago 5 = five years ago	<input type="checkbox"/>
1.17	Are you receiving stroke treatment?	1 = Yes 2 = No	<input type="checkbox"/>

**Part-2: The General Health Questionnaire (GHQ)**

Name:	Not at all	Several days	More than half the days	Nearly every day
Date:				
1. Have you able to concentrate well on what you were doing?	0	1	2	3
2. Have your worries made you lose a lot of sleep?	0	1	2	3
3. Have you felt that you are playing a useful role in life?	0	1	2	3
4. Have you felt capable of making decisions?	0	1	2	3
5. Have you felt constantly and stressed?	0	1	2	3
6. Have you had the feeling that you cannot overcome your difficulties?	0	1	2	3
7. Have you been able to enjoy your normal daily activities?	0	1	2	3
8. Have you been able to adequately cope with your problems?	0	1	2	3
9. Have you felt unhappy or depressed?	0	1	2	3
10. Have you lost confidence in yourself?	0	1	2	3
11. Have you thought that you are a person worthless?	0	1	2	3
12. Do you feel reasonably happy considering all the circumstances?	0	1	2	3

**Part-3: Multidimensional Scale of Perceived Social Support (MSPSS)**

	Very Strongly Disagree	Strongly disagree	Mildly disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with	1	2	3	4	5	6	7

whom I can share joys and sorrows							
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help & support I need from my family	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me	1	2	3	4	5	6	7
6. My friends really try to help me.	1	2	3	4	5	6	7
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8. I can talk about my problems with my family.	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems with my friends	1	2	3	4	5	6	7

