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Mental Health and Social Status of Patient with Neurological Condition after Completed Rehabilitation Program from Specialised Rehabilitation Center

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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

MENTAL HEALTH AND SOCIAL STATUS OF PATIENT WITH NEUROLOGICAL CONDITION AFTER COMPLETED REHABILITATION PROGRAM FROM SPECIALISED REHABILITATION CENTER

Submitted by **Golam Moula,** for the partial fulfilment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT)

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DECLARATION

This work has not previously been accepted in substance for any degree and isn't concurrently submitted in candidature for any degree. This dissertation is being submitted in partial fulfillment of the requirements for the degree of B.Sc. in Physiotherapy. I confirm that if anything identified in my work that I have done plagiarism or any form of cheating will directly be awarded a failure and I am subject to disciplinary actions of authority. I confirm that the electronic copy is identical to the bound copy of the Thesis. In case of dissemination of the finding of this project for future publication, the research supervisor will be highly concerned, it will be duly acknowledged as a graduate thesis and consent will consent taken from the physiotherapy department of Bangladesh Health Professions Institute (BHPI).

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Acronyms

AD	Alzheimer's Disease
BHPI	Bangladesh Health Professions Institute
BMRC	Bangladesh Medical and Research Council
CRP	Centre for the Rehabilitation of the Paralysed
CNS	Central Nervous System
CP	Cerebral Palsy
GBS	Guillain-Barré syndrome
GHQ-12	General Health Questionnaire-12
HD	Huntington Disease
ICH	Hemorrhagic Stroke
ICD-10	International Statistical Classification of Diseases and Related Health Problems 10th Revision
MSPSS	Multidimensional Scale of Perceived Social Support
WHO	World Health Organization

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ABSTRACT

Background: The purpose of this study was to determine the status of mental health and social status of patients with neurological condition after rehabilitation program from CRP and this study were to evaluate the overall mental health and social status of various neurological patients after rehabilitation program.

Methodology: The cross-sectional study was chosen to carry out this study among 300 participants who were selected according to inclusion criteria from March 2022 to May 2022. All data were collected through a standard structured questionnaire having socio-demographic, General Health Questionnaire-12 (GHQ-12) & Multidimensional Scale of Perceived Social Support MSPSS, this used to assess the Mental health and social status among all participants. Descriptive statistics using SPSS software version 22.0 were used for data analysis.

Results: In this study, the mean age of the participants was (35 ± 11.048) years. Male were about 71.7% (n = 215) and females were about 28.3% (n = 85). Among the participants was highly distress of 143 (47.7%), 80 (26.7%) medium distress of them and only low distress were 77 (25.7%). In this study, low perceived social support was 4 (1.3%), Medium perceived social support was 82 (27.3%) and most prominent participants was high perceived social support of 214 (71.3%) from community. The researcher found occupation, type of disease and vocational support are significant with mental health status and gender, education are significant with social status.

Conclusion: This study provides a snapshot for level of mental health and social status among all participants. Here, researchers tried to find out the relation between mental health and social status with some sociodemographic factors, and the result was that there were some relations between them, which were supported by some other studies.

Key words: *Mental health status, Social status, Neurological condition*.

Word count: 12279 words

CHAPTER- I INTRODUCTION

1.1 Background

According to the World Health Organization (WHO) states that: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." And “Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community” (WHO, 2018).

Mental Health is a major public health challenge undermining the social and economic development throughout much of the developing world. It is estimated that mental disorders account for 13% of the global burden of disease. According to WHO, more than 450 million people in the world are suffering from neuro-psychiatric disorders and in Bangladesh there are 15 million people suffering from mental illnesses of various types (WHO, 2004). In other words, almost 10% of the population is in need of mental health services (Islam & Biswas, 2015). So, this is a serious threat to the national health.

Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood (WHO, 2007).

Mental health is fundamental to our collective and individual ability as humans to think, emote, interact with each other, earn a living and enjoy life. On this basis, the promotion, protection and restoration of mental health can be regarded as a vital concern of individuals, communities and societies throughout the world.

Social status is the level of social value a person is considered to hold (Lang & Lang, 2012; Anderson et al., 2015) More specifically, it refers to the relative level of respect, honor, assumed competence, and deference accorded to people, groups, and organizations in a society.

The emerging consensus among many status researchers is to define social status as the prestige, respect, and esteem that a party has in the eyes of others (Cheng et al., 2014).

Status is an index of the social worth that observers ascribe to an individual or a group (Chen et al., 2012) and, as such, it is the outcome of observers' subjective evaluative process, which constitutes a critical part of the status conferral process. As a result, status is wholly reliant on the views of these observers—individuals cannot have status if others do not regard them as high status. Status does not speak directly to the particular basis of evaluation, and, indeed, across contexts and across individuals, the basis for respect and esteem may vary dramatically. In some cases, status may emanate from competence, while in other cases, it may emanate from demographic characteristics such as race, age, and gender. Or it can be simultaneously determined by multiple factors, including these factors as well as others. Regardless, status refers to the evaluation of where a given target stands with regard to whatever the bases of respect or esteem may be. This definition makes clear how social status relates to (and, in most cases, differs from) other dimensions of social hierarchy, such as power, socioeconomic status (SES), dominance, prestige, influence, and leadership (Cheng et al., 2014)

The word "Rehabilitation" is a familiar term in the vocabulary of professional care-givers and it includes physicians, nurse, physiotherapist, occupational therapist, speech and language therapist, prosthetics & orthotics, social worker etc. Etymologically, it means to restore to, or to re-establish a previous privilege, rank, character, reputation, or condition. The root word here is "habilitate" a term derived from the Latin that might be rendered as 'to capacitate', 'to qualify for', or 'to be endowed with ability' (Downie, 2005)

Neurological disorders are diseases of the central and peripheral nervous system. In other words, the brain, spinal cord, cranial nerves, peripheral nerves, nerve roots, autonomic nervous system, neuromuscular junction, and muscles. These disorders include epilepsy, Alzheimer disease and other dementias, cerebrovascular diseases including stroke, migraine and other headache disorders, multiple sclerosis, Guillain Barre syndrome, Parkinson's disease, neuroinfectious, brain tumors, Spinal cord injury, traumatic disorders of the nervous system due to head trauma, and neurological disorders as a result of malnutrition (WHO, 2016b).

Neurologic disorders represent a major burden of disease globally. These are common and represent a major public health problem. The spectrum of diseases ranges from non-communicable disorders like stroke and neurodegenerative disorders to central nervous system infections. The burden of neurological diseases may be on the increase especially in developing countries. Improved outcome in these settings may require appreciation of the spectrum of Neurological diseases and the impediments to their management (Alam, 2017).

The burden of neurological disorders is seriously underestimated by traditional epidemiological and health statistical methods that take into account only mortality rates but not disability rates (WHO, 2006). The Global Burden of Disease GBD study showed that over the years the global health impact of neurological disorders had been underestimated (Alam, 2017).

Stroke and CNS infections were the most prevalent neurological disorders identified. The neurological admissions comprise about 14.8% of medical admissions; furthermore, the spectrum of neurological diseases are stroke 64.9%, central nervous system infections (21.8%), HIV related neurological diseases (3.5%), hypertensive encephalopathy (3.4%), dementia (3%), subarachnoid hemorrhage (2.2%), Spinal cord injury (2.24%) (Mehndiratta et al., 2014), Guillain Barre syndrome (1.2%), Parkinson's disease (1.1%), myasthenia gravis (1.0%), motor neuron disease and peripheral neuropathy and accounted for 0.8% and 0.6% respectively. Overall, noninfectious disease accounted for 78.2% of neurological admissions while infectious diseases accounted for 11.8% (Ekenze et al., 2010).

A wide spectrum of neurological diseases occurs. The high incidence of CNS infections indicates that efforts should be geared towards preventive measures. A major challenge to be addressed in the management of neurological diseases is the lack of specialized facilities (WHO, 2007).

Hundreds of millions of people worldwide are affected by neurological disorders e.g.: more than 6 million people die because of stroke each year; over 80% of these deaths take place in low- and middle-income countries (WHO, 2016a). The World Health Organization state that ‘a clinical syndrome consisting of rapidly developing clinical

signs of focal disturbance of cerebral lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin.' (Hossain et al., 2011).

Stroke is one of the leading vital of death and disability worldwide and more so in backward Countries like, where expected treatment is available including rehabilitation The primary initiative of the rehabilitation approach may be able to make a return on the nervous function and improve long-term results and quality of life (Hossain et al., 2011). In Bangladesh there are 162·2 million people, 26% lives in urban areas and the majority (74%) lives in rural areas. In Bangladesh, stroke has been ranked as the third leading cause of death after coronary heart disease and infectious diseases such as influenza and pneumonia. In 2006 to 2011 mortality rate of stroke increased from 6·00% to 8·57%, with an age-adjusted mortality rate of 108·31 per 100,000 people. The World Health Organization (WHO) ranks mortality due to stroke in Bangladesh as number 84 in the world (Islam et al., 2013).

On the other hand, in one study had identified over 64 papers from 28 countries that the incidence SCI was about 25.5/million/year of in developing countries. Males (82.8%) were more likely to sustain SCI than females. The mean age of SCI occurrence was 32.4 years. The relative frequency for following subgroups of SCI was: MVC 41.4% and falls 34.9%; complete and incomplete SCI were 56.5 and 43.0%, respectively; paraplegia and tetraplegia were 58.6 and 40.7%, respectively. However, there was no significant difference between MVC and falls, complete and incomplete SCI, paraplegia and tetraplegia (Rahimi et al., 2013). So, spinal cord injury (SCI) was one of the most devastating conditions and SCI may happen but in the last period of lifetime the devastating effects could be stayed (Razzak, 2013).

After affect neurological condition like stroke, SCI for the recovery of neurological patients a variety of therapeutic methods have been invented. The most common neurophysiological method, which increase motor functions and orthopedic procedures which increase the performance of the affected limb strength and motor relearning system (Chan et al., 2006). Several systemic reviews have shown that the recovery is improved for high-intensity therapies. Although there is no clear guidance at the best stage of the practice, the importance of increasing the training of knowledge is widely accepted.

Rehabilitation should begin as soon as possible after affect neurological condition like stroke, SCI. After the formal rehabilitation period, recovery may continue for months or even years after problem occurred. In recent years there has been increased focus on improved outcomes after acute neurological problem occurred. This interest is inspired by advances in knowledge of the mechanisms of recovery and the role of neuronal plasticity (Van et al., 2015).

1.2 Rationale:

According to WHO, more than 450 million people in the world are suffering from neuro-psychiatric disorders and in Bangladesh there are 15 million people suffering from mental illnesses of various types. In other words, almost 10 percent of the population is in need of mental health services. Mental disorders have serious negative effect on survival, and when present with chronic diseases as co- morbid condition, serious mental disorders may reduce life expectancy by about 20 years (Hossain et al., 2014). Mental disorders are generally not perceived as a health problem and are not priority in the health care delivery. In Bangladesh health system to mental disorders are scarce although a few published articles provide some estimates of different mental disorders. So, the health system should provide mental health care and services. This comprehensive review was conducted to better understand the prevailing situation and health system preparedness to address mental health issues in Bangladesh.

In Bangladesh, data related to mental health is scarce. So is the case with preparedness of the health system in providing mental health care and services. This comprehensive review was conducted to better understand the prevailing situation and health system preparedness to address mental health issues in Bangladesh. mental health care system in Bangladesh faces multifaceted challenges such as lack of public mental health facilities, scarcity of skilled workforce, inadequate financial resource allocation and social stigma. Bangladesh still does not have a comprehensive mental health policy to strengthen the entire health system. Clearly, the most crucial challenge is the absence of a dynamic and proactive stewardship able to design and enforce policies to further strengthen and enhance the overall mental health care. Such strong leadership could bring about meaningful and effective health sector reform, which will work more efficiently for the betterment of the health and social and emotional wellbeing of the people of Bangladesh, and would be built upon the values of equity and accountability (Islam, 2015).

Still there is no study about the mental health and social status of neurological condition in Bangladesh. Mental health status has been found to have a major impact on health, lower performance of activities of daily living after various neurological problem. From this study rehab team specially, physiotherapist will get an idea about the level of Mental

health and social status that will have after various neurological patient after rehabilitation. Enhancing quality of life is the goal of all health promotion, treatment and service provision for people with disabilities. The study will help professionals to provide better quality service to these patients in future.

To minimize the impact of mental illness, it must be correctly identified and successfully treated. By this study Physiotherapist and other professionals will aware about the mental health and social support can understand about the effect of mental illness after completing rehabilitation on Bangladeshi perspectives.

1.3 Research Question

What is mental health and social status of patient with neurological condition after completed rehabilitation program from CRP?

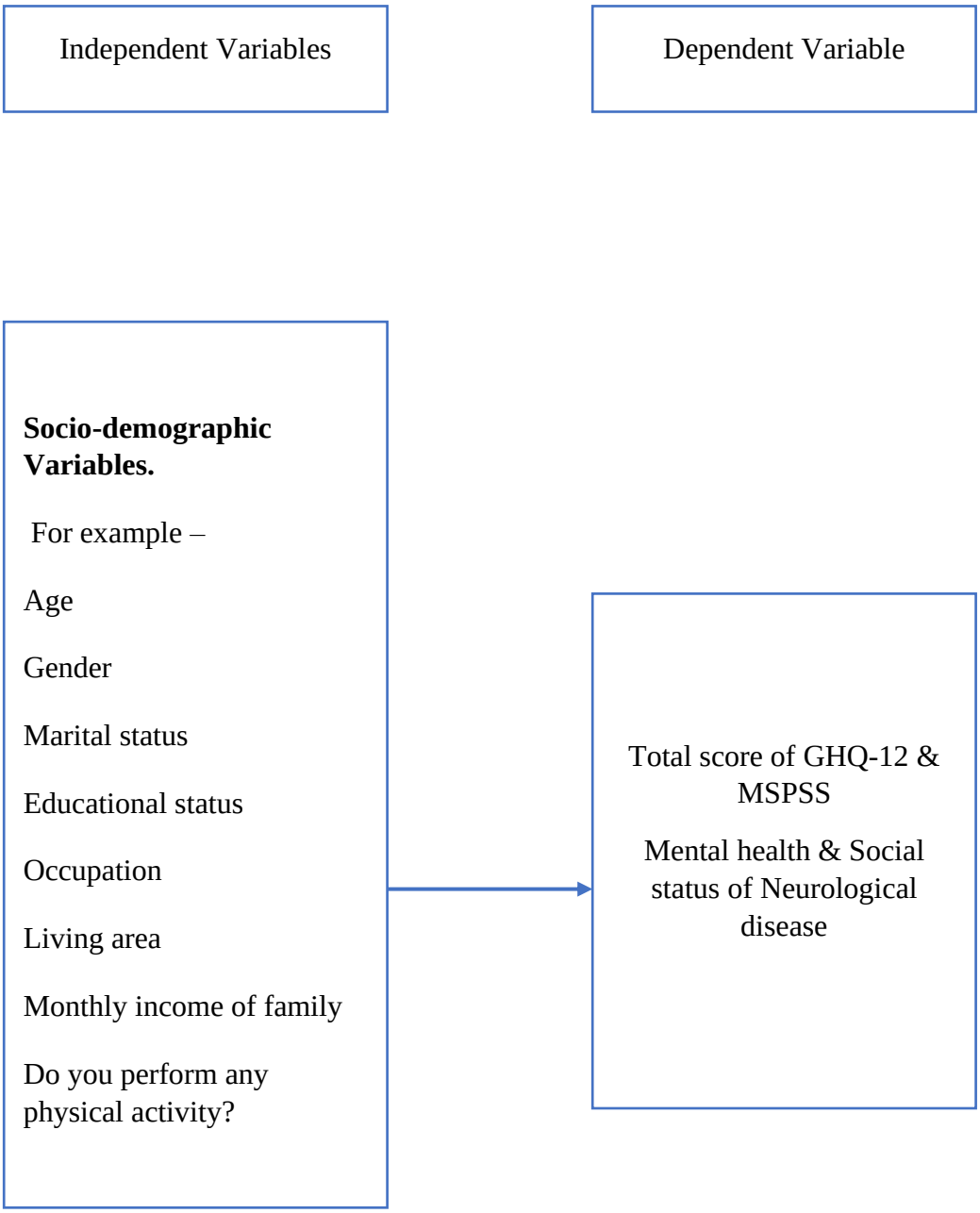
1.4 Aims

The aim of the study was to examine the mental health and social status of patient with neurological condition after completed rehabilitation program living in the community.

1.5 Study Objectives

1. To know about any association in between mental health and socio-demographic information (age, sex, income, types of injury, cause of injury etc.)
2. To evaluate the overall mental health and social status of various neurological patients after rehabilitation program
3. To find out association between participants socio demographic characteristics and social status.

1.6 Conceptual frame work



1.7 Operational definition

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Mental Health

Mental health is a condition that include emotional, psychological, and social well-being which help individual to cope up with the normal stresses of life, can work productively and is able to make a contribution to his or her community

Social status

Social status might be conceptualized as the diversity of natural helping behaviors that individuals actually receive when they are provided with assistance

Rehabilitation

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

Neurological disease

Neurological disease is a type of nervous system disorder that affects brain and neurons.

Chapter II Literature Review

Neurologic disorders represent a major burden of disease globally. These are common and represent a major public health problem. The spectrum of diseases ranges from non-communicable disorders like stroke and neurodegenerative disorders to central nervous system infections. The burden of neurological diseases may be on the increase especially in developing countries.

Mehndiratta et al. (2014) has studied about global perspective of neurological disease better understand the global burden of neurologic conditions in 2009. Researcher were to examined the epidemiology, including the incidence and prevalence, of 15 neurologic conditions: Alzheimer's disease (AD) and related dementia, amyotrophic lateral sclerosis (ALS), brain tumors, cerebral palsy, dystonia, epilepsy, Huntington disease (HD), hydrocephalus, multiple sclerosis, muscular dystrophy, Parkinson disease (PD), spina bifida, spinal cord injury (SCI), Tourette syndrome, and traumatic brain injury (TBI). This study was systematic review and involved the review of 65,529 abstracts and 4,650 full-text articles, with 1,242 research studies ultimately included in their systematic reviews where incidence studies were less frequently performed than prevalence studies, except for SCI and TBI, where most studies (>90%) were incidence studies. They used DSM-III or DSM-IV criteria and ICD-10 for diagnosed disease. The researcher had found Overall pooled worldwide prevalence or incidence for spinal cord injury 2.88 per 100,000 persons and Region-specific prevalence or incidence Europe/Asia/Australia 2.24 per 100,000 persons, North America 4.23 per 100,000 persons. They explained the number of prevalence and incidence of neurological disease increase day by day and influenced by age, sex, ethnicity, geographical factor. So, they recommended to future studies to clearly delineate the multifactorial reasons (e.g., genetic, environmental) for these variations, to guide prevention.

Chowdhury et al. (2012) has conducted a study about spectrum of neurological disorders: experience in specialized outpatient clinic in Bangladesh. A retrospective study was carried out in specialized neurology outpatient clinic of Dhaka Medical College Hospital

from July 2010 to June 2011, which included 3173 patients. Data were collected through a predesigned questionnaire from the hospital database kept at the clinic. The study evaluates that, among all the patients attending outpatient clinic, 88.7% had 44 types of neurological disorders like as Tension type headache 18.8%, Migraine 5.9%, other headache 1.29%, Ischemic stroke 21.2%, Hemorrhagic stroke (ICH) 7%, Subarachnoid hemorrhage 0.9%, Transient Ischemic Attack (TIA) 0.9%, Focal seizure 1%, Primary Generalized Seizure 2.4%, Juvenile Myoclonic epilepsy 0.2%, Parkinson Disease 2.1%, Dystonia 0.9%, Chorea 0.1%, Wilsons disease 0.1%, Benign essential tremor 1.1%, Peripheral neuropathy 2.8%, Transverse myelitis 0.3%, Cauda equina syndrome 0.1%, Motor Neuron Disease 0.5%, Dementia 0.6%, Spinal Muscular Atrophy (SMA) 0.3% Myopathy 0.3%, Quadriplegia 0.4%, Paraplegia 1%, Cranial nerve palsy 0.8%, Cervical spondylosis 0.9%, Lumber spondylosis 1.8%, Disc prolapse 1.3%, Potts disease 0.6%, Meningitis 0.3%, BPPV 1.3%, Vestibular neuronitis 0.15%, Pseudo vertigo 1.5%, Primary brain tumor 0.22%, Secondary brain tumor 0.8%, Cerebral Arterio-Venous Malformation 0.09%, Cerebral palsy 0.15%, Hydrocephalus 0.22%, Multiple sclerosis 0.12%, Encephalopathy 0.15%, Undiagnosed 4.6% Others 2.2% at OPD in Dhaka Medical College. Distribution of disease was similar in all age group from 21-30 years to 51-60 years. Stroke (28.2%) and Headache (24.7%) were two most common neurologic disease in Bangladesh. Pattern of diseases predominance was not same in all age group. This was also true for both sexes, where headache predominate in female, stroke was common among male. Researcher concluded that many physicians thought that most of the neurological diseases were not curable. But the most common ailments like stroke and headache were quite easily manageable and sometimes preventable. So, knowing pattern of disease distribution in community was helped managing them properly.

Zürcher et al. (2019) had done a study to find, mental health in individuals with spinal cord injury: The role of socioeconomic conditions and social relationship. Cross-sectional study using 511 individuals with SCI aged over 16 years in swidden. They collect data who are suffering traumatic and non-traumatic SCI and were excluded SCI due to congenital conditions, neurodegenerative disorders, Guillain Barre´ syndrome and those in palliative care settings from between late 2011 and early 2013. Mental Health Inventory (MHI-5) and Hospital Anxiety and Depression Scale (depression subscale,

HADS-D), and Social Support Questionnaire, 6 (SSQ-6) to measured mental health and social relationship of participants by using investigated unadjusted and adjusted associations between socioeconomic conditions, social relationships, and mental health using logistic regressions statistically test. Researcher find out lower household income was predominantly associated with poor structural social relationships, whereas financial strain was robustly linked to poor functional social relationships. Financial strain was associated with general mental health problems and depressive symptomatology, even after controlling for social relationships. Education and household income were not linked to mental health. Poor structural and functional social relationships were related to general mental health problems and depressive symptomatology. Notably, trends remained stable after accounting for socioeconomic conditions. But major limitation of this study is its observational and cross-sectional nature, which does not allow any statements about causality and recommendation was that may develop strategies to improve mental health in SCI by strengthening social relationships. They had concluded that, socioeconomic inequalities in social relationships as well as for independent associations of financial strain and poor social relationships with mental health problems in individuals with SCI.

Fann et al. (2011) had conducted a cross sectional study about, depression after spinal cord injury: comorbidities, mental health service use, and adequacy of treatment in 2011. The study using 947 persons and data were collect from 380 from the Rehabilitation Institute of Chicago; 210 from the University of Washington, Seattle; 192 from the University of Michigan, Ann Arbor; and 165 from the University of Alabama, Birmingham. Whereas patient eligibility criteria were age of 18 years or older with a history of traumatic SCI at any level and severity. They excluded persons who were non–English speakers, too cognitively impaired to comprehend study materials, and referred to study personnel by clinical staff who believed the person was depressed, rather than screened on a nonelected basis. In this study outcome tool was Patient Health Questionnaire-9 (PHQ-9) Depression Scale, psychiatric history questionnaire, Cornell Service Index (mental health service use), and current medication use and objective find out by using comparison between depressed and nondepressed groups, we used Fisher exact tests for categorical variables, t tests, for continuous variables, Mann-Whitney tests

to compare group differences in suicide attempts and frequency of mental health service use of statistical test. So, researchers were finding that implications for health care policy that more clearly addresses the mental health needs of those with concurrent severe physical conditions, such as SCI. Efforts must be made to both enhance access to specialty mental health care and improve the care of depression provided in the rehabilitation and primary care setting, in which much of depression care likely is provided. Evidence from other medical settings document that provider education and feedback are not sufficient to significantly improve depression care, and programs that include systematic patient education, active follow up, and improved access to evidence-based treatments have the best outcomes. The adoption and evaluation of similar methods to enhance depression care in people with SCI is urgently needed. But their limitation were limitations of the study are worth noting. Data were not available for recruitment rate, refusals, or characteristics of nonparticipants to judge the representativeness of the sample and recommended for further study was that, needed to examine the barriers to care that may be contributing to the low rates of depression treatment in patients with SCI. Researcher concluded their study highlights the high prevalence of depression and psychiatric comorbidity in people with SCI and documents for the first time the large gap in depression treatment in this population. Although there is a clear need for empirical evidence for effective interventions for depression after SCI, current guideline-level treatments are not being used by most persons with SCI and depression. Our findings may have implications for health care policy that more clearly addresses the mental health needs of those with concurrent severe physical conditions, such as SCI. Efforts must be made to both enhance access to specialty mental health care and improve the care of depression provided in the rehabilitation and primary care setting, in which much of depression care likely is provided. Evidence from other medical settings document that provider education and feedback are not sufficient to significantly improve depression care, and programs that include systematic patient education, active follow up, and improved access to evidence-based treatments have the best outcomes. The adoption and evaluation of similar methods to enhance depression care in people with SCI is urgently needed

Tough et al. (2017) had done a cross-sectional survey about Vitality and mental health in disability: Associations with social relationships in persons with spinal cord injury and their partners. This study used 133 couples of persons with SCI, their eligibility criteria was that, who spoke German or French were contacted for eligibility screening. Eligibility screening assessed if the person was in a stable relationship and if their partners also agreed to participate, as couples were included in the pro-WELL study and excluded criteria was that, persons with severe cognitive impairment, assessed by their understanding during telephone eligibility screening of what their involvement in the study would entail were excluded and partners needed sufficient language skills in German or French for study participation. Social relationship constructs were measured using five items from the Social Network Index (SNI). Emotional and tangible aspects of perceived social support were measured 122 with items from the Swiss Health Survey (SHS) 2012. Relationship quality. Quality of partner relationship was assessed using items from the social support and depth subscales of the Quality of Relationship Inventory (QRI). Loneliness. Three items from the Revised UCLA loneliness scale were used to capture subjective feelings of loneliness. And (SF-36) (Version 1.0) were used to assess vitality and mental health outcome tool were used to evaluate main aim which were 1) the variation in the quantity and quality of social relationships in persons with spinal cord injury (SCI) and their partners; 2) dyadic coherence within social relationship constructs; 3) the interrelationships between social relationship constructs; and 4) the associations of social relationship construct with vitality and mental health. This study data was collected from community from Nottwil, Switzerland in 2016. The researchers find in their study Loneliness, larger social networks and higher relationship quality were more prevalent in SCI. All social relationship constructs, apart from loneliness, were more similar within couples than between couples and the interrelationships between different constructs were small. Qualitative aspects of relationships were more important than the quantitative aspects in their associations to vitality and mental health. These associations were most consistent for loneliness, reciprocity and relationship quality in both groups. In this study limitation was Firstly, due to its cross-sectional nature, no causal inference can be attained and reverse causality cannot be excluded. Secondly, although a wide array of social relationship constructs was included, other dimensions of

social relationships may have been neglected, most importantly, the provision of social support and certain aspects of negative social relationships such as conflict and hostility. Thirdly, due to limited variation in certain social relationship constructs, as well as ceiling effects, persons with poorer quality social relationships may have been missed in our population. Finally, there were potential limitations due to the measures used. But these limitations are balanced by several strengths. Firstly, the wide range of included constructs has enabled a comparative analysis in relation to vitality and mental health. Secondly, the inclusion of couples facilitated the analysis of social relationships from two distinct perspectives and enabled comparisons to be drawn between a disabled and a caregiver population. Thirdly, vitality, a measure that has rarely been included in this type of research, emerged as the construct most consistently related to quality aspects of social relationships. Finally, all associations of social relationship construct with health were adjusted for relevant confounders, thus minimizing the risk of reporting spurious relationships. Future research may look at the effectiveness of such interventions in improving social relationships and thereby enhancing mental functioning. They had concluded that in the long-term management of community functioning in persons with SCI and their 24 partners, the fostering of high-quality intimate relationships should take priority.

One Canadian research which about Mental health outcomes in children with acquired dystonia after basal ganglia stroke and associations with cognitive and motor outcomes in children that applied 75 persons of children with acquired dystonia after stroke suggested measured by the Behavior Assessment System for Children, 2nd edition Parent Rating Scales (BASC-2 PRS). The Wechsler intelligence Scale for Children, 4th edition (WISC-IV;) assesses intellectual abilities in children. In this study researchers used independent t and Chi square statistical tests were used to examine demographic and neurological characteristics to find the presence of greater levels of anxiety and depression symptoms in children with poststroke dystonia after stroke relative to those with similar patterns of stroke, but no dystonia. There were no significant associations between motor, cognitive, and mental health outcomes in children with post-stroke dystonia aside from depression and behavioral regulation. Motor and cognitive outcome were significantly associated in the stroke only group. These findings suggest maladaptive reorganization after stroke

may contribute to motor, cognitive, and mental health outcomes in children with post-stroke dystonia, and that these outcomes are independent from one another. But there had some limitation first, a formal dystonia rating scale (e.g., Hypertonia Assessment Tool) was not systematically implemented in this retrospective cohort, and diagnosis was made on the basis of a neurologist's judgment. Additionally, the diagnosis of dystonia is based on a unique assessment. However, it is important to note that all children in the dystonia group were exhibiting symptoms at the time of the neuropsychological assessment. Their recommendation to future research will further elucidate the neural basis of cognitive and mental health difficulties present in children with post-stroke dystonia. Researchers gave conclusion that the results of this study suggest that children who go on to develop secondary dystonia after a stroke involving the basal ganglia and/or thalamus are at risk for poorer mental health outcomes relative to children with a similar pattern of brain injury but no dystonia. Additionally, our examination of the parent ratings on standardized questionnaires of mental health, as well as clinical impressions captured in neuropsychological reports underscores the importance of not focusing solely on questionnaire data and cutoff points but ensuring to document subclinical symptoms of depression and anxiety in the context of a full neuropsychological assessment. Results suggest that cognitive, mental health, and motor outcomes are independent in dystonia, however this is an area for further study. The results point to the importance of clinical assessment, close monitoring, and providing intervention for mental health in children with basal ganglia stroke and dystonia. (Ledochowski et al., 2020)

Almeida & Xiao (2007) had conducted a study to know mortality associated with incident mental health disorders after stroke. The aim of the study was to assess (1) the incidence of first-ever mental health disorder in the population of stroke patients admitted to hospital in Western Australia in 1990; (2) the 10-year psychiatric morbidity of poststroke patients; and (3) the 10-year mortality associated with incident post-stroke mental health disorders. Retrospective cohort study had conducted using 1,129 hospital stroke patients in 1990. Among them with 21 people dying on the same day of contact and their main findings was 36.6% of the survivors received a mental health diagnosis (6.1 per 1,000 person-years): alcohol-related disorders (16.2%), dementia (12.1%), delirium (7.6%), psychotic disorders (6.7%), and depression (5.5%).

Mental health disorder onset was usually within 6 months of the stroke. Patients with an incident psychotic disorder were twice as likely to die during the subsequent 10 years as poststroke controls with no mental health disorder (risk ratio/2.03, 95% CI/1.392.95). Being a widow (HR/1.61, 95% CI/1.132.30) or having been born in 'other countries' as opposed to Australia (HR/1.56, 95% CI/1.152.11) was also associated with increased death hazard. They had some limitation that was estimated incidence rates for post-stroke mental disorders were based on people who received a mental health diagnosis after presenting for treatment at a hospital or public mental health service. Therefore, we cannot entirely be sure how well the reported rates reflect the true incidence of post-stroke mental disorders in the community and recommendation to future study should aim to determine how mental health disorders, such as psychosis, lead to increased mortality, so that appropriate preventative strategies can be devised and introduced in clinical practice. They gave conclusion approximately 1 in 3 patients develop a mental health disorder after stroke, although incidence estimates are relatively low. Post-stroke psychosis is associated with greater 10-year mortality, but the mechanisms underlying such an association are yet to be determined.

Coleman et al. (2015) had measure about the relationship between physical and mental health variables in individuals with spinal cord injury from Latin America. Cross-sectional study using 40 persons where eligibility criteria is that Integral Development of People with Disabilities to find persons who had obtained services for SCI. Researchers used SF-36 Health Questionnaire) and mental health (Satisfaction with Life Scale, Patient Health Questionnaire-9, and State Trait Anxiety Inventory outcome scale and find out canonical correlation between these 2 sets of variables uncovered that 50.4% of the variance was shared, such that persons with lower HRQOL had reduced mental health. Within this canonical correlation, anxiety, fatigue, and general health loaded most highly, suggesting that persons with SCI who experienced lower energy and reduced general health tended to have high anxiety. But their first limitation was sample size, second limitation is that employment was not assessed in the current study and third limitation is the use of the SF-36 in this study. They recommended to future study was that should examine possibly synergistic effects of reduced Health Related Quality of Life (HRQOL) and mental health on employment outcomes in persons with SCI from Latin America.

future research may use instruments that more directly measure common health and functional problems in this population. The study concluded that Latin America, SCI rehabilitation services are extremely sparse and rarely include interventions that target postinjury mental health. The current study suggests that mental health issues in patients with reduced HRQOL warrant attention in SCI rehabilitation services, especially in this region.

Warner et al. (2017) had studied about spinal cord injury and mental health, SCReaM. The aim of the study was that to examine the mental health of adults with spinal cord injury living in the community. Cross-sectional cohort self-report survey used Depression, Anxiety and Stress Scale (DASS-21) to 443 persons and find out nearly half (48.5%) of the population with spinal cord injury suffered mental health problems of depression (37%), anxiety (30%), clinical-level stress (25%) or posttraumatic stress disorder (8.4%). Overall, there was a twofold or more increase in the probability of emotional disorders compared to the general population. Of those with one mental health disorder, 60% also had at least one other emotional disorder, representing a substantial 56% increase over the general population in the probability of comorbidity of psychopathology. Better health and time since injury were associated with decreasing the risk of psychopathology. In this study limitation was that, measures of psychopathology were self-report scales and did not include a diagnosis confirmed by clinical interview, but the scales used had demonstrated good predictive and discriminatory validity in normative and clinical populations as well as in populations with disabilities. The study concluded that the vulnerability of the population with spinal cord injury to emotional disorders. This study highlights the complexity of mental health problems experienced by many individuals with spinal cord injury living in the community. The delivery of mental health services to this vulnerable population requires recognition of comorbidity and problems of mobility, access and stigma.

All these studies explained the importance of proper rehabilitation after neurological illness and after completed rehabilitation program. Different studies have used different scales, questionnaires and tests to measure the outcome of mental health and social status. In addition to that all these studies are conducted in different countries which are having

quit different cultural context comparatively to Bangladesh. Hence it was important to conduct separate study about the rehabilitation programs for patients with neurological condition and outcome of these patients after rehabilitation in Bangladesh. Bangladesh is a developing country and have less scope and spaces to conduct more researches.

CHAPTER- III METHODOLOGY

3.1 Study Design

Cross-sectional studies were carried out at one time point or over a short period. Cross sectional study was selected by researcher to carry out the research. In this study a cross sectional study design used to find out the mental health and social status of patient with neurological condition. This study design was appropriate to find out the objectives. The data was collected all at the same time or within a short time frame. A cross-sectional design provides a snapshot of the variables included in the study, at one particular point in time.

3.2 Study Site

Data was collected from patient with neurological condition after completed rehabilitation program from Centre for the Rehabilitation of the Paralysed (CRP), Savar and Manikgonj branch; that is specialized & largest rehabilitation hospital in Bangladesh.

3.3 Study population and sample population

A population is the total group or set of events or totality of the observation on which research is carried out. In this study the people who had neurological problem and people who were received treatment and rehabilitation was selected to carry out the study. About 300 sample were selected for this study.

3.4 Inclusion Criteria

- People who were completed rehabilitation program from CRP.
- Both male and female patients with SCI and stroke patient.
- People who were a neurological disease.
- People who is living in the community.
- People who willingly participate in the study.

3.5 Exclusion Criteria

- People who had severe psychological disorders.

- Patient with severe head injury.

- Patient speech problem & medically unstable patient.

- Patient with cognitive problem.

- Bellow 18 years of age.

- Patient suffering from serious pathological disease e.g.: tumors, tuberculosis etc.

3.6 Sampling Technique

Sample were selected through convenience sampling method for conducting this study. A convenience sample is a group of individuals who (conveniently) were available for study.

3.7 Sample Size

When the sample frame is finite, the equation of finite population correction in case of cross-sectional study is

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

$$= \frac{(1.96)^2 \times 0.16 \times 0.84}{(0.05)^2}$$

= 204

Here,

Z (confidence interval) = 1.96

P (prevalence) = 16% (WHO, 2007)

And, q= (1-p)

= (1 - 0.16)

=0.84

d (desired degree of precision) = 0.05

The actual sample size was, n= 204. As it is an academic thesis, self-funding and data was collected from community by considering the feasibility and convenience for data analysis 300 sample were selected conveniently.

3.8 Data Collection Tools

"General Health Questionnaire (GHQ-12)" and "Multidimensional Scale of Perceived Social Support (MSPSS)" were selected to collect data. General Health Questionnaire (GHQ-12) questionnaire is a mental health status measurement tool and consist of 12-items. Researcher used GHQ-12 for measuring mental health status (Hu, et al., 2007) and used GHQ bimodal scoring. In questionnaire possible answers go from zero to four (symptom present: ''not at all'' = 0, ''same as usual'' = 0, ''more than usual'' = 1, and ''much more than usual'' = 1), and therefore, the total score can go from 0 to 12. Analytically, the GHQ-12 can be used either as an ordered categorical variable (0 = low distress; 1- 3 = medium distress; 4+ = high distress) (Goldberg et al., 2010) . The Cronbach > (internal consistency measure) for the GHQ-12 in this sample was.

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3.9 Data Collection Procedure

Based on the literature General Health Questionnaire (GHQ-12) and Multidimensional Scale of Perceived Social Support (MSPSS) are the most reliable, validated and user-friendly questionnaire which is applicable to use in Bangladesh context to analysis the participants' mental health and social status. Hence this study focused to use above mentioned scales, questionnaires and field tests while conducting the study. For this reason, researcher was collected data from the participants by following the instructions given on the "General Health Questionnaire (GHQ-12)" and "Multidimensional Scale of Perceived Social Support (MSPSS)". This data collection tools were open access for all, not needed formal permission to use this study. Participants who had the reading ability they administered the questionnaire own-self. Before collecting data, the study aims and purpose explained to the participants. The participants or careers read (if they can) the information sheet and consent form who were unable to read researcher was explained the information sheet and the consent form. All the participants had the opportunities to ask any study related questions and they could show interest to participate in the study they could sign in the consent form willingly. The researcher was collected data by structured questionnaire, pen, pencil and paper.

3.10 Data Analysis

The researcher was analyzed data for evaluating the level of mental health to find out any relation in between mental health and effect of injury, also the association with depression and socio demographic information. The data was collected and analyzed by using statistical package for social sciences (SPSS) 20.0 version. Researcher analyzed the data by descriptive statistics using Frequency, Percentage (%), Pie diagram, Bar diagram and also shown the association by non-parametric test which was Chi-Square test.

3.11 Statistical Test

3.11.1 Determination of the nature of data

The variables were determined as nominal, ordinal, interval, and ratio data and considered their parametric or non-parametric properties based on data type, normality test, and standard procedure (Hicks, 2009). The normality of the data was examined by

the Kolmogorov- Smirnov and Shapiro-wilk test where researcher found that here data is not normally distributed.

Table-1: Data category and normality test of data

Variable	Description	Data type	Data distribution
Age overall	20-60	Discrete	Parametric
Age category	20-30 31-40 41-50 >50	Ordinal	Non-parametric
Gender	Male, Female	Nominal	Non-parametric
Marital status	Married, Unmarried, Widow/Widower, Divorce	Nominal	Non-parametric
Educational status	Non formal, Primary, Secondary, Higher secondary, Bachelor or above	Nominal	Non-parametric
Occupation	Job, Business, House wife, Others, Jobless	Nominal	Non-parametric
Living area	Rural, semi urban, Urban	Nominal	Non-parametric
Average monthly income of the person before illness	0- 81,000 BDT	Discrete	Parametric
Average monthly income of the person after illness	0- 72,000 BDT	Discrete	Parametric
Average monthly income of family	300- 95,000 BDT	Discrete	Parametric
Name of disease	Spinal cord injury (SCI), Stroke (CVA), Guillain-	Nominal	Non-parametric

	Barré Syndrome (GBS), Adult Cerebral Palsy (CP), Transverse myelitis (TM)		
What type of rehabilitation services have you received	Medical and Nursing care, Rehabilitation care, Both medical, nursing and rehabilitation care	Nominal	Non-parametric
Social support vocational support	Social support, Vocational support, No, Social support and vocational support	Nominal	Non-parametric
Duration of rehabilitation health care	1 to 3 month, more than 3 month	Ordinal	Non-parametric
Do you perform any type of physical activities	Yes, No	Nominal	No-parametric
Total GHQ	0-36	Discrete	Parametric
Category of GHQ	Score of 11 or 12 considered typical, scores > 15 suggesting evidence of distress, and scores > 20 are considered severe problems with psychological distress.	ordinal	Non-parametric
Total MSPSS	12-84	Discrete	Parametric
Category of MSPSS	12-35 Low perceived support, 36-60 Medium perceived support, 61-84 High perceived support	Ordinal	Non-parametric

3.11.2 Determination of statistical test

The statistical has been performed as descriptive and inferential statistics based on parametric or non-parametric properties. The Descriptive Statics was performed as frequency and percentage in nominal or ordinal data. Mean and standard deviation has been calculated for interval or ratio data.

Table.2 The Inferential Statistics has been performed as follows:

Purpose	Variables	Statistical test
Relationship	Two Categorical data (non- parametric)	Chi square test
	One categorical (non-parametric) and one numerical (parametric) data	Independent T-test (independent bi-variant data)
		One way ANOVA (independent tri-variate data)
		Chi-square test (independent multivariate data)
	Two parametric data (Quantitative variables)	Pearson correlation test
	Two nonparametric data (Quantitative variables)	Spearman correlation test
Regression of relationship	Dependent variable as parametric (numerical) data	Multiple linear logistic regression
	Dependent variable as non-parametric (Categorical) data	Binary logistic regression

3.12 Level of Significance

To find out the significance of the study, the “p” value was calculated. The p-values refer to the probability of the results for the experimental study. A p-value is called the level of significance for an experiment and a p-value of <0.05 was accepted as a significant result for health service research.

3.13 Ethical Consideration

The researcher maintained some ethical considerations: Researcher has followed the Bangladesh Medical Research Council (BMRC) guideline & WHO research guideline. A research proposal was submitted to the physiotherapy department of 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. The proposal of the dissertation including methodology was presented to the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) for oral presentation defense was done in front of the IRB. Then the necessary information was approved by Institutional Review Board and was permitted to do this research. After getting the permission of doing this study from the academic institute the researcher had been started to do it. The researcher had been taken permission for data collection from the Savar and Manikgonj branch of CRP. The participants would be informed before to invite participation in the study. A written consent form used to take the permission of each participant for the study. The researcher ensured that all participants were informed about their rights and reserves and about the aim and objectives of the study. Researcher also ensured that the organization (CRP) was not hampered by the study. All kinds of confidentiality highly maintained. The researcher ensured not to leak out any type of confidentialities. The researcher was eligible to do the study after knowing the academic and clinical rules of doing the study about what should be done and what should not. All rights of the participants were reserved and researcher was accountable to the participant to answer any type of study related question.

3.14 Informed Consent

Written consent was given to all participants prior to completion of the questionnaire. The investigator explains to the participants about his or her role in this study. The investigator received a written consent form every participant including signature. So, the participant assured that they could understand about the consent form and their participation was on voluntary basis. The participants were informed clearly that their information would be kept confidential. The investigator assured the participants that the study would not be harmful to them. It was explained that there might not a direct benefit from the study for the participants but in the future cases like them might get benefit from it. The participants had the rights to withdraw consent and discontinue participation at any time without prejudice to present or future care at the community. Information from this study was anonymously coded to ensure confidentiality and was not personally identified in any publication containing the result of this study.

3.15 Rigor of the study

The rigorous manner was maintained to conduct the study. The study was conducted in a clean and systemic way. During the data collection it was ensured that participants were not influenced by experience. The answer was accepted whether they were in negative or positive impression. No leading questions were asked. The participant information was coded accurately checked by the supervisor to eliminate any possible errors. The entire information was handled with confidentiality. In the result section, outcome was not influenced by showing any personal interpretation. Every section of the study was checked & rechecked by research supervisor.

CHAPTER- IV RESULTS

4.1 Socio- demographic characteristic

4.1.1 Age

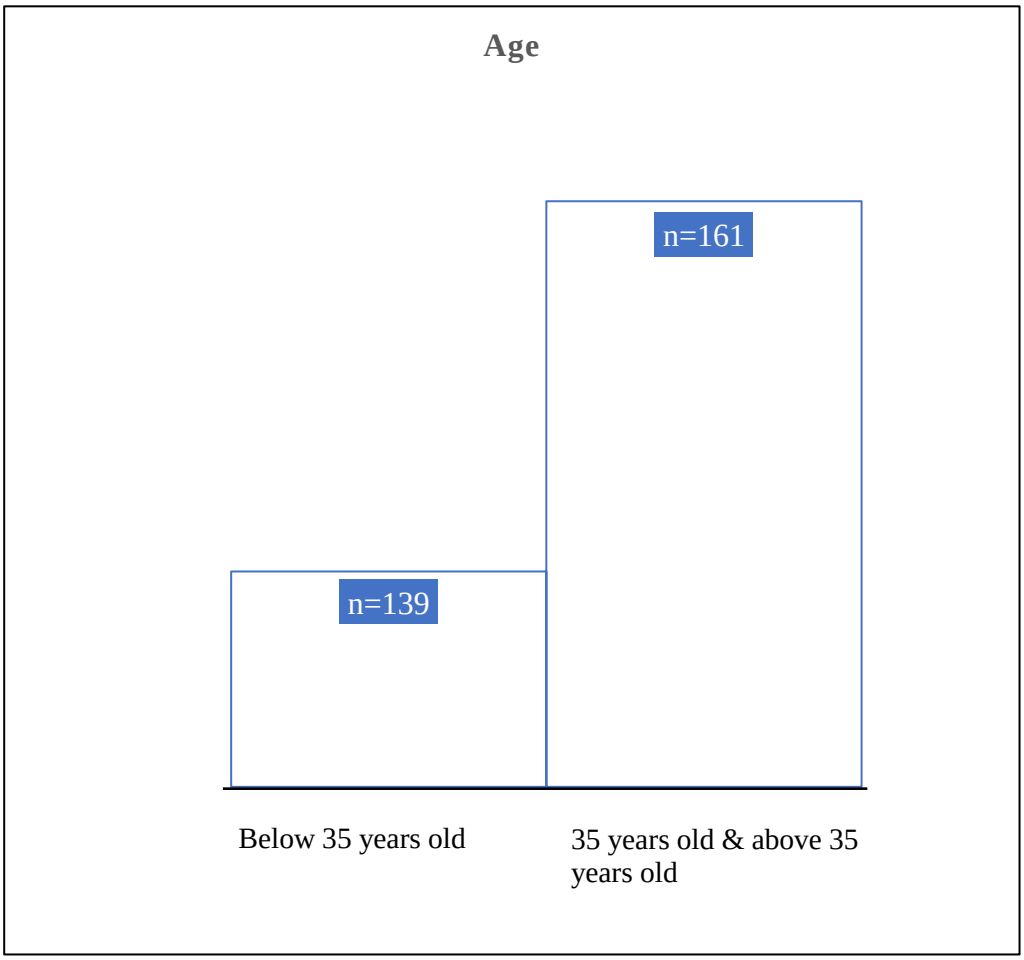

Figure-1: Age distribution of neurological participants

Among 300 participants, the mean age of the respondents was 35 years with a standard deviation of ±11.048 years. Among them, 46.3% (n=139) were below 35 years old and about 53.7% (n=161) were 35 years old and above 35 years old that was the highest age range of total participants.

4.1.2 Gender

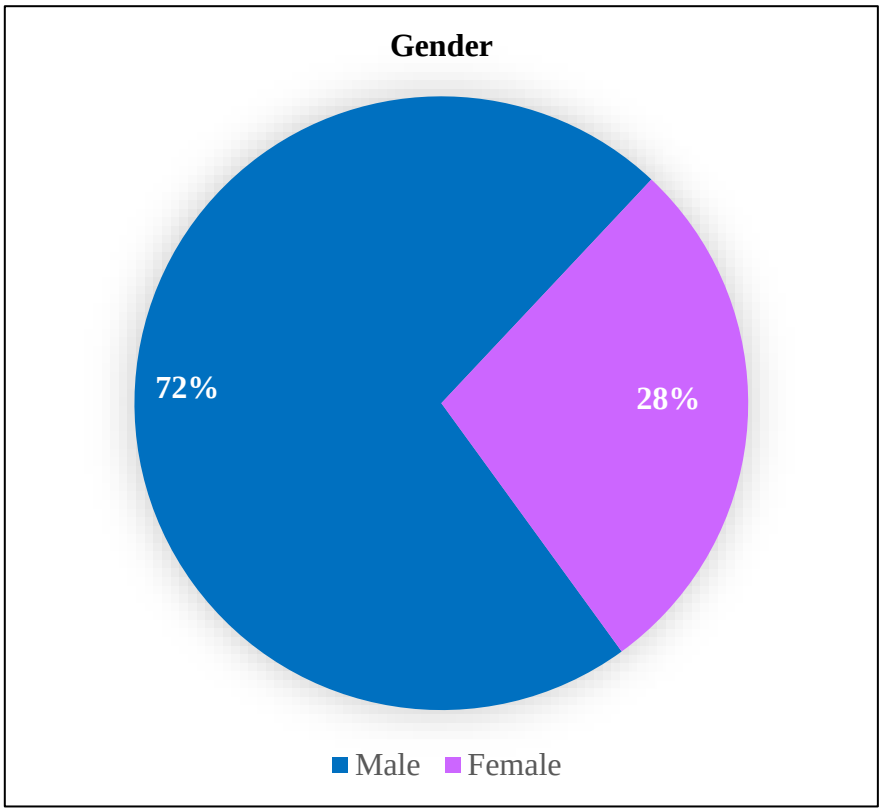

Figure-2: Gender distribution of neurological participants

Male was predominantly higher than female. Out of 300 participants 71.7% (n=215) were male and 28.3% (n=85) were female.

4.1.3 Marital status

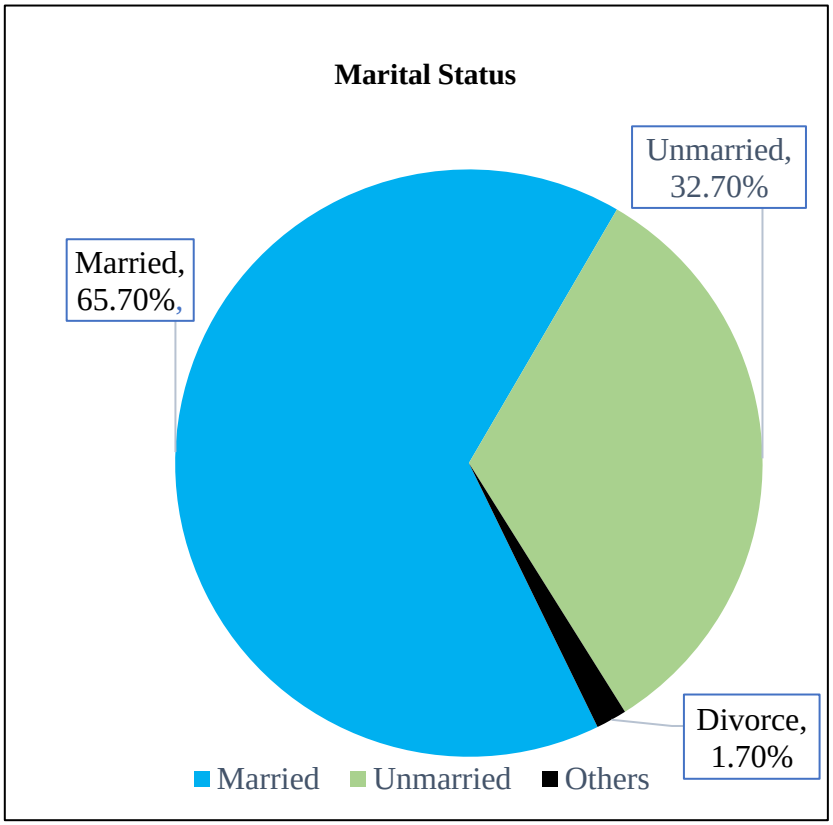

Figure-3: Marital status of participants

Around 300 participants researcher found married persons 65.7% (n=197), unmarried persons 32.7% (n=98) and others (e.g., widow, widower, divorce) persons were 1.7% (n=5).

4.1.4 Educational status

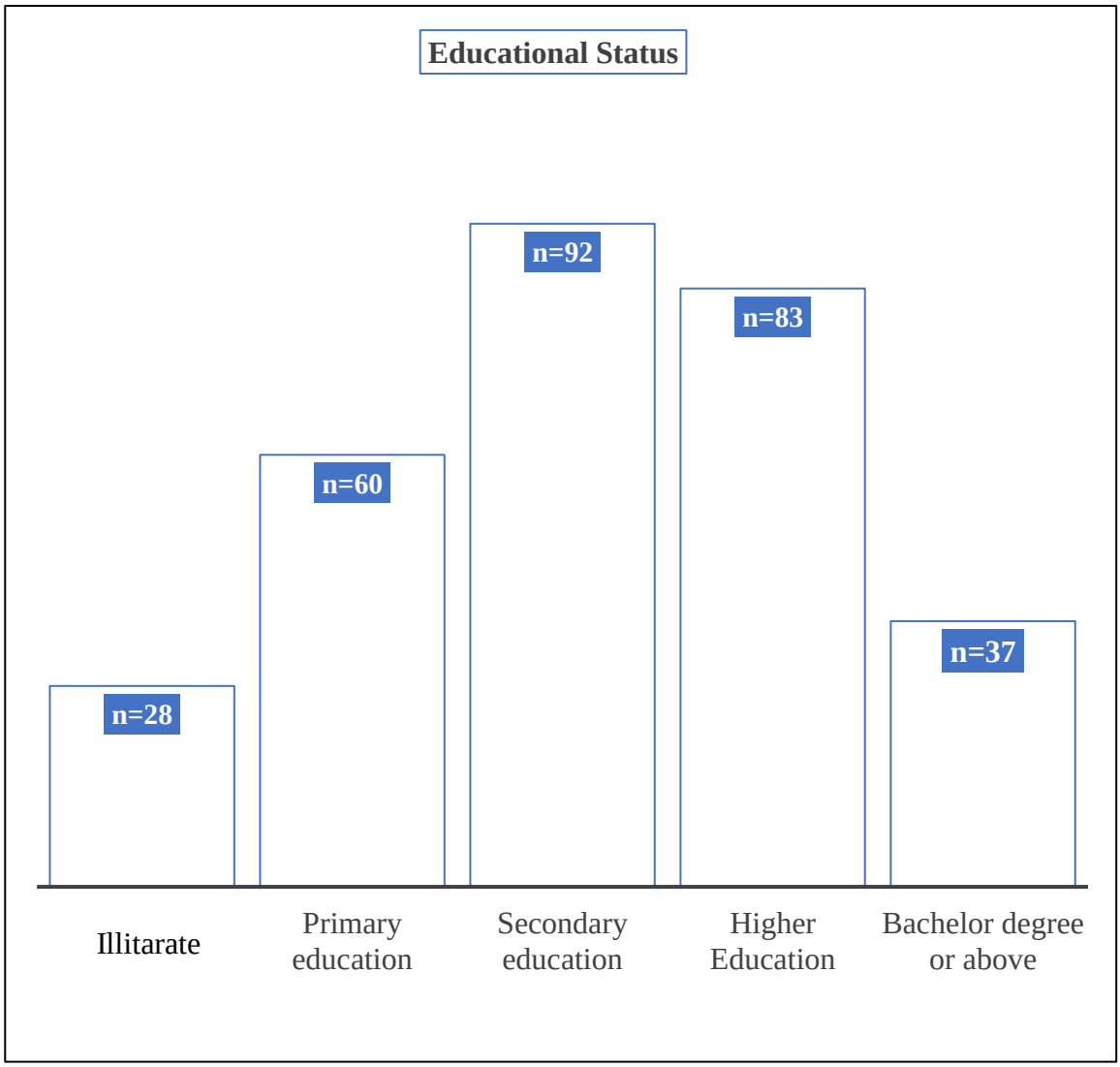

Figure-4: Educational status of participants

Among 300 participants the frequency of literacy shows, least percentage of the participants, only 9.3% (n=28) are illiterate. The approximate percentage of literacy is 20% (n=60) of the participants completed primary education, 30.7% (n=92) of the participants completed secondary education and 27.7% (n=83) of the participants completed higher secondary education which is the basic education level according to Bangladesh. Other percentages show a higher level of literacy rather than a basic level where 12.3% (n=37) of the participants completed their bachelor degree and above

4.1.5 Living area

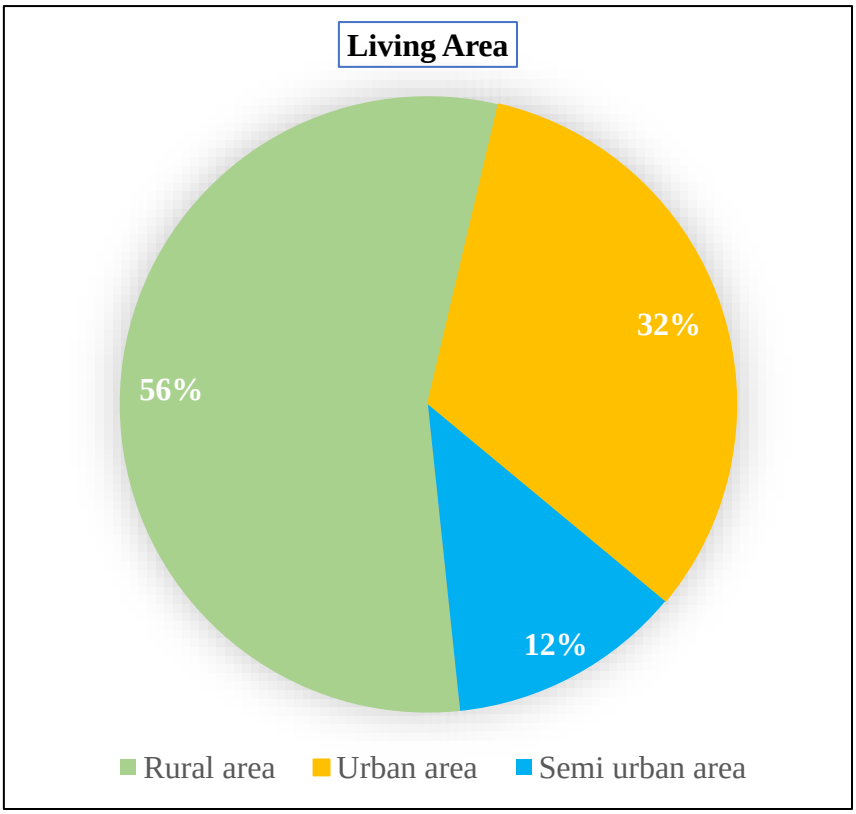

Figure-5: Living area

Most of the respondents who were suffering from neurological problem were from rural areas 55.3% (n=166) and second most were from urban 32.3% (n=97). Only 12.3% (n=37) were from semi urban area.

4.1.6 Occupation

The chart shows that the number of 17.3% (n=52) are job holder. Businessman, house wife was less than other profession 19% (n=57), 13.7% (n=41). Others professional are most prominent among the whole participants they are 26% (n=78) and second most common are jobless 24% (n=72).

4.1.7 Name of disease

Spinal Cord Injury (SCI) was the most common disease among 300 participants 78% (n=234) and second most common is Stroke (CVA) 19% (n=57). Others disease like as, GBS, TM, Adult CP are 3% (n=9).

4.1.8 Type of disease

In this study, researcher found that most common type of neurological diseases were incomplete SCI, ischemic type of CVA. Among 300 participants incomplete SCI was 78.3% (n= 235) and ischemic CVA was 18.3% (n=55) and others types of diseases were 3.3% (n=10).

4.1.9 Average family's monthly income

Most of the participant's family income was less than 24000BDT and the percentage was 58.3% (n=175) and others participants lead approximately in a standard lifestyle, 125 participants' family income was between 24000 BDT to 95000 BDT, the percentage was 41.7%.

4.1.10 What type of rehabilitation services have patients received?

All 300 participants were received both medical, nursing and rehabilitation care and their percentage are 100%.

4.1.11 Social and vocational support

Among 300 participants the social and vocational support had received 56.7% (n=170) and didn't receive any type of support 43.3% (n=130). But among 56.7% of participants only social support had received 5.7% and vocational support received 35.7% and also both supports received 15.3%.

Table- 3: Distribution of the participants according to Socio- Demographic & Injury related characteristics

Variable	**Description of data** Mean (median) ± Std. Deviation / Frequency (percent)	**Variable**	**Description of data** Frequency (percent)
Age overall (20-60) years	35.5 ± 11.048	**Type of disease**	
		Incomplete SCI	235 (78.3%)
		Ischemic Stroke	55 (18.3%)
		Others disease	10 (3.3%)
Occupation		**Family's monthly income**	
Job	52 (17.3%)		
Business	57 (19%)	Below 24000 BDT	175 (58.3%)
House wife	41 (13.7%)	Income 24000 BDT and above 24000 BDT	125 (41.7%
Others	78 (26%)		
Job less	72 (24%)		
Name of disease		**Social and vocational support**	
Spinal cord injury (SCI)	234 (78%)	Social support	17 (5.7%)
Stroke (CVA)	57 (19%)	Vocational support	107 (35.7%)
Others	9 (3%)	Both social and vocational support	46 (15.3%)
		Total Yes	170 (56.7%)
		NO	130 (43.3)

4.2 Demographic of mental health and social status

In this study researcher have found most of the participants was highly distress 143 (47.7%), medium distress 80 (26.7%) of them and only low distress were 77 (25.7%).

In addition, low perceived social support was 4 (1.3%), Medium perceived social support was 82 (27.3%) and most prominent participants was high perceived social support 214 (71.3%).

Table-4: Demographic table of mental and social status

Variable	**Description of data** Frequency (percent)
GHQ-12	
Low distress	77 (25.7%)
Medium distress	80 (26.7%)
High distress	143 (47.7%)
MSPSS	
Low perceived social support	4 (1.3%)
Medium perceived social support	82 (27.3%)
High perceived social support	214 (71.3%)

4.3 Association between participants socio-demographic and clinical characteristics with their mental health: (By Person chi square test)

The study had an association occurred between socio-demographic profile and mental health status which was mentioned in the 2nd objective of the study. In this study, the GHQ-12 scale was used. Here, the dependent variable was the GHQ-12 scale score, mental health status had significant with the occupation, type of disease condition, social and vocational support is $p<0.05$. Mental health status was not found any association with age category, gender, education, marital status, living area, monthly income, neurological condition

Table-5: Correlation between socio-demographic and mental health status

Variables	Pearson chi square (x^2)	p values
Age of all participants and mental health status	2.006	0.37
Gender of all participants and mental health status	9.686	0.008
Marital status of all participants and mental health status	4.114	0.387
Educational status of all participants and mental health status	12.166	0.144
Occupation of all participants and mental health status	15.663	0.047
Association between living area and mental health status	5.517	0.238
Association between neurological disease and mental health status	8.761	0.067
Type of disease and mental health status	9.702	0.046
Average family monthly income and mental health status	0.011	0.994
Association between social and vocation support and mental health support	6.115	0.046

α value = 0.05

4.4 Association between participants socio-demographic and clinical characteristics with their social status: (By Person chi square test)

The researcher found an association occurred between socio-demographic profile and social status which was mentioned in the 3rd objective of the study. In this study, the MSPSS scale was used. Here, the dependent variable was the MSPSS scale score, social status had highly significant (p= 0.001) with gender and educational level score of interpretation.

Social status was not found any association with age category, occupation, marital status, living area, monthly income, neurological condition, type of disease.

Table-6: Correlation between socio-demographic and social status

Variables	Pearson chi square (x^2)	p values
Age of all participants and social status	0.096	0.953
Gender of all participants and social status	26.375	0.0001
Marital status of all participants and social status	4.100	0.393
Educational status of all participants social status	25.183	0.001
Occupation of all participants and social status	18.993	0.015
Association between living area and social status	14.192	0.007
Association between neurological disease and social status	7.718	0.102
Type of disease and social status	9.026	0.060
Average family monthly income and social status	4.214	0.122
Association between social and vocation support and social support	5.084	0.079

α value = 0.05

4.5 Correlation between participants socio-demographic and clinical characteristics with their mental and social status: (By spearman correlation test)

In this study had a negative correlation (r = -0.013) occurred between average family monthly income of all participants and mental health status but in between age of all participants and mental status had positive correlation (r = 0.174). On the other hand, positive correlation (r = 0.138) between average family monthly income of all participants and social status but negative correlation (r = -0.012) between age of all participants and social status had found.

Table-7: Correlation between demographic and mental health and social status

Variables	Correlation and co-efficient (r)	p values
Age of all participants and mental status	0.174	0.002*
Average family monthly income of all participants and mental health status	-0.013	0.829
Age of all participants and social status	-0.012	0.838
Average family monthly income of all participants and social status	0.138	0.017*

(* significant at 95% confidence level)

CHAPTER- V DISCUSSION

The objectives of the study were to find out the overall mental health and social status of various neurological patients after rehabilitation program, association in between mental health and socio-demographic information (age, sex, income, types of injury, cause of injury etc.), association between participants socio demographic characteristics and social status.

In this study almost 139 (46.3%) of the participants were age below 35 years and 161 (53.7%) of participants were age 35 years and above 35 years old. The mean age of the respondents was 35.5 and SD was ± 11.048 years. In here height age of the participants was 60 and lowest age was 20. Among 300 participants of this study 215 (71.7%) were male and 85 (28.3%) females.

In addition, that, among all participants were married 197 (65.7%), unmarried 98 (32.7%) and others status of people was 5 (1.7%).

In Australia a study by Warner et al. (2017) found that eight percent were male; 30.9% had incomplete paraplegia, 30.7% had complete paraplegia, 25.3% had incomplete quadriplegia and 10.2% had complete quadriplegia. The average age of participants in 2004-2005 was 51.78 years (SD=14.44 years, range= 18- 86 years). The average time since injury was 19.2 years (SD= 13.27 years, range= 1- 66 years). The majority of participants were married (58.8%) and had completed 512 years of education (57.9%). Another study by Mondol et al. (2012) showed that in Bangladesh stated that male patients were 73.4% and female were 26.6%.

In this study researcher found no formal education in 28 (9.3%) participants, Primary education in 60 (20%) participants, 92 (30.7%) of them were SSC passed, 83 (27.7%) of them were HSC passed and the other 37 (12.3%) participants were Bachelor degree or above passed. In a study by Hossain et al. (2011) showed that, in Bangladesh found that 31% patients received schooling, 19% patients received college education, only 13% went to university or similar institution and only 37% were never attended school.

Among all participants of the study about 18% (n=9) illiterate, 22% (n=11) took primary education, 48% (n=24) took secondary education and 12% (n=6) were undergraduate. So, the result shows that most participants are in secondary level. A study of India showed that almost 60-70% was illiterate. A Brazilian study showed that of the 60 patients, 38 (63.3%) had complete or incomplete primary education, 19 (31.7%) had complete or incomplete secondary education and 3 (5%) had college education (Blanes et al., 2009)

Among all participants were Service holder, 52 (17.3%), 57 (19%) of them were businessman, 41 (13.7%) of them were housewife, others professional were most common in this study 78 (26%) and second most common were jobless about 72 (24%). In a study by Hossain et al. (2011) in Bangladesh found that 17% patients were businessman, 16% were housewife and his study showed that 79% affected parson were working force of our society which indicate a serious impact on the families of the sufferers.

The study showed that 97 (32.3%) the participants came from urban area, 37 (12.3%) from semi urban and 166 (53.3%) were from rural area. In this study most participants collect from rural area in Bangladesh. Researcher analyzed various type of neurological disease e.g.; Stroke, Spinal Cord Injury, GBS, TM, Adult CP. For data analysis advantage researcher did category neurological disease. Among the all-participants researcher found Spinal Cord Injury was most common in this study about 234 (78%) of them, second most common neurological disease was found stroke near about 57 (19%) of them and others neurological disease were 9 (3%). Most common neurological were incomplete of SCI and ischemic of CVA. Among all participants were 235 (78.3%) of incomplete SCI, 57 (19%) of ischemic and others type of neurological disease were 10 (3.3%). All participants have completed rehabilitation program CRP.

Chowdhury et al. (2012) found in their study patients took OPD consultation for almost 44 neurologic conditions. Among them ischemic stroke (21.2%), tension type of headache (18.8%), hemorrhagic stroke (7%), migraine (5.9%) and peripheral neuropathy (2.8%) were the most five common conditions. Conditions like, primary generalized tonic clonic seizure (2.4%), Parkinson’s disease (2.1%) pseudo vertigo (1.5%), benign paroxysmal positional vertigo (1.3%), lumber spondylosis (1.8%), disc prolapse (1.3%),

benign essential tremor (1.1%), paraplegia (1%) were seen in some patients. Some other conditions e.g. Transient ischemic attack (TIA), focal seizure, dystonia, dementia, central nervous system tumor etc though not rare, but was seen in a few.

Another study by Nayeem et al. (2010) in Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka found that 44% patients have smoking habit. These study shows 87% were ischemic and 13% were hemorrhagic stroke among participant. Other study Hossain et al. (2011) stated that 61% were ischemic and 39% were hemorrhagic stroke at Faridpur medical college, Bangladesh. And also mentioned that higher rate of hemorrhagic stroke is also found in number of hospitals in Asian countries such as Singapore, Malaysia (33%) Thailand (30%), 37 Korea (31%), Taiwan (31%). One of the causes of high incidence of hemorrhagic stroke in this hospital may be due to the acute admission is more related to hemorrhagic stroke.

Among the employed participants most of the patients had monthly income below 24000 BDT that were 175 (58.3%) and above 24000BDT were 125 (41.7%). So, this study had also showed that the views of the economic status of patient with neurological condition in our country. In Canadian study had showed that paraplegia was more prone rather than tetraplegia, this study 58% were paraplegia and 42% were tetraplegia (Rouleau et al., 2011) In this study, most of the injuries were caused by traumatic 94% (n=47) and 6% (n=3) were non traumatic cause. In the developed country, road traffic accident is the leading cause of SCI followed by fall and then sports injury (Rathore et al., 2008).

In this study 100% participants have received rehabilitation service from CRP, where included medical, nursing and rehabilitation care like as physiotherapy, occupational therapy, speech and linguae therapy, psychological support. Among all participants most of the patients have received social support and taken vocational support. Only 17 (5.7%) patients have received social support due to either they don't know about them or various type of restriction they faced that's why; they can't receive social support. Among all participants of the study's 107 (35.7%) of them have taken vocational support and 46 (15.3%) of them have received both social and vocational support.

Anson et al. (2013) showed their research SCI sample support the conclusion of previous studies that social support is positively related to health; support previous findings8 that

subjects' perceptions of ability to give, as well as to receive, support are related to a variety of outcomes; and extend the concept of social support from subjects' immediate interpersonal network to the community. A patient's ability to perceive himself or her? self not only as a recipient, but also as a source of support to family and friends? and to the community in general-may also contribute significantly to health.

Researcher had found in this study most of the participants was highly distress 143 (47.7%), medium distress 80 (26.7%) of them and only low distress were 77 (25.7%). In addition, low perceived social support was 4 (1.3%), Medium perceived social support was 82 (27.3%) and most prominent participants was high perceived social support 214 (71.3%). In this study had a reverse correlation (r = -0.013) occurred between average family monthly income of all participants and mental health status but in between age of all participants and mental status had linear correlation (r = 0.174). On the other hand, linear correlation (r = 0.138) between average family monthly income of all participants and social status but reverse correlation (r = -0.012) between age of all participants and social status had found.

Hilari et al. (2010) showed their study, eighty-seven participants were able to self-report on measures used, of whom 32 (37%) had aphasia. 71 (82%) were seen at six months, including 11 (16%) with aphasia. Predictors of distress were: stroke severity at baseline; low social support at three months; and loneliness and low satisfaction with social network at six months. The baseline factors that predicted distress at six months were psychological distress, loneliness and low satisfaction with social network. Aphasia was not a predictor of distress at any time point. Yet, at three months post stroke 93% of those with aphasia experienced high distress, as opposed to 50% of those without. Factors contributing to distress after stroke vary across time. Loneliness and low satisfaction with one’s social network are particularly important and contribute to long-term psychological distress.

Vincent-Onabajo et al. (2016) Social support was a significant and independent determinant of the economic self-sufficiency domain of participation in a regression model that accounted for 27% of the variance in the domain. Social support, however, had no independent effect on overall participation and the other participation domains

namely mobility, physical independence, occupation, social integration, and orientation. The impact of social support was significant only in the economic self-sufficiency domain of participation with higher availability of social support related to better economic self-sufficiency. This finding provides additional information on the importance of social support post-stroke.

CHAPTER- VI LIMITATION

Limitation

- The first limitation of this study was small sample size.
- This research wouldn't be generalized to whole population in Bangladesh as it wasn't rendered to covering the full physical disable in Bangladesh.
- For study limitation it wouldn't be possible to observe their own home environment
- As samples weren't taking wholly in face-to-face data collection procedure because of their unavailability.
- Data weren't collected from others specialised rehabilitation center except CRP.

CHAPTER- VI CONCLUSION & RECOMENDATION

Conclusion

Mental illness is one of the most devastating events with neurological patient. Annual incidence and prevalence of mental disorder increase day by day in Bangladesh. Prevalence and Treatment Coverage of Priority Mental Disorders estimated that "treatment gap" for adults with mental disorders nationwide is 92.3%, meaning that an estimated 7.7% receive mental health treatment. But in Bangladesh there is no well proper documents about mental health. Bangladesh is a developing country. Most of them live with low economic level and poor educational level. In this country there is also lack of awareness mental health. But mental health and social status causes a bad impact on quality-of-life results in long term disability, mortality & morbidity and burden for the community.

Neurological disorders can affect any person, at any age, at any time but males are more prompt to having neurological illness than females. Neurological disorders negatively affect not only the patient's physical condition but also all aspects of their lives more importantly their mental status. After neurological illness, mental health becomes an unavoidable event. It is a prominent psychiatric disorder of patient with neurological and appears to be more common in disabled persons than in non-disabled persons. Mental health levels may change over time since occur. It has such a harmful effect on neurological patient's ability to function in day-to-day life.

In this study was an observational study design to evaluate the mental health and social status of patient with neurological condition after completed rehabilitation program living in the community. Rehabilitation had beneficial effects on the improvement of the quality of life of neurological patient with mental distress. Rehabilitation is very important for patient with neurological disease. Most of the patients can't counselling after rehabilitation program about mental health as a result they become more prone to develop mental distress. So only awareness and proper care can help to improve mental health returning the community.

Recommendation

Mental health and social status are an inevitable consequence after neurological disease and has a negative influence on patients with neurological illness. So, the necessity is to give more attention to this psychological aspect which is linked to neurological disorder. There are so many studies based on neurological disease but there are few amounts of studies related to the concept of this patient's psychology such as mental health. If other authors want to do further related studies, they are recommended to do their study from a whole country perspective with an increased sample size and pay attention on follow up and counselling about mental health.

REFERENCES

Alam, M.B., (2017). Neurological Disease Burden: Bangladesh Perspective. Journal of National Institute of Neurosciences Bangladesh, 1(2):31–32.

Almeida, O.P. and Xiao, J., (2007). Mortality associated with incident mental health disorder after stroke. Australian and New Zealand Journal of Psychiatry, 41(3):274–281.

Anderson, C., Hildreth, J.A.D. and Howland, L., (2015). Is the desire for status a fundamental human motive? A review of the empirical literature. Psychological Bulletin, 141(3):574–601.

Anson, C.A., Stanwyck, D.J. and Krause, J.S., (2013). Social support and health status in spinal cord injury. Paraplegia, 31(10):632–638.

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

Chen, Y.R., Peterson, R.S., Phillips, D.J., Podolny, J.M. and Ridgeway, C.L., (2012). Introduction to the special issue: Bringing status to the table—attaining, maintaining, and experiencing status in organizations and markets. Organization Science, 23(2):299-307.

Cheng, J. T., Tracy, J. L. & Anderson, C., (2014). The Psychology of social status. 1st ed. New York: Springer Science.

Chowdhury, R.N., Hasan, A.H., Rahman, K.M., Shyfullah, M., Deb, S.R., Amin, M.A., Patwary, S.A. and Miah, T., (2012). Spectrum of neurological disorders: experience in specialized outpatient clinic in Bangladesh. Journal of Medicine, 13(1):39-42.

Coleman, J.A., Harper, L.A., Perrin, P.B., Olivera, S.L., Perdomo, J.L., Arango, J.A. and Arango-Lasprilla, J.C., (2015). The relationship between physical and mental health variables in individuals with spinal cord injury from Latin America. PM&R, 7(1):9-16.

Downie, P. (2005). Cash’s Textbook of Neurology for Physiotherapists. 4th ed. New Delhi: Jaypee Brothers.

Ekenze, O.S., Onwuekwe, I.O. and Ezeala, B.A., (2010). Profile of neurological admissions at the University of Nigeria Teaching Hospital Enugu. Nigerian Journal of Medicine, 19(4):419-422.

Fann, J.R., Bombardier, C.H., Richards, J.S., Tate, D.G., Wilson, C.S., Temkin, N. and PRISMS Investigators., (2011). Depression after spinal cord injury: comorbidities, mental health service use, and adequacy of treatment. Archives of Physical medicine and Rehabilitation, 92(3):352-360.

Goldberg, D.P. and Hillier, V.F., (2010) A scaled version of the General Health Questionnaire. Psychological medicine, 9(1):139-145.

Hicks, C. M., (2009). Research Methods for Clinical Therapists: Applied Project Design and Analysis. 5th ed. London: Elsevier limited.

Hilari, K., Northcott, S., Roy, P., Marshall, J., Wiggins, R.D., Chataway, J. and Ames, D., (2010). Psychological distress after stroke and aphasia: the first six months. Clinical rehabilitation, 24(2):181-190.

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

Hossain, M.D., Ahmed, H.U., Chowdhury, W.A., Niessen, L.W. and Alam, D.S., (2014). Mental disorders in Bangladesh: a systematic review. BMC psychiatry, 14(1):1-8.

Hu, Y., Stewart-Brown, S., Twigg, L. and Weich, S., (2007). Can the 12-item General Health Questionnaire be used to measure positive mental health? Psychological medicine, 37(7):1005-1013.

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

Islam, A. and Biswas, T., (2015). Mental health and the health system in Bangladesh: situation analysis of a neglected domain. Am J Psychiatry Neuroscience, 3(4):57-62.

Lang, G.E. and Lang, K., (2012). Recognition and renown: The survival of artistic reputation. American journal of sociology, 94(1):79-109.

Ledochowski, J., Desrocher, M., Williams, T., Dlamini, N. and Westmacott, R., (2020). Mental health outcomes in children with acquired dystonia after basal ganglia stroke and associations with cognitive and motor outcomes. Child Neuropsychology, 26(5):691-710.

Mehndiratta, M.M., Mehndiratta, P., Gulati, N.S. and Wasay, M., (2014). Heterogeneity in neurologic education and care in Asian and Oceanian region. Neurology, 83(9):842-844.

Mondol, B.A., Chowdhury, R.N., Rahman, K.M., Khan, S.U., Haque, M.A., Haque, B., Khan, M.Z.R., Habib, M., and Mohammad, Q.D., (2012). Major comorbidities in stroke patients: a hospital-based study in Bangladesh. Journal of Dhaka Medical Collage, 21(1):16-22.

Nayeem, A., Hannan, M.A., Islam, M.R., and Barman, K.K., (2010). Blood monocyte count in hypertensive ischemic stroke patients. Bangladesh Journal of Neuroscience, 26 (2):68-73.

Rahimi-Movaghar, V., Sayyah, M.K., Akbari, H., Khorramirouz, R., Rasouli, M.R., Moradi-Lakeh, M., Shokraneh, F. and Vaccaro, A.R., (2013). Epidemiology of traumatic spinal cord injury in developing countries: a systematic review. Neuroepidemiology, 41(2):65-85.

Rathore, M.F.A., Hanif, S., Farooq, F., Ahmad, N. and Mansoor, S.N., (2008). Traumatic spinal cord injuries at a tertiary care rehabilitation institute in Pakistan. JPMA. The Journal of the Pakistan Medical Association, 58(2):53.

Razzak, A.T.M.A., (2013). Early care following traumatic spinal cord injury (TSCI) in a rehabilitation centre in Bangladesh-an analysis. Disability, CBR & Inclusive Development, 24(2):64-78.

Rouleau, P., Ayoub, E. and Guertin, P.A., (2011). Traumatic and non-traumatic spinal cord-injured patients in quebec, canada: 1. epidemiological, clinical and functional characteristics. Open Epidemiology Journal, 4(1):133-139.

Tough, H., Fekete, C., Brinkhof, M.W. and Siegrist, J., (2017). Vitality and mental health in disability: Associations with social relationships in persons with spinal cord injury and their partners. Disability and health journal, 10(2):294-302.

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

Vincent-Onabajo, G.O., Ihaza, L.O., Usman Ali, M., Ali Masta, M., Majidadi, R., Modu, A. and Umeonwuka, C., (2016). Impact of social support on participation after stroke in Nigeria. Topics in stroke rehabilitation, 23(5):305-310.

Warner, N., Ikkos, G. and Gall, A., (2017). Spinal cord injury rehabilitation and mental health, SCReaM. Spinal Cord, 55(3):307-313.

WHO, (2004). Prevention of mental disorders: Effective interventions and policy options: Summary report.

WHO, (2007). A report of the assessment of the mental health system in Bangladesh using the World Health Organization – Assessment Instrument for Mental Health Systems (WHO-AIMS), Dhaka: Ministry of Health & Family Welfare Bangladesh.

WHO, (2016a) Mental health: neurological disorders, World health Organigation. Available at: https://www.who.int/news-room/questions-and-answers/item/mental-health-neurological-disorders (Accessed: 3 May 2016).

WHO, (2016b). Neurological disorders: public health challenges. World Health Organization.

WHO, (2018) Mental health: strengthening our response, World health Organigation. Available at: https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response (Accessed: 30 March 2018).

Zürcher, C., Tough, H., Fekete, C. and SwiSCI Study Group., (2019). Mental health in individuals with spinal cord injury: The role of socioeconomic conditions and social relationships. PLoS one, 14(2):1-20.

সম্মতি পত্র

(অংশগ্রহণকারীকে পড়ে শুনাতে হবে)

আসসালামু আলাইকুম/আদাব, আমার নাম গোলাম মাওলা, আমি বাংলাদেশ হেল্‌থ প্রফেশনস্‌ ইনস্টিটিউট (বিএইচপিআই)-এর ফিজিওথেরাপি কোর্সের একজন ছাত্র। আমি নিউরোলজিক্যাল রোগীদের উপর একটি গবেষণা প্রকল্প পরিচালনা করছি যা আমার কোর্সের অধিভুক্ত। আমার গবেষণার শিরোনাম হল- **"বিশেষায়িত পুনর্বাসন কেন্দ্র থেকে সেবা পাওয়ার পর নিউরোলজিক্যাল রোগীদের মানসিক স্বাস্থ্য ও সামাজিক অবস্থা"**। এর মাধ্যমে আমি বিভিন্ন ধরনের নিউরোলজিক্যাল রোগীরা সমাজে ফিরে যাওয়ার পরে তাদের মানসিক স্বাস্থ্য ও সমাজিক অবস্থার কেমন পরিবর্তন হয় তা জানতে চাই। আমি এখন আপনাকে ব্যক্তিগত, শারীরিক, মানসিক ও সামাজিক অবস্থা সম্পর্কে প্রশ্ন করতে চাচ্ছি। এতে আনুমানিক ২০ মিনিট সময় লাগবে।

আমি আপনাকে অবগত করছি যে, এটি আমার অধ্যয়নের অংশ এবং যা অন্য কোনো উদ্দেশ্যে ব্যবহৃত হবে না। এই গবেষণা আপনার জীবনে বর্তমানে এবং ভবিষ্যতে কোনো বিরূপ প্রভাব ফেলবে না। আপনি যেসব তথ্য প্রধান করবেন তার গোপনীয়তা বজায় থাকবে। এই গবেষণায় আপনার অংশগ্রহণ ইচ্ছা অনুযায়ী এবং এই অধ্যয়নের যে কোনো সময় নিজেকে প্রত্যাহার করতে পারবেন।

আপনি একজন অংশগ্রহণকারী হিসাবে এই অধ্যয়ন সম্পর্কে কোনো প্রশ্ন থাকলে, আমাকে অথবা আমার সুপারভাইজার এহসানুর রহমান, সহযোগী অধ্যাপক ও এমপিটি কো-অর্ডিনেটর, ফিজিওথেরাপি বিভাগ, বিএইচপিআই, সিআরপি, সাভার, ঢাকা- ১৩৪৩ এ যোগাযোগ করতে পারেন।

সুতরাং, আমি কি আপনার অনুমতিতে এই সাক্ষাৎকার শুরু করতে পারি ?

☐ হ্যাঁ ☐ না

অংশগ্রহণকারীর স্বাক্ষরঃ _____ তারিখঃ _____

স্বাক্ষাৎকারকারীর স্বাক্ষরঃ _____ তারিখঃ _____

তারিখঃ _____

আঙ্গুলের ছাপ (যদি প্রয়োজন হয়)

Verbal Consent Statement

(Please read out to the participants)

Assalamualaikum / Adab. I am Golam Moula. I am 4th year student of B.Sc. in Physiotherapy program at Bangladesh Health Professions Institute (BHPI). For my study purpose I am conducting a study on neurological patients and my study title "**Mental Health and Social Status of Patient with Neurological Condition after Completed Rehabilitation Program from Specialised Center**" would like to know about some personal and other related information regarding neurological conditions. This will take approximately 20 minutes.

I ensure you that, this is an academic study and will not be used for any other purpose. This study will have no impact on your present or future life. Researcher will maintain confidentiality of all procedures. Your data will never be used without your permission. Your participation in this study is voluntary and you may withdraw yourself at any time during this study.

If you have any query about the study or your right as a participant, you may contact with me and or my Supervisor Ehsanur Rahman, Associate Professor & MPT coordination of the Department of Physiotherapy, BHPI, CRP, Savar, Dhaka-1343.

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

☐ Yes ☐ No

Signature of the Participant _____ Date_____

Signature of the Interviewer _____ Date_____

Date_____

Finger print (If needed)

বিশেষায়িত পুনর্বাসন কেন্দ্র থেকে সেবা পাওয়ার পর নিউরোলজিক্যাল রোগীদের মানসিক স্বাস্থ্য ও সামাজিক অবস্থা

বাংলা প্রশ্নাবলীঃ

সনাক্তকরণ নাম্বারঃ

(১) সামাজিক-জনতাত্ত্বিক তথ্য

১.১	রোগীর নাম	
১.২	বয়স	বছর
১.৩	লিঙ্গ	১= পুরুষ ২= মহিলা
১.৪	বৈবাহিক অবস্থা	১= বিবাহিত ২= অবিবাহিত ৩= বিধবা/বিপত্নীক ৪= বিবাহ বিচ্ছেদ
১.৫	শিক্ষাগত অবস্থা	১= কোন প্রাতিষ্ঠানিক শিক্ষা নেই ২= প্রথমিক শিক্ষা ৩= মাধ্যমিক শিক্ষা ৪= উচ্চ মাধ্যমিক শিক্ষা ৫= স্নাতক ডিগ্রী/স্নাতকোত্তর
১.৬	পেশা	১= চাকরি ২= ব্যবসা ৩= গৃহিনী

		৪= অন্যান্য ৫= বেকার
১.৭	বসবাসের এলাকা	১= গ্রাম ২= উপ শহর ৩= শহর
১.৮	অসুস্থ হওয়ার আগে রোগীর মাসিক আয়	
১.৯	অসুস্থ হওয়ার পরে রোগীর মাসিক আয়	
১.১০	পরিবারের মাসিক আয়	
১.১১	রোগের নাম	
১.১২	রোগের ধরণ	
১.১৩	মোবাইল নাম্বার	

(২) <u>পুনর্বাসন সেবা</u>

২.১	কি কি পুনর্বাসন সেবা পেয়েছেন ?	১= ফিজিশিয়ানের কনসালটেন্সি ২= রিহ্যাবিলিটেশন নার্সিং ৩= ফিজিওথেরাপি ৪= অকুপেশনাল থেরাপি

		৫= স্পিচ এন্ড ল্যাঙ্গুয়েজ থেরাপি ৬= প্রস্থেটিক এন্ড অর্থোটিক ৭= ডায়টেশন ৮= সাকোলজিক্যাল সাপোর্ট ৯= সমাজকর্মী দ্বারা সাপোর্ট ১০= ভোকেশনাল সাপোর্ট
২.২	কবে পুনর্বাসন সেবা শুরু করেছেন?	
২.৩	কবে পুনর্বাসন সেবা শেষ করেছেন?	
২.৪	আপনি কি কোনো ধরনের শারীরিক কার্যাকলাপ করেন যেমন- খেলাধূলা, ব্যয়াম ইত্যাদি?	১= হ্যাঁ ২= না

(৩) সাধারণ স্বাস্থ্য সম্পর্কিত প্রশ্নবলী (GHQ-12)

আমরা জানতে চাই, গত কয়েক সপ্তাহ ধরে আপনার স্বাস্থ্য কেমন ছিল ? অনুগ্রহ করে নিচের প্রশ্নগুলো পড়ুন। প্রতিটি প্রশ্নের চারটি সম্ভাব্য উত্তর আছে। আপনার উত্তরটি চিহ্নিত করুন। সব প্রশ্নের উত্তর দেওয়ার জন্য আপনাকে ধন্যবাদ।

	স্কোর			
	০	১	২	৩
১. ইদানিং আপনি যা করছেন তাতে কি মনোনিবেশ করতে পারছেন?	স্বাভাবিকের চেয়ে ভালো	যথারীতি একই	স্বাভাবিকের চেয়ে কম	স্বাভাবিকের তুলনায় অনেক কম
২. অত্যন্ত দুশ্চিন্তা আপনার ঘুমের ব্যঘাত করে কি?	একদমই না	স্বাভাবিকের চেয়ে বেশি নয়	স্বাভাবিকের চেয়ে বেশি	স্বাভাবিকের চেয়ে অনেক বেশি
৩. আপনি আজকাল আপনার প্রয়োজনীয় কাজে মনোযোগ দিতে পারেন কি?	স্বাভাবিকের চেয়ে বেশি	যথারীতি একই	স্বাভাবিকের চেয়ে কম	স্বাভাবিকের চেয়ে অনেক কম
৪. আপনি বর্তমানে কোন কিছু সম্পর্কে সিদ্ধান্ত গ্রহণ করতে সক্ষম কি?	স্বাভাবিকের চেয়ে বেশি	যথারীতি একই	স্বাভাবিকের চেয়ে কম	স্বাভাবিকের চেয়ে অনেক কম সক্ষম
৫. আপনি সর্বদা মানসিক চাপে ভোগেন কি?	একদমই না	স্বাভাবিকের চেয়ে বেশি নয়	স্বাভাবিকের চেয়ে বেশি	স্বাভাবিকের চেয়ে অনেক বেশি
৬. ইদানিং আপনি কি আপনার সমস্যাগুলি কাটিয়ে উঠতে পারছেন ?	একদমই না	স্বাভাবিকের চেয়ে বেশি নয়	স্বাভাবিকের চেয়ে বেশি	স্বাভাবিকের চেয়ে অনেক বেশি
৭. আপনার দৈনন্দিন সাধারণ কাজগুলো উপভোগ করতে পারছেন কি ?	স্বাভাবিকের চেয়ে বেশি	যথারীতি একই	স্বাভাবিকের চেয়ে কম	স্বাভাবিকের তুলনায় অনেক কম
৮. আপনার সমস্যাগুলোর সমাধান করতে পারছেন কি ?	স্বাভাবিকের চেয়ে বেশি	যথারীতি একই	স্বাভাবিকের চেয়ে কম	স্বাভাবিকের তুলনায় অনেক কম
৯. আপনি কি অসুখী এবং হতাশা বোধ করছেন?	একদমই না	স্বাভাবিকের চেয়ে বেশি নয়	স্বাভাবিকের চেয়ে বেশি	স্বাভাবিকের চেয়ে অনেক বেশি
১০. আপনি কি নিজের উপর আস্থা হারাচ্ছেন?	একদমই না	স্বাভাবিকের চেয়ে বেশি নয়	স্বাভাবিকের চেয়ে বেশি	স্বাভাবিকের চেয়ে অনেক বেশি
১১. আপনি কি নিজেকে একজন মূল্যহীন মানুষ হিসেবে ভাবছেন ?	একদমই না	স্বাভাবিকের চেয়ে বেশি নয়	স্বাভাবিকের চেয়ে বেশি	স্বাভাবিকের চেয়ে অনেক বেশি
১২. আপনি সব কিছু বিবেচনা করে নিজেকে সুখি ভাবছেন কি?	স্বাভাবিকের চেয়ে বেশি	যথারীতি একই	স্বাভাবিকের চেয়ে কম	স্বাভাবিকের তুলনায় অনেক কম

(৪) সামাজিক অনুভত সমর্থনের বহুমাত্রিক স্কেল (MSPSS)

	স্কোর						
	১	২	৩	৪	৫	৬	৭
১। আমার প্রয়োজনের সময় একজন বিশেষ ব্যক্তি আশেপাশে থাকেন।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
২। একজন বিশেষ ব্যক্তি আছেন যার সাথে আমি সুখ-দুঃখ ভাগাভাগি করতে পারি।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
৩। আমার পরিবার সত্যিই আমাকে সাহায্য করার	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ

চেষ্টা করে।							
৪। আমি আমার পরিবারের কাছ থেকে প্রয়োজনীয় মানসিক সাহায্য এবং সমর্থন পাই।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
৫। আমার একজন বিশেষ ব্যক্তি আছেন যিনি আমার প্রশান্তির আসল উৎস।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
৬। আমার বন্ধুরা সত্যিই আমাকে সাহায্য করার চেষ্টা করে।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ

৭। যখন কোন কিছু ভুল হয়ে যায় তখন আমি আমার বন্ধুদের উপর নির্ভর করতে পারি।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
৮। আমি আমার সমস্যা সম্পর্কে আমার পরিবারের সাথে কথা বলতে পারি।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
৯। আমার কিছু বন্ধু আছে যাদের সাথে আমি আমার সুখ-দুঃখ ভাগাভাগি করতে পারি।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ

১০। আমার জীবনে এমন একজন আছেন যিনি আমার অনুভূতির প্রতি যত্নশীল।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
১১। আমার পরিবার আমাকে সিদ্ধান্ত নিতে সাহায্য করে।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ
১২। আমি আমার বন্ধুদের সাথে আমার সমস্যার কথা বলতে পারি।	খুব দৃঢ়ভাবে অসম্মতি প্রকাশ	দৃঢ়ভাবে অসম্মতি প্রকাশ	মৃদুভাবে অসম্মতি	নিরপেক্ষ	মৃদুভাবে সম্মতি	দৃঢ়ভাবে সম্মতি প্রকাশ	খুব দৃঢ়ভাবে সম্মতি প্রকাশ

Mental Health and Social Status of Patient with Neurological Condition after Completed Rehabilitation Program from Specialised Center

Questionnaire

ID/ Code:

(1) Patients' socio-demographic information

1.1	Patient's name	
1.2	Age	Years
1.3	Gender	1= Male 2= Female
1.4	Marital status	1= Married 2= Unmarried 3= Widow/ Widower 4= Divorce
1.5	Educational status	1= No formal education 2=Primary education 3=Secondary education 4=Higher secondary 5=Bachelor degree or above
1.6	Occupation	1= Job 2= Business 3= Home maker 4= Others 5= Jobless
1.7	Living area	1=Rural 2=Semi Urban 3= Urban
1.8	Average monthly income of patient before illness	
1.9	Average monthly income of patient after illness	

1.10	Average monthly income of family	
1.11	Name of disease	
1.12	Type of disease	
1.13	Mobile number	

(2) <u>Rehabilitation Care</u>

2.1	What type of rehabilitation care have you received?	1= Physician's Consultancy 2= Nursing 3= Physiotherapy 4= Occupational Therapy 5= Speech & Language Therapy 6= Prosthetic & Orthotic 7= Dietician 8= Psychological support 9= Social support 10= Vocational support
2.2	When did you start rehabilitation care?	
2.3	When did you finish rehabilitation care?	
2.4	Do you perform any physical activity like as- sports, exercise?	1= Yes 2= No

(3) General Health Questionnaire (GHQ 12)

We want to know how your health has been in general over the last few weeks. Please read the questions below and each of the four possible answers. Mark response that best applies to you. Thank you for answering all the questions.

Have you recently?	Score			
	0	1	2	3
1. Been able to concentrate on what you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2. Lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3. Felt you were playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
4. Felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
5. Felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual

6. Felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
7. Been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
8. Been able to face up to your problems?	More so than usual	Same as usual	Less so than usual	Much less usual
9. Been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
10. Been losing confidence in yourself?	Not at all	Not at all	Rather more than usual	Much more than usual
11. Been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
12. Been feeling reasonably happy, all things considered.	More so than usual	About same as usual	Less so than usual	Much less than usual

(4) 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 need him.	1	2	3	4	5	6	7
2.There is a special person with whom I share happiness and sorrow.	1	2	3	4	5	6	7
3.My family really tries to help me.	1	2	3	4	5	6	7
4.I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5.I have a special person who is the real source of my comfort.	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 something goes wrong.	1	2	3	4	5	6	7
8.I can talk to my family about my problems.	1	2	3	4	5	6	7
9.I have some friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10.There is someone 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 to my friends about my problems.	1	2	3	4	5	6	7

Date: 12/03/2022

The Head of Department

Department of Physiotherapy

Centre for the Rehabilitation of the Paralysed (CRP),

Chapain, Savar, Dhaka-1343.

Through: Head, Department of Physiotherapy, BHPI

Subject: Seeking permission for data collection of 4th year physiotherapy research project.

Respected Sir,

With due respect and humble submission to state that I am Golam Moula , student of 4th Professional B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). The ethical committee has approved my research project entitled on " Mental health and social status of patient with neurological condition after completed rehabilitation program from CRP" Under the supervision of Ehsanur Rahman, Associate Professor and MPT coordinator, Department of Physiotherapy, BHPI, CRP, Savar, Dhaka-1343, Bangladesh. My IRB No (CRP/BHPI/IRB/02/2022/562). I want to collect data for my research project from the patients of Neurology department and Spinal Cord Injury department, Department of Physiotherapy, CRP-Savar and manikgonj . So, I need permission for data collection from the Neurology department and Spinal Cord Injury department, Physiotherapy department of CRP-Savar and manikgonj. I would like to assure that anything of my study will not be harmful for the participants.

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

Yours obediently,

Golam Moula

Golam Moula

4th professional B.Sc. in Physiotherapy

Roll: 21, Session: 2016-17

Bangladesh Health Professions Institute (BHPI)

CRP, Chapain, Savar, Dhaka-1343.

Forwarded

E. Rahman

13.03.22

Forwarded & Recommended

Shofiq

13.03.22

Md. Shofiqul Islam
Associate Professor & Head
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

Approved

13/03/22

MOHAMMAD ANWAR HOSSAIN
Senior Consultant &
Head of Physiotherapy Dept
Associate Professor, BHPI
CRP, Savar, Dhaka-1343

BANGLADESH HEALTH PROFESSIONS INSTITUTE

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

Ref: CRP/BHPI/IRB/02/2022/562

Date: 24/02/2022

Golam Moula
4th Year B.Sc. in Physiotherapy
Session: 2016 – 2017
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh

Subject: Approval of the research project proposal **"Mental health and social status of patient with neurological condition after completed rehabilitation program from CRP"** by ethics committee.

Dear Golam Moula,
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 and Ehasanur Rahman as thesis supervisor. The Following documents have been reviewed and approved:

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

The purpose of the study is to know about the , mental health and social status of patient with neurological condition after completed rehabilitation program from CRP. Since the study involves questionnaire that takes maximum 20-30minutes and have no likelihood of any harm to the participants, the members of the Ethics committee approved the study to be conducted in the presented form at the meeting held at 09:00 AM on 12 October, 2021 at BHPI (30thIRB Meeting).

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