Faculty of Medicine

**University of Dhaka**

# FUNCTIONAL IMPAIRMENT OF SPINAL CORD INJURY AND CAREGIVER DEPRESSION IN BANGLADESH

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

# FUNCTIONAL IMPAIRMENT OF SPINAL CORD INJURY AND CAREGIVER DEPRESSION IN BANGLADESH.

Submitted by **Md. Rifatur Rahman**, for the partial fulfillment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

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# DECLARATION

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

Signature:…………………..…. Date:…………………

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# Acronyms

| | |
|---|---|
| **ASIA** | American Spinal Injury Association |
| **BHPI** | Bangladesh Health Professions Institute. |
| **BMRC** | Bangladesh Medical Research Council |
| **CNS** | Central Nervous System |
| **CRP** | Centre for the Rehabilitation of the Paralysed |
| **IRB** | Institutional Review Board |
| **MVC** | Motor Vehicle Collision |
| **PHQ-9** | Patient Health Questionnaire-9 |
| **QOL** | Quality of Life |
| **SCI** | Spinal Cord Injury |
| **SCIM** | Spinal Cord Independence Measure |
| **SPSS** | Statistical Package for the Social Sciences |
| **TSCI** | Traumatic Spinal Cord Injury |
| **USA** | United States of America |
| **WHO** | World Health Organization |

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# Abstract

***Purpose:*** To make a connection between functional impairment of SCI patient and caregiver depression. ***Objectives:*** To explore the association between functional impairment of SCI patient and depression of caregivers in Bangladesh. ***Methodology:*** The study design was cross-sectional. Total 70 samples were selected conveniently for this study from Centre for the rehabilitation of the paralysed (CRP), Spinal cord injury unit at Savar. Data was collected by using two questionnaire where functional impairment of SCI patient was assessed by the Spinal cord independence measure (SCIM) questionnaire and depression of caregiver was assessed by Patient health questionnaire-9 (PHQ-9). ***Results:*** Among 70 SCI patients evaluated, skeletal level of injury 56% (n=39) in cervical level, 33% (n=23) is thoracic level and 11% (n=8) in lumber level. According to ASIA scale. 59% (n=41) are complete A, 19% (n=13) are incomplete B, 17% (n=12) are complete C, 6% (n=4) are incomplete D. Among 70 caregivers, 37% (n=26) were male and 63% (n=44) were female. 0-10 hours daily caregiving was done by 27% (n=19) and in between 10-20 hours caregiving was done by 73% (n=51). Patients with lower independence levels (0-25) were 43 and their caregivers were moderately depressed 22, moderately severe depressed 14 and severely depressed 4. ***Conclusion:*** Caregivers of Lower independence level or higher functional impaired patient with SCI reported moderate depression and had a significant association between functional impairment of SCI & caregiver depression.

**Key words:** Functional impairment, SCI, Depression, Caregiver.

# CHAPTER- I INTRODUCTION

## 1.1 Background

Spinal cord injury (SCI) is a common type of injury that is generally a stressful disorder that can result in impairments in physical, psychological, and social functioning (Gurcay et al., 2010). It is a traumatic incident that causes disruptions in normal sensory, motor, or autonomic function, affecting a patient's physical, psychological, and social well-being and imposing a significant financial burden on health-care systems (Singh et al., 2014). It nearly always happens suddenly and unexpectedly, which is the leading cause of paralysis that alters a person's lifestyle (Smith et al., 2013). People with SCI frequently have substantial functional restrictions and loss of independence, depending on their extent of injury (Notara et al., 2012), and the patients are supported by the caregiver for a longer period of time. This disabling disease not only causes significant physical handicap but also emotionally depresses the patient. SCI is commonly caused by falls, motor vehicle accidents, sickness, and violence such as gunshot wounds and explosions (Chen et al., 2013). Global incidence rates of SCI range from 10.4 to 83 million per year, with prevalence rates ranging from 223 to 755 cases per million (Wyndaele & Wyndaele, 2006). SCI is becoming more frequent over the world, with a yearly incidence of 15 to 40 per million, and it is most common in poor socioeconomic societies (Quadir et al., 2017). Changes in physical functioning as a result of SCI can vary from weakness to lack of sensation at or below the site of the damage, depending on the injury site and severity of the lesion (Mc-Donald & Sadowsky, 2002). Furthermore, persistent comorbid problems such as infections and pressure sores are common post-injury (McKinley et al., 1999), as are chronic pain, urinary tract infections, bladder cancer, reduced sexual functioning, kidney stones, and gallstones. (Charlifue, Weitzenkamp, & Whiteneck, 1999; Fisher et al., 2002; Priebe et al., 2007). Functional impairments might be widespread, and rehabilitation may necessitate ongoing medical treatment, such as complex home-based care including caregivers (Burns & Ditunno, 2001). People who have had a spinal cord injury are at a high risk for the rest of their lives due to diminished mobility and a lack of sensation, as well as other physiological abnormalities (Bates-Jensen et al., 2009).

A caregiver is someone who offers care to the patient and support in managing the patient's daily life wants, such as feeding and dressing, while preventing the development of difficulties (Tharu, 2018). The SCI has major effects on family members and caregivers since they have to take on the responsibilities of the sufferer's overall activities, which leads to a stressful state. Because of the time and effort they put in for them, SCI individuals' reliance causes emotional changes in caregivers' lives (Otaghsara et al., 2014). It is frequently characterized as the level to which caregivers believe caregiving has negatively impacted their emotional, social, financial, physical, or spiritual functioning (Zarit et al., 1986). When a person suffers from SCI, it impacts every aspect of their life. SCI is a life-changing experience for both patients and caregivers. Generally, regardless of a country's level of development, a family member takes on the duty of caregiver for the person with SCI (Schulz et al., 2009). Family caregivers act as informal healthcare providers, and they supply this assistance indefinitely (Post et al., 2005). However, they typically lack the necessary education to receive such support, which can have an impact on their interpersonal relationships, employment status, physical and psychological health, and feelings of burden (Middleton et al., 2014). On the positive side, the caregivers' social support has previously been shown to minimize these harmful consequences (Arango-Lasprilla et al., 2010). SCI has disastrous consequences not just for the once active, independent person, but also for the family and society as a whole (Atrice et al., 2007). With advancements in medical and rehabilitation treatments, the life expectancy of people with SCI has grown significantly, and in many cases has reached that of the normal population, requiring varying amounts of help throughout their lives (Shewchuk et al., 1998). Early discharge to community living settings has increased the obligations of informal family caregivers as the health-care system has changed (Evans et al., 1988). Early discharge to community living settings has increased the obligations of informal family caregivers as the health-care system has changed (Evans et al., 1988). Caregivers who live in the community with SCI patients are frequently required to assume many of these people's tasks and responsibilities (Unalan et al., 2001).

According to Oxford Advanced Learner’s Dictionary (2001, p. 177) “Caregiver is a person who looks after a sick or old person”. Primary caregivers are the people who are most involved in the patient's care and provide the greatest support and/or help (Blanes et al., 2007). After taking on the position of primary caregiver for a person with SCI, family caregivers may suffer a wide range of lifestyle and quality of life changes (Ebrahimzadeh et al., 2014). SCI causes stress in both the injured person and their family. Not only are patients in danger of developing serious depression, but so are their caregivers, who may also exhibit signs of mental distress. The SCI patient's immobility renders them dependent on their caregivers, which causes considerable changes in the caregivers' lives owing to the time and effort that they must devote (Otaghsara et al., 2014). Caregivers help patients manage prescriptions, therapy, and medical emergencies, as well as provide supervision, emotional support, and assistance with personal care, mobility, and other basic daily life activities. Close relatives and family members are generally involved in providing care for a person with SCI in Bangladesh. When a person sustains total tetraplegic spinal cord damage, they require caregivers to do their daily duties. A patient with SCI who is completely tetraplegic loses sensory and motor function below the level of damage (Sarwar, 2013). As a result, people grow reliant on caretakers to assist them with their daily life activities (Lindsey, 2003a). Many mental health concerns emerge during the caring process, which can have a detrimental impact on the carer. Caregivers of SCI patients make a bigger contribution to the sufferer's physical and mental well-being. It has been observed that carers are the primary source of assistance for an individual's general daily living activities. They also play a significant role in preventing secondary complications and enhancing quality of life for people with SCI (Munce et al., 2014). Increased emotional stress, burnout, exhaustion, anger, resentment, mental weariness, and isolation have all been documented among caregivers of SCI patients (Kolakowsky-Hayner et al., 1999). Caregiving has been linked to limitations in caregivers' social, vocational, and leisure options (Delargy et al., 1988). It has also been found that caregivers have low levels of life satisfaction and marital adjustment, as well as bad health and quality of life (Boschen et al., 2005). Lindsey (2003b) further asserted that people with SCI get hostile towards caregivers when they believe their needs are not being satisfied in the same way that regular people's needs are. As a result of being impaired or losing their capacity to execute their regular activities, people feel frustrated. According to research, the quality of life of main caregivers of a spinal cord injury victim is significantly impacted by specific severity factors associated with the injury; nevertheless, these severity characteristics do not appear to have an extra impact on the primary caregiver's life quality (Unalan et al., 2001).

According to a comparable study, being female and having a children with mental health issues predicted caregiver anxiety and depression. Furthermore, having an older child at the time of the injury indicated caregiver depression. Poor social connections, a caregiver with mental health issues, and a caregiver with less education significantly predicted child anxiety and depression (Kelly et al., 2011).

## 1.2 Justification of the Study

SCI rehabilitation literature from developed nations has established a base of evidence for the association between caregiver depression and the physical and mental health of individuals with SCI. However, very limited literature has examined these connections in developing global regions like Latin America and Asia, despite the lack of rehabilitation services and reduced life expectancy after SCI in those regions. Different studies found that the disability of a family member is psychologically distressing for the informal caregivers of the family or close relatives. Spinal cord injury (SCI) imposes tremendous stress on injured individuals and their families. Not only are the patients susceptible to developing major depression, but also their caregivers, who may also reveal levels of disturbed emotional status. The loss of function which occurs in SCI patients makes them dependent on their caregivers and as a result, this creates significant changes in the caregivers' life due to the time and effort that they must dedicate. A noticeable reduction in quality of life occurs and this contributes to reduction of psychological health in this population. The devastating impact of SCI on family members and caregivers, along with their increased responsibilities, create stressful conditions in which appropriate management is required. About 40% of patients with SCI need assistance in performing their important activities of daily living such as eating, dressing, personal hygiene, mobility etc and provide their emotional support and physical care as well. Caregivers of individuals with SCI may be at even greater risk of negative outcomes because of the unique challenges of caring for an individual with SCI and the long duration of the caregiving career. They generally get little or no support or recognition for their great contribution for the person with SCI. Available research on caregivers of SCI persons is mainly from developed countries. Very little information is available on the caregivers of SCI persons in developing countries like Bangladesh. Interventions and supports identified in western cultures may not be necessarily applicable and suitable for the people in the developing regions. So, family caregivers have an important role in the ongoing care of the persons with SCI in Bangladesh. When one member of a family sustains a SCI then other family members become concerned about the treatment and prognosis of this injured person, which may create mental stress for them. They also have to think about money requirement for intervention, management transportation and changes in their home environment to make it accessible for that person. The members who are caring for a person with SCI have to sacrifice their job or works, change scheduled activities, which have to be isolate from their usual activities of daily living.

Remarkable differences exist between developed and developing nations in rehabilitation services and outcomes, as for example, life expectancy is estimated at less than two years for individuals with SCI in developing nations with greater long-term survival in developed nations. Further, a variety of challenges exist in SCI rehabilitation in developing nations like Bangladesh, including treatment of acute injury, assessment and evaluation, medical management, secondary complications, access to equipment, community reintegration, follow-up care, and culturally-pertinent medical services.

## 1.3 Research Question

What is the relation between functional impairment of SCI patients and depression of caregivers in Bangladesh?

## 1.4 Objectives

### 1.4.1 General objective

To explore the association between functional impairment of SCI patient and depression of caregivers in Bangladesh.

### 1.4.2 Specific objective

- To see the socio-demographic information of the caregivers of SCI patient.
- To find out the association between the self-care ability of SCI patients and depression of caregivers of SCI patient.
- To understand the association between respiration & sphincter management ability of SCI patient and depression of caregivers of SCI patient.
- To explore the association between impairment of mobility & transferring ability of SCI patient and depression of caregivers of SCI patient.

## 1.5 Variables

### Conceptual Framework

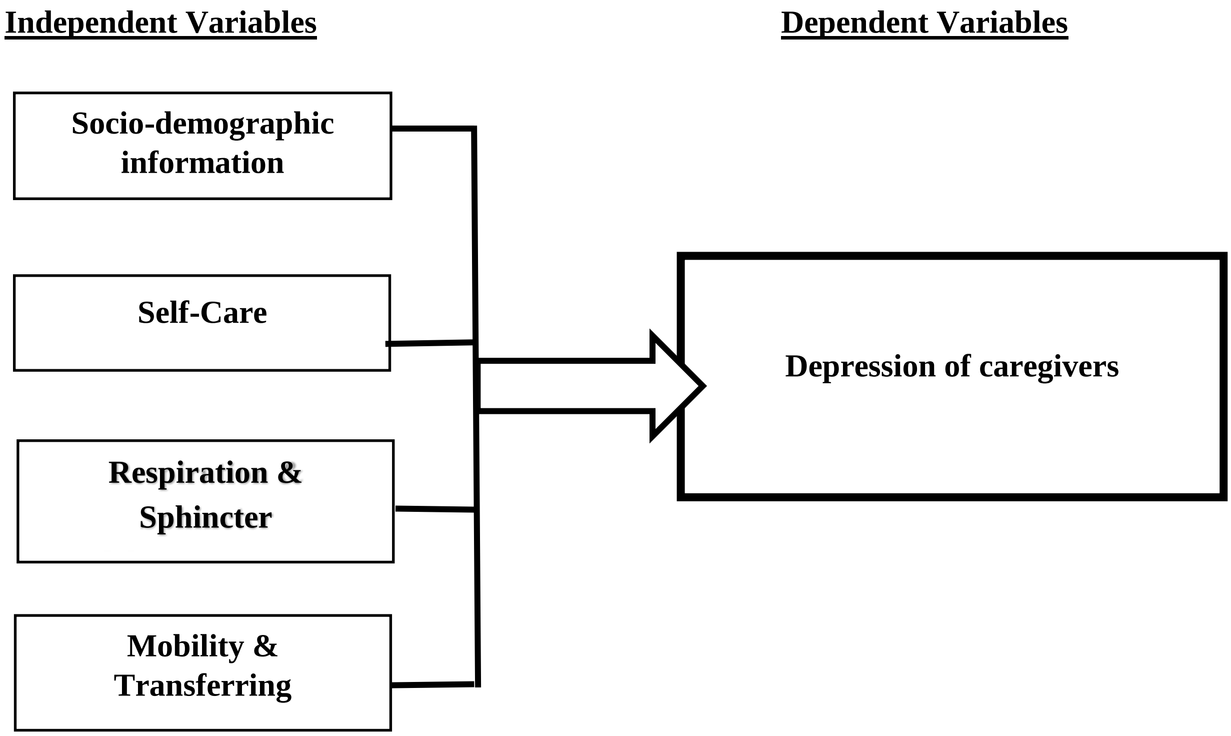

**Figure 1: Conceptual Framework**

## 1.6 Operational definition

- **Spinal Cord Injury (SCI)**

  When the spinal cord is damaged following trauma to the spine or disease process then it is called spinal cord injury which resulting in either temporary or permanent change in normal motor, sensory or autonomic functions.

- **Paraplegia**

  It refers to a spinal injury from thoracic 2 (T-2) on down through sacral 5 (S-5). Paraplegia is a term used to describe the inability to voluntarily move the lower parts of the body. The areas of impaired mobility usually include the toes, feet, legs, and may or may not include the abdomen.

- **Tetraplegia**

  It refers to a spinal cord injury at or above the thoracic (T-1) spinal level. Tetraplegia, is a symptom in which a human experiences paralysis affecting all four limbs, although not necessarily total paralysis or loss of function. Injury to the spinal cord in the cervical region, with associated impairment or loss of muscle strength in all four extremities and trunk are called Tetraplegia.

- **Functional impairment**

  Functional impairment refers to limitations due to the illness, as people with SCI may not carry out certain functions in their daily lives.

- **Caregiver**

  People who provide unpaid care by looking after an ill, frail or disabled family member, friend or partner are caregivers.

- **Depression**

  Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. It affects how you feel, think and behave and can lead to a variety of emotional and physical problems. You may have trouble doing normal day-to-day activities, and sometimes you may feel as if life isn't worth living.

# CHAPTER-II LITERATURE REVIEW

The spinal cord is a part of the central nervous system (CNS) that extends caudally and is held in place by the bone components of the vertebral column. It is secured in place by the three CNS membranes, namely the dura mater, the arachnoid, and the deepest pia mater (Islam et al., 2011). The spinal cord is located in the spinal column. The spinal cord is 42-45 cm long and extends down from the brain to the L1-L2 vertebral level, ending in the conus medullaris. The cauda equina (or "horse's tail") continues from the end of the spinal cord in the spinal canal. The neurological segmental levels of the spinal cord correspond to the nerve roots that exit the spinal column between each vertebrae; there are 31 pairs of spinal nerve roots. There are eight cervical, twelve thoracic, five lumbar, five sacral, and one coccygeal vertebrae. Because of the length discrepancy between the spinal column and the spinal cord, the neurological levels do not always correlate to the vertebral segments (International perspective on spinal cord injury; WHO, 2013).

This injury is one of the greatest health problems in human cultures, causing a slew of physical and mental issues for injured people and their families (Moghimian et al., 2015). Spinal cord injury (SCI) causes many health issues that have a detrimental impact on not only the patient's physical state, but also all aspects of their lives, such as their objectives and communications, and, more importantly, their mental health and quality of life (Saadat et al., 2010). Spinal cord injury (SCI) is a catastrophic injury to the spine that causes damage to the spinal cord or surrounding nerves (Elliott & Rivera, 2003). SCI is commonly caused by falls, engine vehicle accidents, disease, and viciousness such as gunshot wounds and explosions (Chen et al., 2013). According to research, it can be caused by traumatic or non-traumatic pathophysiology. Traumatic spinal cord injury can occur as a result of direct or indirect trauma. There are three main reasons why patients are admitted to hospitals in underdeveloped countries. Those are a fall from a great height, a transportation accident, and being hit by an object. According to the study, 561 people suffered severe spinal cord injuries between 2001 and 2010 (Kennedy & Chessell, 2013). Beijing has a higher yearly incidence of 60.6 per million people than other countries and areas. TSCI patients may experience a variety of symptoms, including stiffness, sensory abnormalities, and excessive reflex actions, depending on the severity of the lesion (Carlson and Gorden, 2002).

Seven studies on SCI in Europe (Turkey, Russia, Portugal, the Netherlands, and France) demonstrate a range in incidence ranging from 10.4 million per year to 29.7 million per year. Five studies in Northern America (Alaska, Mississippi, Kentucky, Indiana, Ontario, and Alberta) found an incidence ranging from 27.1 million to 83 million per year; Four studies in Asia (Jordan, Japan, Taiwan, and the Fiji Islands) suggest that the incidence ranges between 18.0 and 40.2 per million per year. According to one study from Australia, the incidence is 14.5 per million per year. The frequency in Portugal is 57.8 per million per year, 77 per million in Mississippi (USA), and 52.5 per million in Alberta (Canada). In Australia, the prevalence ranges from 370 in 1987 to 681 per million in 1998. In Western Europe, only Finland (280 per million) and Iceland (316 per million) have reported prevalence data; in North America, the USA (721-1009 per million) and Canada (1173) have reported prevalence data (Wyndaele & Wyndaele, 2006).

Trauma to the spinal cord causes the most common impairment of the spinal segments. Spinal cord injury can be caused by both traumatic and non-traumatic events. In Bangladesh, there are numerous causes of spinal cord damage. The most common causes are a fall from a great height, road traffic accidents, falling while carrying a heavy load on the head, falling while carrying a heavy load on the back, a bull attack, a bullet or gunshot injury, a physical attack, a disease process, or diving in shallow water, and many others (Ekman, 2002). Depending on the severity of the lesion, patients with traumatic spinal cord injuries may experience a variety of symptoms such as stiffness, sensory abnormalities, and increased reflex actions (Carlson and Gorden, 2002). According to Ning et al. (2012), traumatic spinal cord injury (TSCI) is one of the most devastating types of injury, resulting in varying degrees of paralysis, sensory loss, and bladder/bowel dysfunction. Spinal cord injury (SCI) can cause significant impairment. The biggest risk of SCI occurs during adolescence and early adulthood for both males and females, with a roughly 4:1 male-female ratio. Spinal cord injuries can have a negative impact on mental health; there is an unavoidable risk of developing an emotional illness such as depression following SCI (Guest et al., 2014). The incidence of spinal cord injury ranges between 10.4 and 83 per million people each year (Kennedy and Chessell, 2013). According to recent research (Kong et al., 2013), primary nerve injury occurs as a result of acute spinal cord injury, which produces secondary damage by causing inflammation, ischemia, and toxicity. Following SCI, there is a loss of motor control function, which causes disruption in daily activities. SCI is a debilitating condition that causes limb paralysis and injury such as compression, contusion, or laceration, which disrupts autonomic function at the site of injury or below, resulting in permanent disability such as paralysis, loss of sensation, neuropathic pain, and so on, depending on the level of the lesion (Mothe & Tator, 2013). Spinal cord injury or damage can result in a variety of impairments, activity limitations, and participation restrictions, all of which have a negative influence on society (New et al., 2013).

Despite the notion that the pathophysiology of SCI is comparable internationally, the causes, course, and treatment options differ across global locations. Engine vehicle accidents, for example, are a major cause of SCI in developed countries, whereas violence and vertical falls are prominent causes of SCI in developing countries (Ackery et al., 2004). SCI rehabilitation in developing countries faces a number of challenges, including acute injury treatment, assessment and evaluation, therapeutic administration, secondary complications, access to equipment, community reintegration, follow-up care, and culturally relevant therapeutic administrations (Burns & O'Connell, 2012).

Nwankwo and Uche (2013) discovered that in SCI, the 31–45 year age group is the most frequently influenced, and male is more influenced than female (4.3:1), with 53 percent injury occurring in the cervical spine, 22 percent in the thoracic spine, and 25 percent in the lumber spine. The yearly frequency of traumatic SCI in the United States is 40 cases per million, or 1200 new cases each year (Rabadi et al., 2013). In Australia, males are more impacted than females in non-traumatic SCI, with a ratio of 197:169, and paraplegia is more prevalent than tetraplegia (98 per million) (New et al., 2013). The global rate of SCI is 10.4 and 83 per million per year, with a mean age of 33 years old, a male to female ratio of 3.8:1, and one-third of patients worldwide being tetraplegic (Wyndaele & Wyndaele, 2006). In addition, 2.5 million people worldwide are affected with SCI (Oyinbo, 2011). In Asia, the incidence rate of SCI ranges from 12.6 to 61.6 per million people, and the average age is 26.8 to 56.6 years old. Men are more vulnerable than women in traumatic spinal cord injury, and the leading causes are motor vehicle collisions (MVCs) and falls (Ning et al., 2012).

A caregiver is someone who provides care to a patient and helps to manage the patient's needs of daily life, such as feeding and clothing, in order to prevent difficulties from developing (Tharu, 2018). The SCI has major consequences for family members and caregivers because they were had to take on the responsibilities of the sufferer's overall activities, which leads to an upsetting state. The reliance of SCI individuals causes emotional upheavals in the lives of carers due to the time and effort they devote to them (Taheri Otaghsara et al., 2014). Spinal cord injuries are the most common type of catastrophic injury. Young adults are more prone than other ages to suffer from long-term disability as a result of SCI. SCI affects 54 percent of people between the ages of 16 and 30. 75 percent of injuries occur in those over the age of 45. (Winslow and Rozovsky, 2003). People who have survived a spinal cord injury (SCI) are living longer lives as a result of recent advances in therapeutic innovation, and they usually require varying degrees of assistance throughout their lives (Ebrahimzadeh et al., 2014). The life-changing experience that impacts not only people with SCI but also their spouses, parents, siblings, and children, as well as being a substantial cause of mortality and morbidity (Ali & Tawfiq, 2013). Spinal cord injury causes significant individual disability, which is reflected in severe changes in lifestyle (Kawanishi and Greguol, 2013).

In Bangladesh, a research on the life expectancy of people with SCI found that 56.4 percent of patients who were discharged after rehabilitation died within 5 years, while just 16.4 percent lived beyond 10 years. Surprisingly, four out of every five affected people died at home. The studies undertaken in low- and middle-income countries (Zimbabwe, Nepal, and Bangladesh) show that the survival rate of SCI patients ranges from 30 to 75 percent between 1 and 5 years following discharge (Hossain et al., 2016). In Asia, the incidence of traumatic SCI ranges from 7.8 per million to 20.5 per million, with ages ranging from 20.6 to 35.4. The majority of SCI patients are young and live in low and middle-income nations. Male victims appear to be more numerous than female victims (Vasiliadis, 2012). According to a study conducted in India, family members were the primary caregivers in the majority of cases, and they participated in the formal trainings provided for the position of a caregiver (Sharma et al., 2013). This demonstrates the community's inaccessibility to healthcare, as well as a lack of understanding and inappropriate practice following SCI patients' reintegration into the community (Tharu, 2018). In CRP, Bangladesh, males are more commonly affected than females, and 92 percent of patients are from rural areas, while 8 percent are from urban areas. The majority of patients have paraplegia, with 44 percent having a cervical lesion, 27 percent having a thoracic lesion, and 29 percent having a lumber lesion (Islam et al., 2011).

A study on the life expectancy of people with SCI found that only 16.4 percent of the study population survived for 10 years in Bangladesh, which was significantly lower than in developed countries such as Finland (97.9 percent), Australia (86 percent), Canada (92 percent), the United Kingdom (85 percent), and the United States (80.7 percent ). Aside from that, the survey discovered that Bangladesh's situation is worse than that of other developing countries. According to the research, Bangladesh has very low medical facilities to encourage a safe and worthwhile life after a spinal cord injury. The study also identified other potential explanations of low life expectancy in people with SCI, such as inadequate acute care and a lack of good social reintegration (Razzak et al., 2011).

In some cases, SCI may render a person dependent on carers, with family members frequently obliged to take on the position for a variety of social and economic reasons. (Arango-Lasprilla et al., 2010) According to the National Spinal Cord Injury Statistical Center, the costs of SCI are higher than those of related illnesses such as dementia, multiple sclerosis, and cerebral palsy1, with yearly healthcare and lifestyle expenses incurred in certain cases totaling US$185 000. This financial burden, in addition to any income lost by the patient, can have a substantial impact on the entire family unit (Coleman et al., 2013).

"Caregiver" is defined as "a person who looks after a sick or elderly person" by Oxford Advanced Learner's Dictionary (2001, p. 177). Primary caregivers are defined as "the individual who is primarily involved in the patient's care and provides the greatest support and/or help" (Blanes et al., 2007). After taking on the position of primary caregiver for a person with SCI, family caregivers may suffer a wide range of lifestyle and quality of life changes (Ebrahimzadeh et al., 2008). Caregivers help patients manage prescriptions, therapy, and medical emergencies, as well as provide supervision, emotional support, and assistance with personal care, mobility, and other basic daily life activities. A patient with SCI who is completely tetraplegic loses sensory and motor function below the level of damage (Sarwar, 2013). As a result, they become reliant on caregivers to assist them with their daily life activities (Lindsey, 2003b). Many mental health concerns emerge during the caring process, which can have a detrimental impact on the caregiver. Increased emotional stress, burnout, exhaustion, anger, resentment, mental weariness, and isolation have all been documented among caregivers of SCI patients (Kolakowsky-Hayner SA et al., 1999). Traditionally, research investigating caregiver adjustment after SCI has focused on time-related declines in quality of life as well as increased psychological and physical morbidity, which is frequently coupled with an increasing burden of care (Arango-Lasprilla et al., 2010). In the larger caregiver literature, these dynamics are understood as evidence for 'wear and tear,' (Gaugler et al., 2007) which is represented in the SCI context as a 'burn-out syndrome,' (Post et al., 2005). However, research across multiple disability groups has discovered that, after an initial time of rising distress, caregivers report stabilisation or even a drop in caregiving morbidity (with reduced stress), a phenomenon known as a 'adaptation' effect (Schulz et al., 2009). There has been little investigation into which concept best characterizes the course of caregiver adjustment following SCI. Caregiving has been linked to limitations in caregivers' social, vocational, and leisure options (Delargy et al., 1988).

Depression is a mental illness characterized by poor self-esteem, feelings of inadequacy, a lack of self-sufficiency, and an unpleasant self-image. It is a painful experience that is based on either a forceful blow or the anticipation of harm from an unknown source (Pashang et al., 2012). A similar study discovered that female carers of children with mental health issues predicted caregiver anxiety and despair. Furthermore, having an older child at the time of the injury indicated caregiver depression at a lower spectrum. Poor social connections, a caregiver with mental health issues, and a caregiver with less education of the child all predicted anxiety and depression (Kelly et al., 2011).

Depressed people invariably expressed negative ideas and beliefs such as learned helplessness, low self-efficacy and self-control, inaccurate representations of SCI-related impairment, heightened stress, fewer vocational interests and abilities, and a loss of hope. Regardless of the prevalence and natural history of depression in people with SCI, there is little doubt that it has a major impact on the people who are affected and their family (Orenczyk et al.,2010). People suffering from depression are frequently stigmatized by society, and only a minority receive proper treatment. The way symptoms of depression are identified in patients, as well as theories related to etiology, can influence their willingness to seek help and agree to treatment, as well as the community's attitude and behavior toward them (Almeida et al., 2013). So, it is critical to treat depression since it may have such a negative impact on a spinal cord injury patient's capacity to function in daily life; depression can exacerbate pain, make sleep difficult, sap energy, take away enjoyment, and make it difficult to take excellent care of one's health (Arango-Lasprilla et al., 2011).

According to a recent study, SCI has a considerable impact on the QOL of family caregivers, with important consequences for physical, mental, and social aspects of caregiver health. This research demonstrates that these critical concerns are troublesome on a global scale and may endure for decades. It is recommended that specific interventions to support family caregivers of spinal cord injured people be implemented, with a particular emphasis on boosting patient/family knowledge and access to support groups (Lynch et al., 2017). According to Otaghsara et al. (2014), depression affects 21% of caregivers of spinal cord damaged patients in the United States. In addition, caregivers of people with SCI have a lower quality of life and face more psychological stress. Another recent study found that partners offered assistance with a wide range of activities five years after inpatient recovery. The frequency and type of activities in which partners gave assistance was related to the severity of the lesion. Approximately 43% of the couples reported feeling overburdened as caregivers. Provided assistance was associated to perceived burden and life satisfaction, while burden was related to mental health and life satisfaction in a negative way. The high levels of perceived burden among spouses, as well as the connections between increased burden and lower wellbeing, highlight the need of preventing caregiver overload in partners of people with SCI (Scholten et al., 2018).

# CHAPTER-III METHODOLOGY

## 3.1 Study Design

A cross sectional descriptive study was performed with structured questionnaires which explore the association between functional impairment of person with SCI and depression of their caregiver.

## 3.2 Setting

The study was conducted in SCI unit of Centre for the Rehabilitation of the Paralysed (CRP), Chapain, Savar, Dhaka, Bangladesh.

## 3.3 Study population

Both men and women with SCI who were receiving treatment at CRP and had caregiver. In addition, the caregiver also being a part of the study population. The list of the person with SCI and the caregiver were taken from the CRP inpatient nursing unit.

## 3.4 Sample size

Sample size was estimated according to following formula with the assumption of 50% prevalence rate for the person with SCI having a caregiver in Bangladesh. While there are no accurate data on the incidence of SCI in Bangladesh. Cripps et al., 2011 showed that global prevalence of SCI was 236 and 1009 per million which was almost similar to a result found in 1995 by Blumer and Quine (about 110-1120 per million of population) (Singh et al., 2014). Sampling procedure for cross sectional study done by following equation-

$$n = \{\frac{z\left(1-\frac{\alpha}{2}\right)}{d}\}^2 \times \text{pq}$$

Here, $z\left(1-\frac{\alpha}{2}\right) = 1.96$

p= 0.5 (Geyh et al., 2010)

q= 1-p

d= 0.05

So the investigator aimed to focus his study by 384 samples following the calculation above initially. As the data was collected in the Covid-19 pandemic, so there were a limitation to achieve the targeted sample size. The study able to conduct 70 SCI patient and their caregiver with in the timeframe.

## 3.5 Sampling technique

Sampling refers to the process of selecting the subjects or individual. The researcher was selected convenience sampling technique due to Covid-19 pandemic & limitation of time.

## 3.6 Inclusion criteria

For SCI patient:

- Patient with SCI
- Both male and female

For caregiver:

- SCI patient caregiver
- Both male and female
- Those who are willingly participants

## 3.7 Exclusion Criteria

For SCI patient:

- Unconscious patient

For caregiver:

- Caregiver with cognitive problems
- Irregular caregivers (less than 2 weeks)
- Those who are not willingly participant

## 3.8 Data collection tools

Data collection tools are Questionnaire, Pen, Paper, File, Pencil, Note book.

## 3.9 Method of data collection

Following the completion of the pilot study among ten people who met the inclusion and exclusion criteria, the questionnaire was modified as needed. It was also ensured that there were no unclear questions.

A written application was submitted to the CRP medical care unit in order to collect data from the CRP inpatient service in Savar, Dhaka. For getting involved in the face-to-face interview, the participants were provided written informed consent.

### 3.9.1 Questionnaire

- The researcher used a closed-ended structured questionnaire to collect data.
- Functional impairment of SCI patient was assessed by the Spinal Cord Independence Measure (SCIM) questionnaire. SCIM comprises items on 19 daily tasks grouped into three subscales. Item scores are weighted according to their clinical relevance and are graded for increasing difficulty that is requiring higher ability of the person with SCI. Each item has between 2 and 9 grades. The total SCIM score ranges between 0 and 100, higher scores reflecting higher levels of performance or independence of a person. The three subscales assess the areas of ‘self-care’ (six items, range 0–20), ‘respiration & sphincter management’ (four items, range 0–40) and ‘mobility’ (nine items, range 0–40).
- Caregiver depression was assessed by PHQ-9 questionnaire. The PHQ-9 is a clinically-validated screening tool that healthcare providers use to screen for depression, and also to diagnose and monitor the severity of the condition. The PHQ-9 consists of nine questions that ask respondents how often they’ve “been bothered by any of the following problems” in the past two weeks. The questions address sleep, energy, appetite, and other possible symptoms of depression. Scores are calculated based on how frequently a person experiences these feelings. The PHQ-9 is the depression module, which scores each of the nine DSM-IV criteria as "0" (not at all) to "3" (nearly every day). The sum value of these responses gives you your total score. 1-4: This is considered minimal depression, 5-9: This is considered mild depression. 10-14: This is considered moderate depression. 15-19: This is considered moderately severe depression. 20-27: This is considered severe depression. It has been validated for use in primary care. The copyright for the PHQ-9 was formerly held with Pfizer, who

provided the educational grant for Drs Spitzer, Williams and Kroenke who originally designed it. This is no longer the case and no permission is required to reproduce, translate, display or distribute the PHQ-9.

- For data collection, a Bengali questionnaire was used so that the participants will understand the questionnaire in the easiest way. English questionnaire was translated into Bengali and translation process was forward and backward translation.

### 3.9.2 Duration of data collection

Data was collected carefully and confidentiality and maintained all ethical considerations. The researcher gave each participant a particular time to collect the data. Each questionnaire took approximately 10-15 minutes to complete.

### 3.9.3 Procedure of data collection

Data was collected by the researcher himself. The questionnaire was completed or filled up in front of the researcher.

## 3.10 Ethical consideration

- Study was conducted following the standard guidelines of ethical consideration. The study followed the Bangladesh Health Professions
- Institute (BHPI) guidelines. This protocol presentation was firstly submitted to the Institutional Review Board (IRB) of BHPI and initial permission was taken.
- Permission was taken from the Head of the Department of Physiotherapy, BHPI and head of the Department of Physiotherapy, CRP before data collection.
- Researcher will maintain the confidentiality of the collected data from the individuals.
- All the participants and the authority were informed about the purpose of the study.
- Researcher ensures the confidentially of participants and share the information only with research supervisor.

### 3.11 Informed Consent

Prior to completing the questionnaire, all participants provided written consent. The investigator describes his or her involvement in this study to the participants. Every participant signed a written consent form, which was given to the investigator. As a result, the participant assured that they understood the permission form and that their participation was entirely voluntary. The participants were fully notified that their information would be kept private. The investigator assured the participants that they would not be harmed as a result of the study. It was mentioned that the study may not have a direct effect for the participants, but that similar instances in the future may benefit from it. Participants had the right to withdraw consent and terminate participation at any time, with no impact on current or future care at the community. To protect confidentiality, information from this study was anonymously coded and was not personally identified in any publication containing the results of this investigation.

### 3.12 Rigor of the study

The study was carried out in a rigorous manner. The research was carried out in a systematic and clear manner. During the data collection process, it was assured that participants were not impacted by their previous experiences. Whether they had a bad or favorable impression, the answers were accepted. There were no leading questions. The supervisor double-checked the participant information to eliminate any potential inaccuracies. The full information was handled with discretion. The outcome was not altered in the result section by displaying any personal interpretation. The research supervisor double-checked and rechecked every element of the study.

# CHAPTER-IV RESULTS

In this study 70 SCI patients and their caregivers were taken as a sample from Center for Rehabilitation of Paralyzed (CRP) Spinal Cord Injury Unit area of Savar were taken to explore the association between functional impairment of SCI patient and depression of caregiver.

In this study the results which were found have been showed in different bar chart, pie charts and tables.

**Table 1: Socio-demographical analysis of patient**

| Demographical criteria of patient | Subgroups | Frequency | Percentage (%) |
|---|---|---|---|
| Age | 0-20 | 20 | 29% |
| | 21-40 | 29 | 41% |
| | 41-60 | 19 | 27% |
| | 61-70 | 2 | 3% |
| Sex | Male | 67 | 96% |
| | Female | 3 | 4% |
| Type of Injury | Traumatic | 65 | 93% |
| | Non-Traumatic | 5 | 7% |
| Skeletal Level | Cervical | 39 | 56% |
| | Thoracic | 23 | 33% |
| | Lumber | 8 | 11% |
| | Complete A | 41 | 59% |
| Neurological Level | Incomplete B | 13 | 19% |
| | Incomplete C | 12 | 17% |
| | Incomplete D | 4 | 6% |

Among the respondents, the lowest age was 7 years and highest age was 70 years. According to this table, the frequency of the patient were highest in between 21-40 years. The numbers of the participants in 41-60 years were 19 (27%) and above 60 years were 2 (3%) participants. Among the 70 patients 96% (n=67) were male and 4% (n=3) were female. Traumatic type of injury patient were 93% (n=65) and Non-Traumatic type of injury were 7% (n=5). Different patient have different type of skeletal level of injury where 56% (n=39) in cervical level which is highest, 33% (n=23) is thoracic level and 11% (n=8) in lumber level. The patients (n=70) had different level of injury according to ASIA scale. 59% (n=41) are complete A, 19% (n=13) are incomplete B, 17% (n=12) are complete C, 6% (n=4) are incomplete D.

**Table 2: Socio-demographical analysis of caregiver**

| Demographical criteria of caregivers | Subgroups | Frequency | Percentage (%) |
|---|---|---|---|
| Age | 15-30 | 29 | 42% |
| | 31-50 | 38 | 54% |
| | 51-70 | 3 | 4% |
| Sex | Male | 26 | 37% |
| | Female | 44 | 63% |
| Living place | Urban | 8 | 11% |
| | Rural | 62 | 89% |
| Marital status | Married | 59 | 84% |
| | Unmarried | 11 | 16% |
| Occupation | Housewife | 41 | 59% |
| | Service Holder | 4 | 6% |
| | Business | 3 | 4% |
| | Student | 9 | 13% |
| | Other | 13 | 18% |
| Education | Never attended school | 8 | 11% |
| | Primary school | 28 | 40% |
| | Secondary school | 25 | 36% |
| | Higher secondary | 8 | 12% |
| | Bachelor or above | 1 | 1% |
| Relation with patient | Husband/Wife | 30 | 43% |
| | Father/Mother | 9 | 13% |
| | Brother/Sister | 13 | 19% |
| | Son/Daughter | 14 | 20% |
| | Other | 4 | 5% |
| Monthly income | less than 10,000 | 51 | 73% |
| | 10,000-30,000 | 16 | 23% |
| | 30,000-50,000 | 3 | 4% |
| Daily caregiving time | 0-10 hours | 19 | 27% |
| | 10-20 hours | 51 | 73% |
| Length of caregiving | 0-3 months | 58 | 83% |
| | 4-6 months | 8 | 11% |
| | more than 6 months | 4 | 6% |

Among the participants lowest age of caregiver were 15 and highest age were 70. Caregivers mean age was 32.67 and highest frequency in between 31-50 years. The number of the participants 15-30 years were 29 (42%) and more than 50 years were 3 (4%). Among the caregivers, 37% (n=26) were male and 63% (n=44) were female. 89%

(n=62) of caregiver lived in rural areas, whereas 11% (n=8) lived in urban areas. Among the caregivers where 84% (n=59) were married and 16% (n=11) were unmarried. Among the participants, highest frequency n=41 (59%) were housewife, 6% (n=4) were service holder, 4% (n=3) were in business, 13% (n=9) were student and the rest 18% (n=13) engaged in other occupations. Among the participants, about 11% (n=8) caregivers were never attended at school whereas 40% (n=28) caregivers completed primary education, 36% (n=25) of the caregivers completed secondary education, few in numbers about 12% (n=8) were completed higher secondary and very few near about 1% (n= 1) caregivers were completed bachelor or above. In this study maximum caregiver 43% (n=30) were husband/wife of patient. 20% (n=14) were son/daughter, 19% (n=13) were brother/sister, 13% (n=9) were father/mother of patient and 5% (n=4) were other relatives of patient. Among the 70 caregivers, 73% (n=51) monthly income was less than 10,000tk, some of them 23% (n=16) in between 10,000-30,000tk and rest of them 4% n=3) monthly income in between 30,000-50,000tk. Among the caregiver, 0-10 hours daily caregiving was done by 27% (n=19) and in between 10-20 hours caregiving was done by 73% (n=51). Highest length of caregiving in between 0-3 months where the participants were 58 (83%) and lowest length was more than 6 months where the participants were 4 (6%).But within 4-6 months duration of caring, the number caregivers were 8 (11%).

**Association between skeletal level of patient and depression of caregiver:**

The number of patients with cervical level injuries was 39, with the largest number of caregivers (n=17) suffering from moderate depression, 15 suffering from moderately severe depression, and 4 suffering from severe depression. The Pearson Chi-Square value is 25.351[a], and the p value is 0.001, indicating a strong association. According to table, the skeletal level of the SCI patient has a significant association with depression of their caregiver.

**Table 3: Association between skeletal level of patient and caregiver depression**

| | Depression of caregiver | | | | | |
|---|---|---|---|---|---|---|
| Skeletal level | Minimal Depression | Mild depression | Moderate depression | Moderately severe depression | Severely depression | Total |
| Cervical | 0 | 3 | 17 | 15 | 4 | 39 |
| Thoracic | 2 | 3 | 16 | 1 | 1 | 23 |
| Lumber | 1 | 4 | 3 | 0 | 0 | 8 |
| Total | 3 | 10 | 36 | 16 | 5 | 70 |

**Association between neurological level of patient and caregiver depression:**

The Chi-Square test was used to examine the relationship between the neurological level of SCI patients and caregiver depression. The Pearson Chi-Square value is 27.010[a] and the p value is 0.008, indicating that the Chi-Square test is statistically significant. In this case, a bar chart revealed a relationship between SCI patient neurological level and caregiver depression.

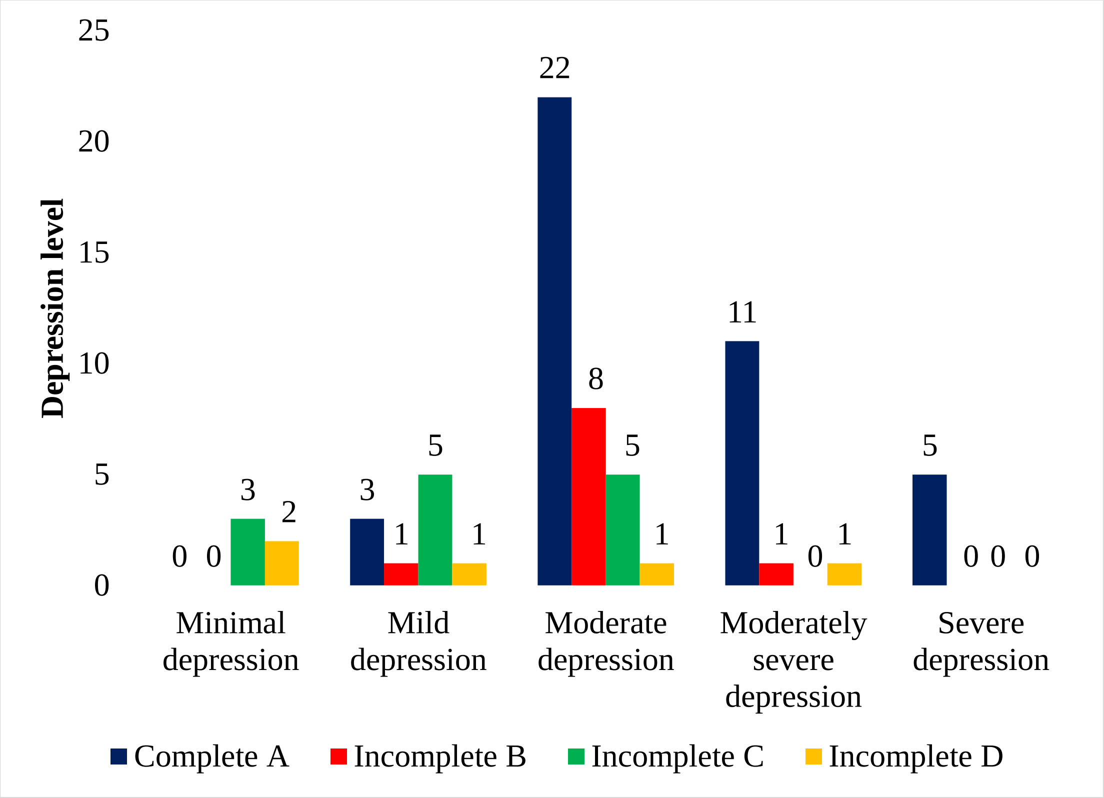

**Figure 2: Association between neurological level and caregiver depression**

**Association between caregiver age and caregiver depression:**

Among the caregivers 22 were in moderate depression, 7 were in moderately severe depression 2 were in severe depression 5 persons were in mild depression and 2 participants were in minimal depression where the caregiver age range was 31-50. Here, p value is 0.908 and Pearson Chi-Square value is 3.381[a] which is indicating not significant relationship.

**Table 4: Association between caregiver age and caregiver depression**

| | | | Caregiver depression | | | |
|---|---|---|---|---|---|---|
| Caregiver age | Minimal depression | Mild depression | Moderate depression | Moderately severe depression | Severe depression | Total |
| 15-30 | 1 | 4 | 13 | 8 | 3 | 29 |
| 31-50 | 2 | 5 | 22 | 7 | 2 | 38 |
| 51-70 | 0 | 1 | 1 | 1 | 0 | 3 |
| Total | 3 | 10 | 36 | 16 | 5 | 70 |

### Association between caregiver sex and caregiver depression:

There were 44 female caregivers and 26 male caregivers among the 70 caregivers. Four female participants were severely depressed, whereas thirteen were moderately severely depressed. However, three male individuals had moderately severe depression and one had severe depression. The Chi-Square test yielded a Chi-Square value of 5.520[a] and a p-value of 0.238, indicating that there is no significant relationship between caregiver sex and caregiver depression.

**Table 5: Association between caregiver sex and caregiver depression**

| | Caregiver depression | | | | | |
|---|---|---|---|---|---|---|
| Caregiver sex | Minimal depression | Mild depression | Moderate depression | Moderately severe depression | Severe depression | Total |
| Male | 1 | 6 | 15 | 3 | 1 | 26 |
| Female | 2 | 4 | 21 | 13 | 4 | 44 |
| Total | 3 | 10 | 36 | 16 | 5 | 70 |

**Association between caregiver living place and depression:**

Among the participants, 62 caregiver lives in rural area and 33 were moderately depressed and 4 were severely depressed. To see the association Chi-Square test was done where p value is 0.743 and Pearson Chi-Square is 1.958[a]. So, there have non-significant association between caregiver living place and depression.

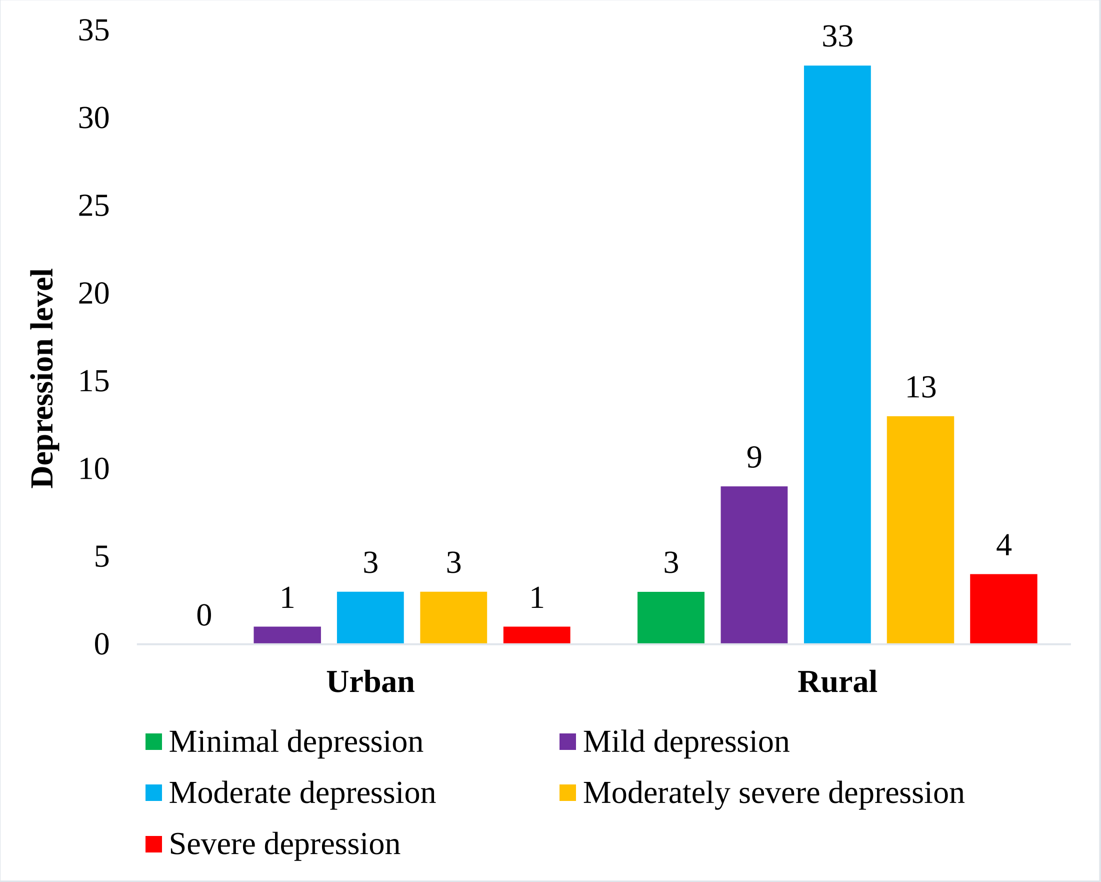

**Figure 3: Association between caregiver living place and depression.**

**Association between caregiver educational level and depression:**

Among the 70 caregivers, maximum caregiver educational level in between primary school or secondary school level. According to bar chart and Chi-Square test, Pearson Chi-Square value is 15.498[a] and p value is 0.489 which means there have no association between caregiver educational level and depression.

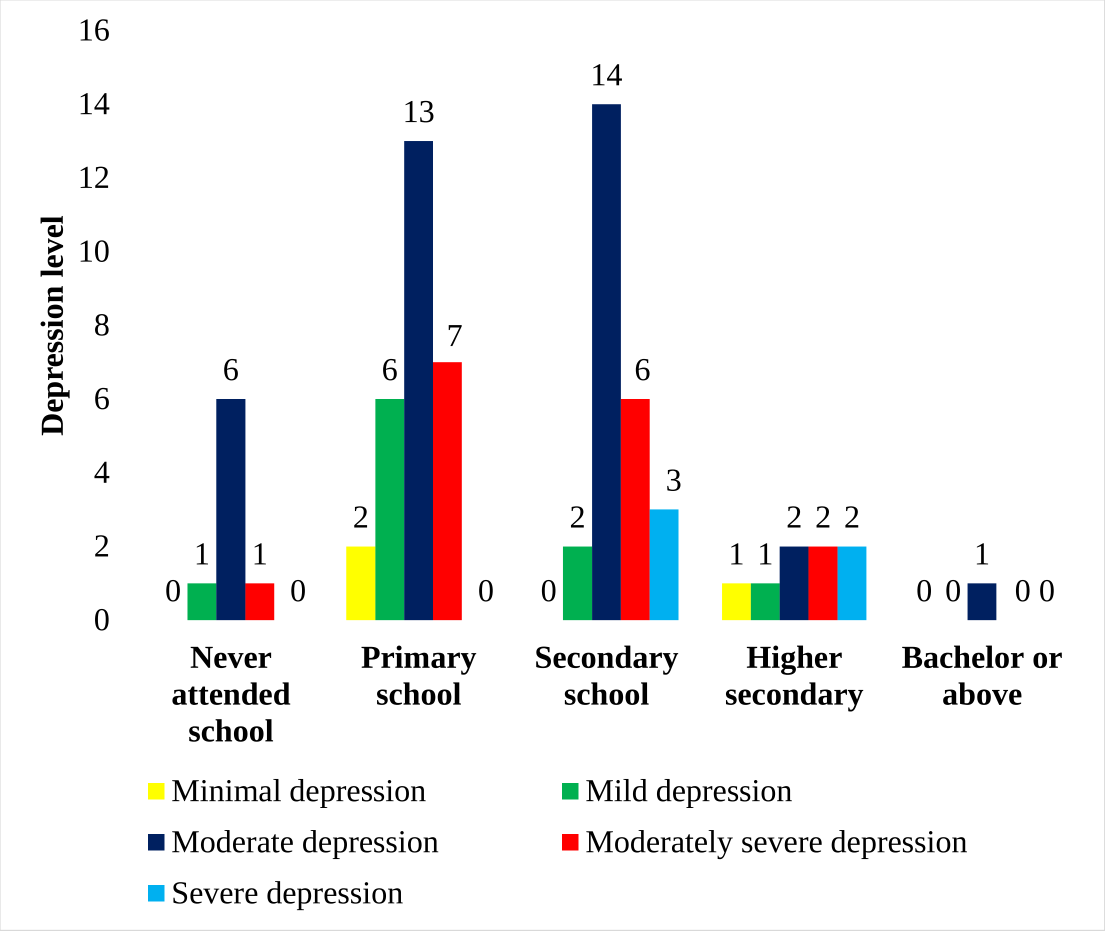

**Figure 4: Association between caregiver educational level and depression**

**Association between daily caregiving time and caregiver depression:**

Caregivers who had been providing care for a long time were more depressed. Caregivers who provided 10-20 hours of care each day were more depressed than those who provided 0 to 10 hours of care. The Chi- Square test also showed that Pearson Chi-Square value is 19.685$^a$ and p value is 0.001 so there have strong association between daily caregiving time and caregiver depression.

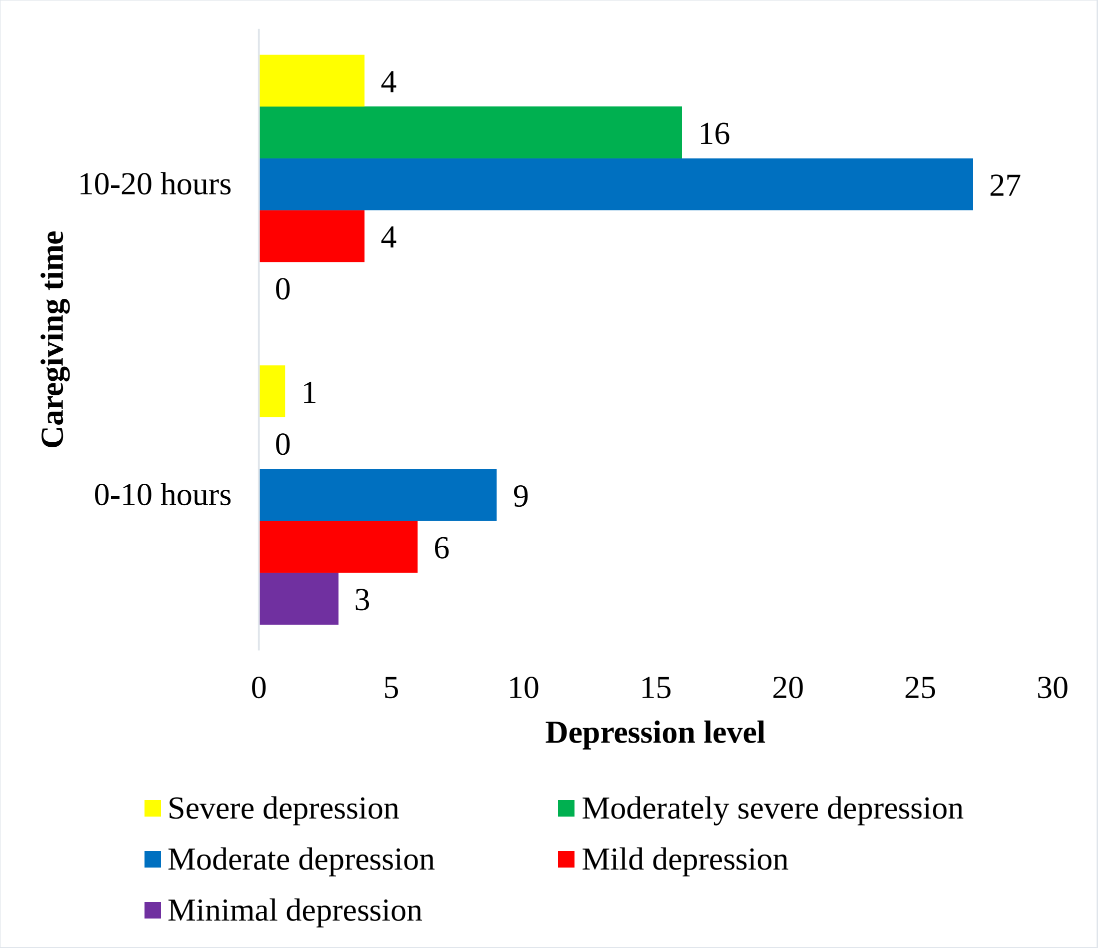

**Figure 5: Association between daily caregiving time and caregiver depression**

**Association between length of caregiving and caregiver depression:**

Four of the 70 caregivers had been attending for more than six months, three of them suffering from severe depression and one from moderately severe depression. The P-value of the Chi-Square test (Pearson Chi-Square value=33.383$^{a}$ & p value=0.000) suggests a very strong association between caregiver depression and length of caregiving.

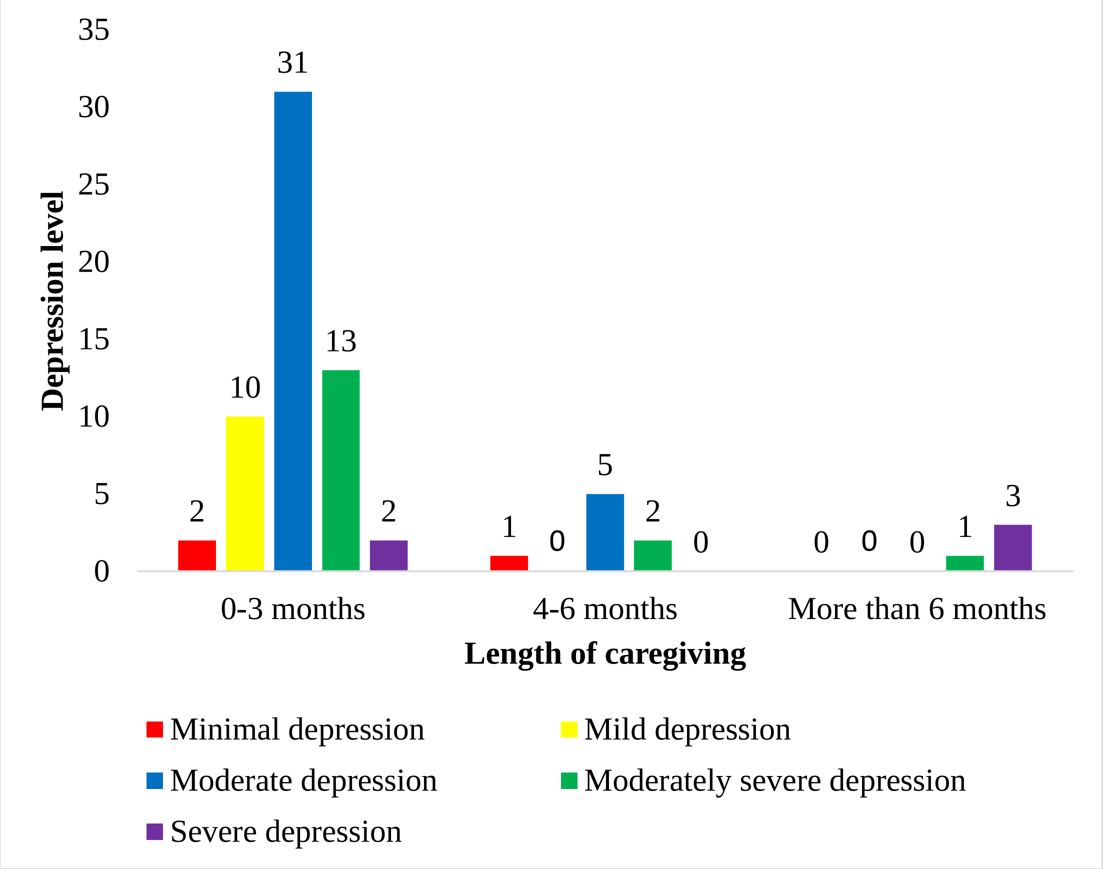

**Figure 6: Association between length of caregiving and caregiver depression**

### Association between Self-care ability of SCI patient and caregiver depression:

A Chi-Square test was used to assess whether the self-care ability of the SCI patient was related to depression of caregiver. The Chi-Square test is statistically significant because Pearson Chi-Square value=41.245$^{a}$ and p=0.000 which is indicating strong association. As seen in bar chart stated that self-care ability of SCI patient have an association with caregiver depression.

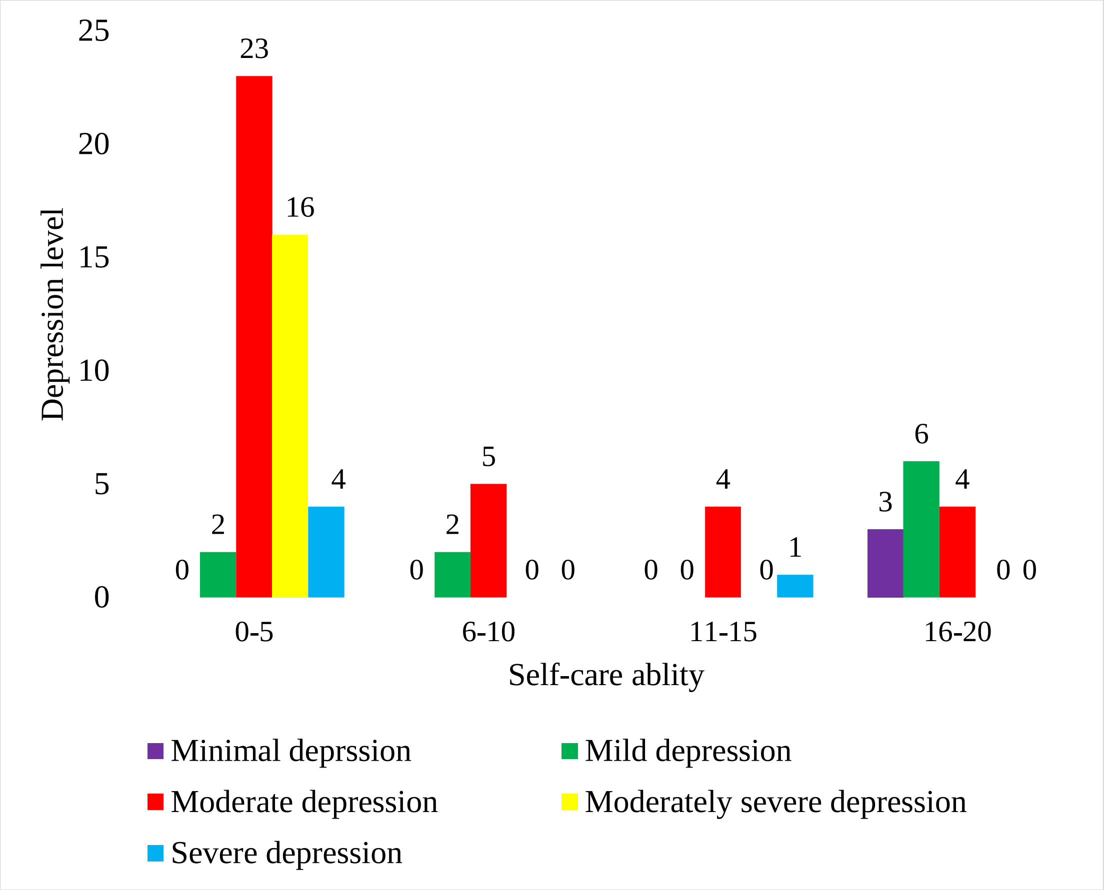

**Figure 7: Association between Self-care ability of SCI patient and caregiver depression**

### Association between respiration & sphincter management ability of SCI patient and caregiver depression:

The chi-square test was used to examine the relationship between respiration and sphincter management and caregiver depression. The test revealed that Pearson Chi-square value= 20.823$^{a}$ and p value= 0.053, showing that there is some relevance. In this study, a bar chart revealed that SCI patient respiration and sphincter management abilities are related to caregiver depression.

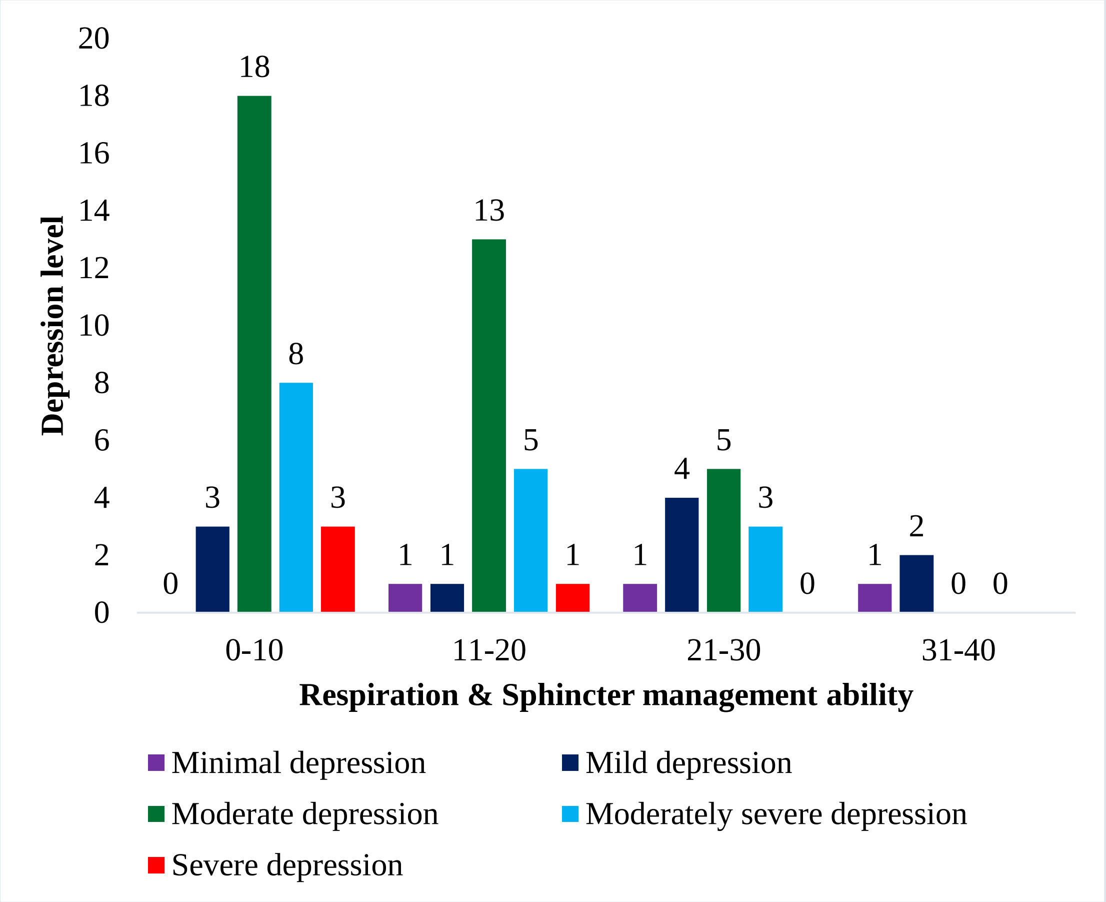

**Figure 8: Association between respiration & sphincter management ability of SCI patient and caregiver depression**

**Association between SCI patient mobility & transferring ability and depression of caregiver:**

Patients with a mobility and transferring ability score of 0-10 had the highest number of participants (53) and in between moderately depressed caregiver was 28 and severe depressed was 5. According to Chi-Square test, Pearson Chi-Square value is 27.452[a] and p value is 0.001 which is indicating very significant relationship.

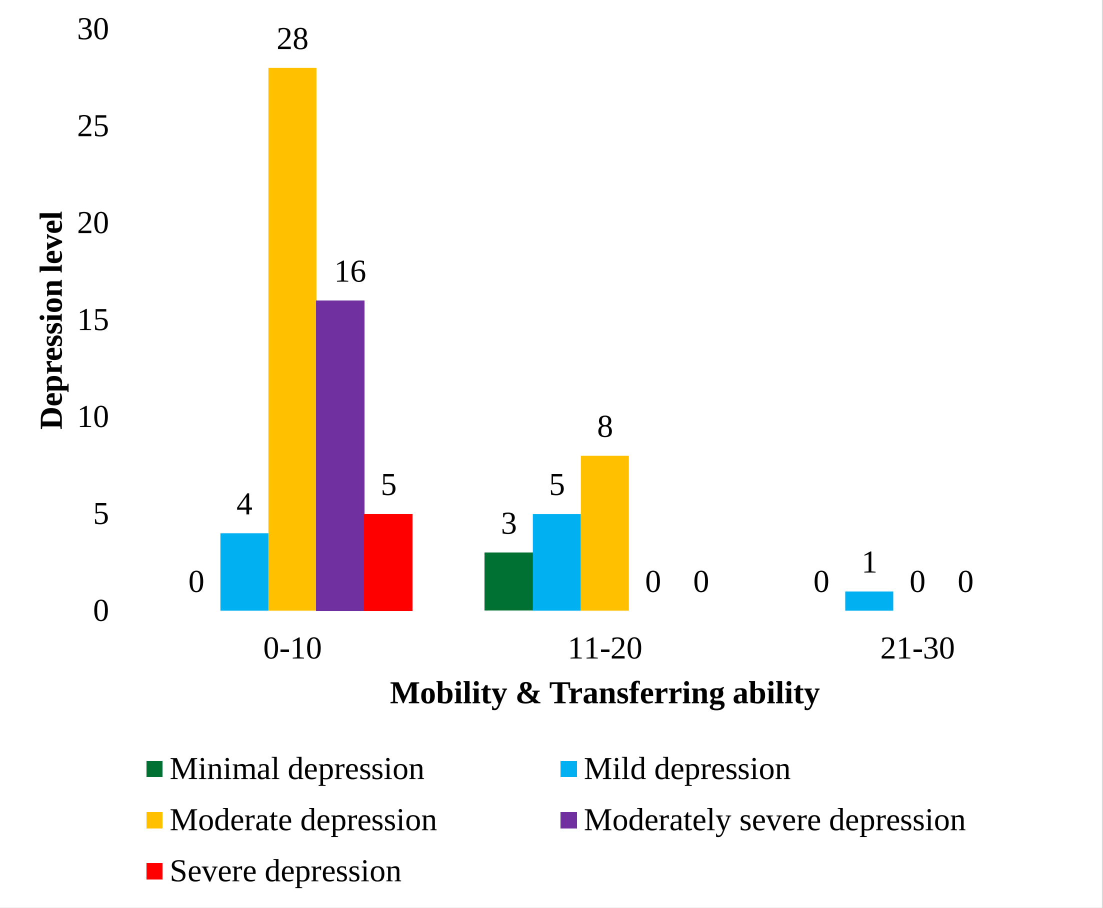

**Figure 9: Association between SCI patient mobility & transferring ability and depression of caregiver**

### Functional Impairment of SCI patient:

Among the 70 SCI patients, 43 had lower performance and independence levels to a total SCIM score ranging from 0 to 25. Higher scores on the SCIM questionnaire indicate a person's higher level of performance or independence. According to the table, 61 percent of patients (n=43) had a lower range of SCIM scores, indicating that the majority of patients had a lower level of independence or performance.

**Table 6: Functional impairment of SCI patient**

| SCIM Score range | Frequency | Percentage (%) |
|---|---|---|
| 0-25 | 43 | 61% |
| 26-50 | 12 | 17% |
| 51-75 | 14 | 20% |
| 76-100 | 1 | 2% |
| Total | n=70 | 100% |

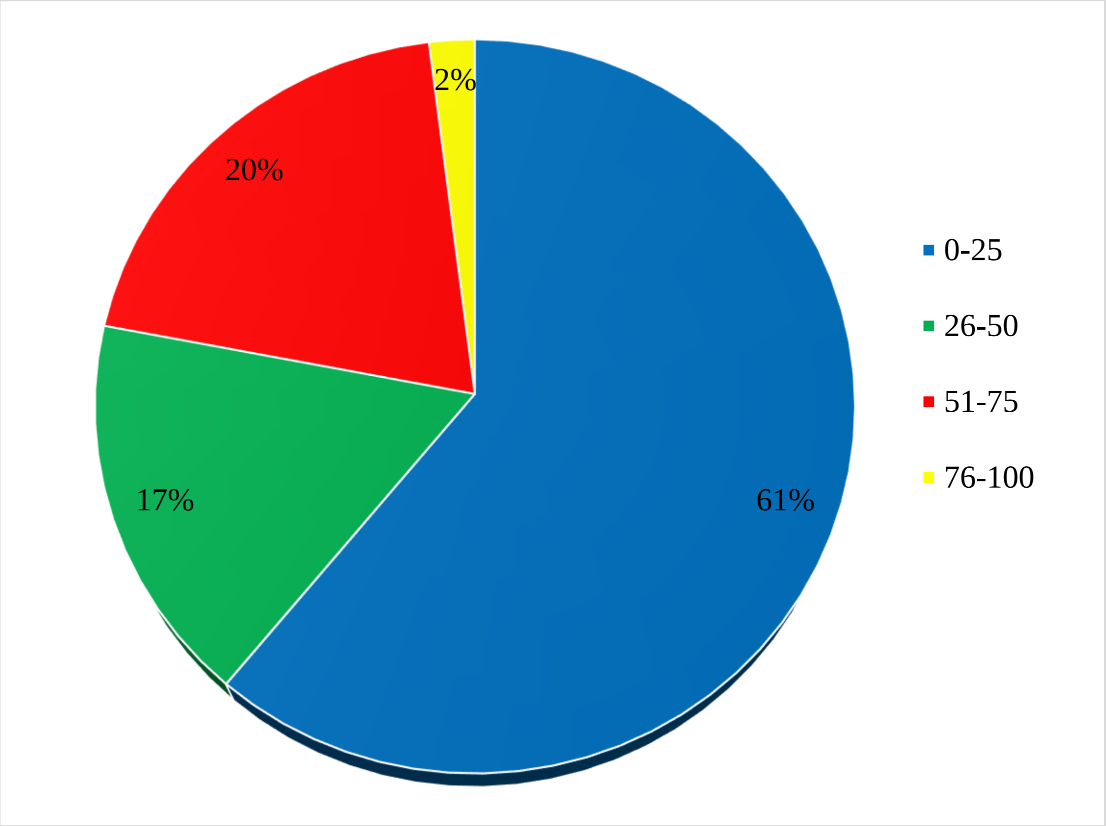

**Figure 10: Functional impairment of SCI patient**

**Depression of caregiver:**

In this study, caregiver depression was measured by PHQ-9 questionnaire. According to PHQ-9, 52% (n=36) caregiver which was majority of them was in moderate depression.

**Table 7: Depression of caregiver**

| Severity of depression | Frequency | Percentage (%) |
|---|---|---|
| Minimal depression | 3 | 4% |
| Mild depression | 10 | 14% |
| Moderate depression | 36 | 52% |
| Moderately severe depression | 16 | 23% |
| Severe depression | 5 | 7% |
| Total | n=70 | 100% |

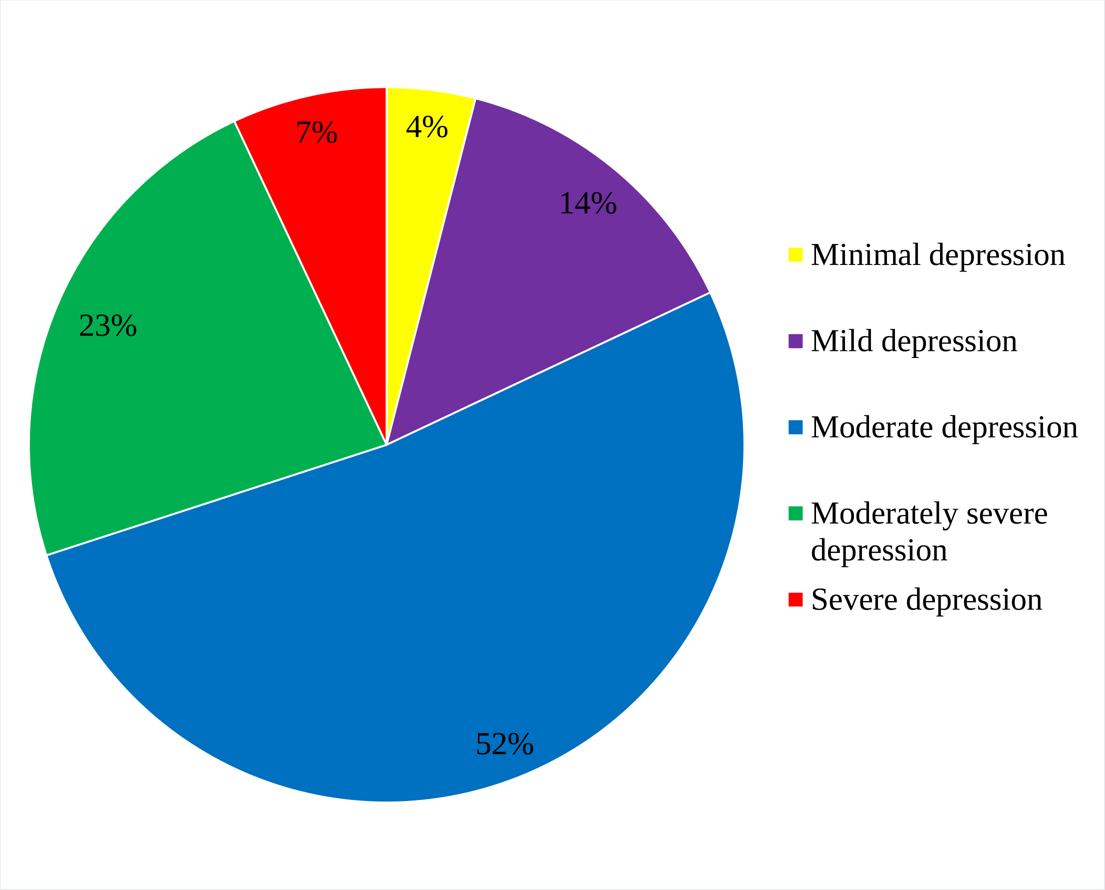

**Figure 11: Depression of caregiver**

**Association between functional impairment of SCI patient & depression of caregiver:**

Among the 70 patients, patients with lower independence levels (0-25) were 43 and their caregivers were moderately depressed 22, moderately severe depressed 14 and severely depressed 4. To see the association between functional impairment of SCI patient and caregiver depression Chi-Square test has been done where Pearson Chi-Square value is 25.026$^{a}$ and p value is 0.015 which means the test is bearing significant association between them.

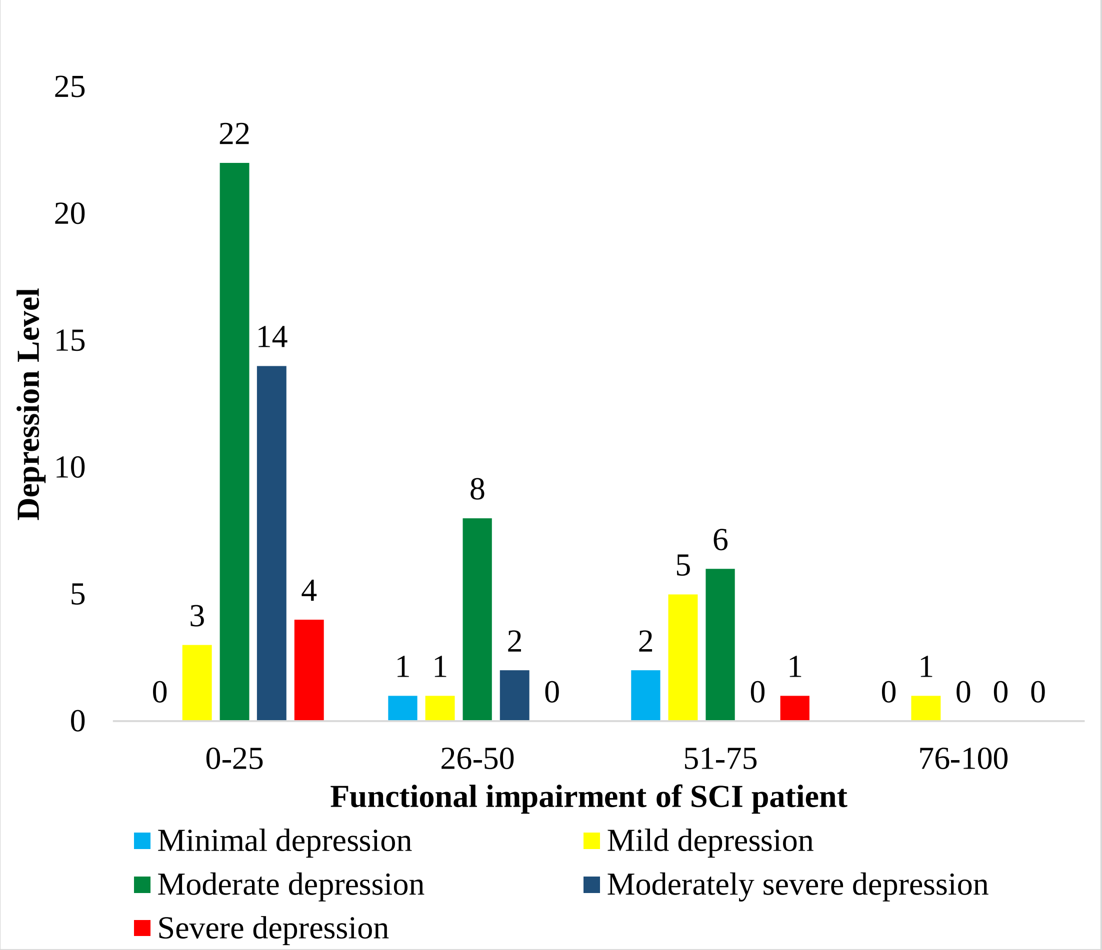

**Figure 12: Association between functional impairment of SCI patient & depression of caregiver**

**Table 8: Chi-Square tests**

| Variables | Pearson Chi-Square value | P value |
|---|---|---|
| Skeletal level of patient ~ Caregiver depression | 25.351[a] | 0.001*** |
| Neurological level of patient ~ Caregiver depression | 27.010[a] | 0.008** |
| Caregiver age ~ Caregiver depression | 3.381[a] | 0.908 |
| Caregiver sex ~ Caregiver depression | 5.520[a] | 0.238 |
| Caregiver living place ~ Caregiver depression | 1.958[a] | 0.743 |
| Caregiver educational level ~ Caregiver depression | 15.498[a] | 0.489 |
| Daily caregiving time ~ Caregiver depression | 19.685[a] | 0.001*** |
| Length of caregiving ~ Caregiver depression | 33.383[a] | 0.000*** |
| Self-care ability of SCI patient ~ Caregiver depression | 41.245[a] | 0.000*** |
| Respiration & sphincter management ability of SCI patient ~ Caregiver depression | 20.823[a] | 0.053* |
| Mobility & transferring ability ~ Caregiver depression | 27.452[a] | 0.001*** |
| Functional impairment of SCI patient ~ Caregiver depression | 25.026[a] | 0.015** |

Note: *P ≤ 0.05; **P ≤ 0.01; ***P ≤ 0.001.

# CHAPTER-V DISCUSSION

This study was aimed to associate functional impairment of Spinal cord injury patient and depression of caregiver. The findings of the study showed that moderate depression of caregiver present with higher functional impairment of SCI survivor. Among the patients, 41% of patients were between the ages of 21-40, traumatic patients 93% and non-traumatic 7%. Cervical level of injury were maximum (56%) and complete A patient were 59% according to ASIA scale. According to a research conducted in Brazil, women are typically assigned to care for people with disabilities due to their traditional role as caregivers for the home and family (Nogueira et al., 2013). In this study the result was same where among the 70 participants, 37% were male & 63% were female. Most of the time, the caregivers were Husband or wife of patient, aged between 15 and 50 years, who were providing care for periods of months and generally lives with the patient. In this study, 10-20 hours caregiving was done by 73% (n=51) and most of the caregiver were housewife (59%). Men are more likely to be exposed to employment or activities that put them at risk of SCI, whereas women rarely go to work and prefer to stay at home (Razzak et al., 2011).

Many physical disabilities and conditions are known to be associated with an increased incidence of depression. As the prevalence of depression is related to many factors including social support and environmental circumstances, the specific relationship of disability condition with depressive episodes occurrence varies between different countries. Individuals who care for injured patients with cervical spinal cord injuries are at a higher risk of having emotional distress. (Taheri Otaghsara et al., 2014). In this study also showed that skeletal level of SCI patients has strong association with caregiver depression. Patients with cervical injury have lower independence level and their caregivers have more depression than the others. Kang et al. (2018) also found that SCI patients with complete injury increased the risk of caregiver depression which is similar scenario to this study. Patients with complete injury were more dependent on their caregivers for that reason those caregivers can't care themselves and at one point of time after long time caregiving they go into too much depression. Gajraj-Singh (2011) stated that older caregivers were found to be significantly more burdened than the younger caregivers but in this study caregiver age and depression association was not significant. Kelly et al. (2011) found greater rates of depression among female caregivers, while this study found no gender effect. This disparity could be attributed to Kelly's study's small sample of males, as well as the higher probability of males underreporting psychiatric disorders.

Caregiver educational level in this study didn’t show any significant result to associate with their depression level and Taheri Otaghsara et al. (2014) also mentioned that no effect of caregiver education on incidence of depression but it was clear that higher educated caregivers have less interest for caregiving. Tharu (2018) also indicated that the caregivers who were educated were not interested for the role of caregiving and most of the caregivers from rural area which is in line with this study findings. According to this study there have no significant association between caregiver living place and depression. Depression is more common in people who had been caring for long periods of time and spend most of their time with the patient. Seçinti et al., (2017) mentioned that caregivers may feel as if they have no time to themselves due to time-consuming and stressful caregiving activities. As a result, they may become tired and depressed while providing care which is similar findings of this study. Long-term caregiving and long-term caregiving exhibited a significant association with caregiver depression in this study.

In fact, caregivers whose patients have lower SCIM scores, indicating higher dependency, have an increased risk of depression, and while the total incidence of depression was significant in this study, there were noticeably higher depressive episodes in caregivers of patients with lower independency, emphasizing the importance of developing screening programs to reduce depression in this population. Caregivers of individuals with SCI have a lower quality of life (Blanes et al., 2007) and experience greater psychological stress (Raj et al., 2006). This study found an interesting link between the level of injury experienced by the person with SCI and caregiver depression status, although an Iranian study found that caregivers with spinal cord injury patients did not generally suffer from depression (Taheri Otaghsara et al., 2014).

SCIM was used to assess the functional impairment of SCI patients in this study, and self-care ability was connected with caregiver depression. Patients with limited self-care abilities were nearly entirely reliant on caregivers. Significant findings were also found in the areas of respiration and sphincter management ability, as well as transferring and mobility ability, which was connected to caregiver depression. The SCIM is represented by these abilities, and it was used in this study to assess the functional impairment of SCI persons. When the SCIM score is lower, it indicates that there is more functional impairment, and the caregiver's depression is higher, as measured by the PHQ-9.

Depression is a severe health issue that causes social disintegration as well as serious life-threatening repercussions. In this context, some people with sensitive responsibilities, such as caring for spinal cord injured patients, are predisposed to developing depression. Another study found a relatively high frequency of depression among Colombian caregivers of patients with spinal cord injury, as measured by the PHQ-9 questionnaire. (Arango-Lasprilla et al., 2010). In this study, caregiver depression was measured by PHQ-9 and result showed that lower independence level of SCI patient’s caregiver have more depression than the others. According to the findings of a Colombian study, greater SCI impairments, as well as caregiver stress as a result of those impairments, were associated with higher caregiver depression. It was also suggested that the SCI impairments most affecting caregiver mental health are related to psychosocial impairments, rather than physical impairments (Trapp et al., 2015). According to the findings of this study, the majority of caregivers had moderate depression during their caring period.

The finding in this study relating injury severity experienced by the individual with SCI to caregiver depression state is of significant clinical interest. Several researchers have hypothesized that severe injuries may be connected with greater caregiver distress, which is consistent with the findings of this study. Greater injury severity, for example, may need more demanding tasks for caregivers, requiring caregivers to provide a higher level of support in activities of daily living and time spent assisting the person with SCI. As a result, the demands of these caregiver activities raise the chance of caregiver depression. There is some evidence to back up these findings. (Shewchuk et al., 1998).

The persons with SCI who live in Bangladesh require constant assistance in activities of daily living because of the limited infrastructure for independent functioning and shortage of social services in this country. Although caregiving to a person with SCI is burdensome on its own, such problems might impose even more trouble on persons with SCI and their caregivers, and this might contribute to caregivers’ feelings of depression as it has been documented in other developing countries (Trapp et al., 2015). The findings of this study have important implications for clinical care and rehabilitation for the caregivers of persons with SCI. Current results showed that caregiving time is a very important factor that needs to be alleviated when targeting depression in caregivers. By improving social support, quality of life, or coping with circumstances could help caregivers feel less depressed.

## 5.1 Limitations

There were a number of limitations and barriers in this research project which had affect the accuracy of the study, these are as follow:

The samples were collected only from the CRP at Savar and the sample size was small, so the result of the study could not be generalized to the whole population of caregivers in Bangladesh. A convenience sampling was used that was not reflecting the wider population under study.

This study has provided for the first time data on the depression among the SCI caregivers in Bangladesh. No research has been done before on this topic. So there was little evidence to support the result of this project in the context to Bangladesh.

During the data collection, it was almost impossible to get close to the patients and talk to the caregivers directly. Data collection became easier when the Covid-19 pandemic was moving towards greater control in Bangladesh. As it was the first survey of the researcher so might be there were some mistakes that overlooked by the supervisor and the honorable teacher.

# CHAPTER-VI CONCLUSION & RECOMMENDATION

## 6.1 Conclusion

Through the PHQ-9 questionnaire, caregivers of spinal cord-injured people with higher functional impairment reported moderate depression. Patient with SCI need long time treatment and rehabilitation so that caregivers were become depressed about their life after the certain time. There was a significant association between injury severity of SCI survivor and caregiver depression. In this study, duration and length of caregiving were also strongly significant associated with caregiver depression. Although caregiver depression have no significant association with caregiver age, living place, education. Functional impairment was measured through SCIM where self-care, respiration & sphincter management and mobility & transferring abilities were indicator for SCI patient. There was a strongly significant association with functional impairment of SCI patients and caregiver depression and this was main objective or finding of this study.

Depression is more common in caregivers of SCI than in the general population. Depression was prevalent among caregivers in this study, and it was especially prevalent among female caregivers. According to Bangladeshi socio - cultural norms, females must support their families while also caring for their patients. As a result, they are having additional difficulties. Due to the degree of the functional impairment of the SCI patient, about half of the caregivers in this study were moderately depressed. It is demonstrated that there is a problem with caregiving, which claims to undertake larger-scale investigations in Bangladesh.

These findings suggest that rehabilitation programs should be focused not just toward the requirements of the disabled individual, but also toward the needs of the caregivers.

## 6.2 Recommendations

The aim of the study was to associate between functional impairment of SCI and depression of the caregivers. Though the study had some limitations but investigator identified some further step that might be taken for the better accomplishment of further research. The main recommendations would be as follow:

- The random sampling technique rather than the convenient would be chosen in further in order to enabling the power of generalization the results.
- Depression levels can only be studied with female SCI patient caregivers.
- Investigator use 70 participants as the sample of this study, in future the sample size would be more.
- The ratio of complete and incomplete patients caregivers were not equal, in case of further the equality of the complete and incomplete participant should be maintained for the accuracy of the result.
- In this study, the investigator took the caregivers only from the only one selected hospital of Savar as a sample for the study. So for further study investigator strongly recommended to include the caregivers from all over the Bangladesh to ensure the generalize ability of this study.

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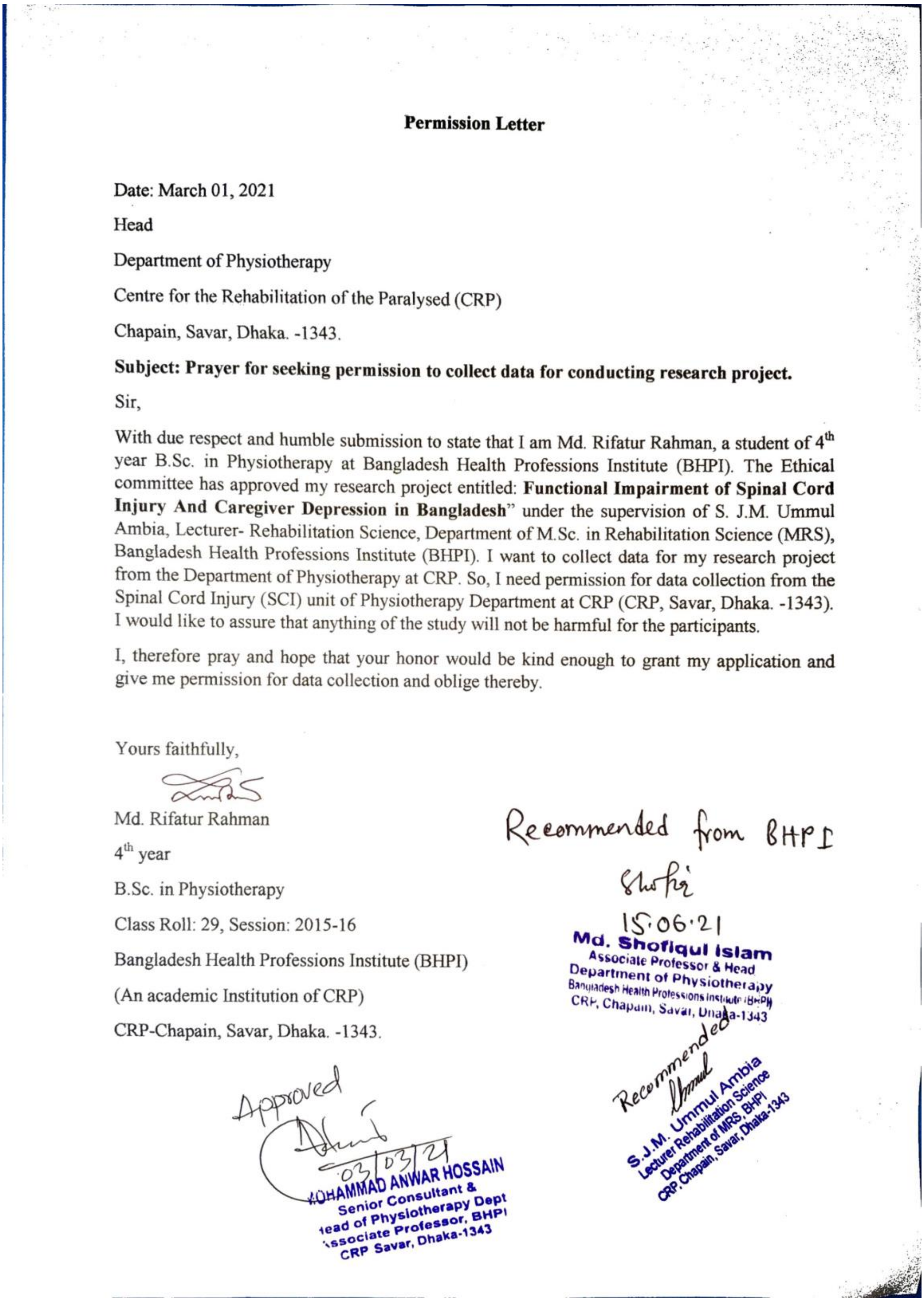
# ANNEXURE

## Permission letter



### Permission Letter

Date: March 01, 2021

Head

Department of Physiotherapy

Centre for the Rehabilitation of the Paralysed (CRP)

Chapain, Savar, Dhaka. -1343.

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

Sir,

With due respect and humble submission to state that I am Md. Rifatur Rahman, a student of 4th year B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). The Ethical committee has approved my research project entitled: **Functional Impairment of Spinal Cord Injury And Caregiver Depression in Bangladesh**" under the supervision of S. J.M. Ummul Ambia, Lecturer- Rehabilitation Science, Department of M.Sc. in Rehabilitation Science (MRS), Bangladesh Health Professions Institute (BHPI). I want to collect data for my research project from the Department of Physiotherapy at CRP. So, I need permission for data collection from the Spinal Cord Injury (SCI) unit of Physiotherapy Department at CRP (CRP, Savar, Dhaka. -1343). I would like to assure that anything of the study will not be harmful for the participants.

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

Yours faithfully,

Md. Rifatur Rahman
4th year
B.Sc. in Physiotherapy
Class Roll: 29, Session: 2015-16
Bangladesh Health Professions Institute (BHPI)
(An academic Institution of CRP)
CRP-Chapain, Savar, Dhaka. -1343.

Recommended from BHPI
Shofiq
15.06.21

Md. Shofiqul Islam
Associate Professor & Head
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Approved
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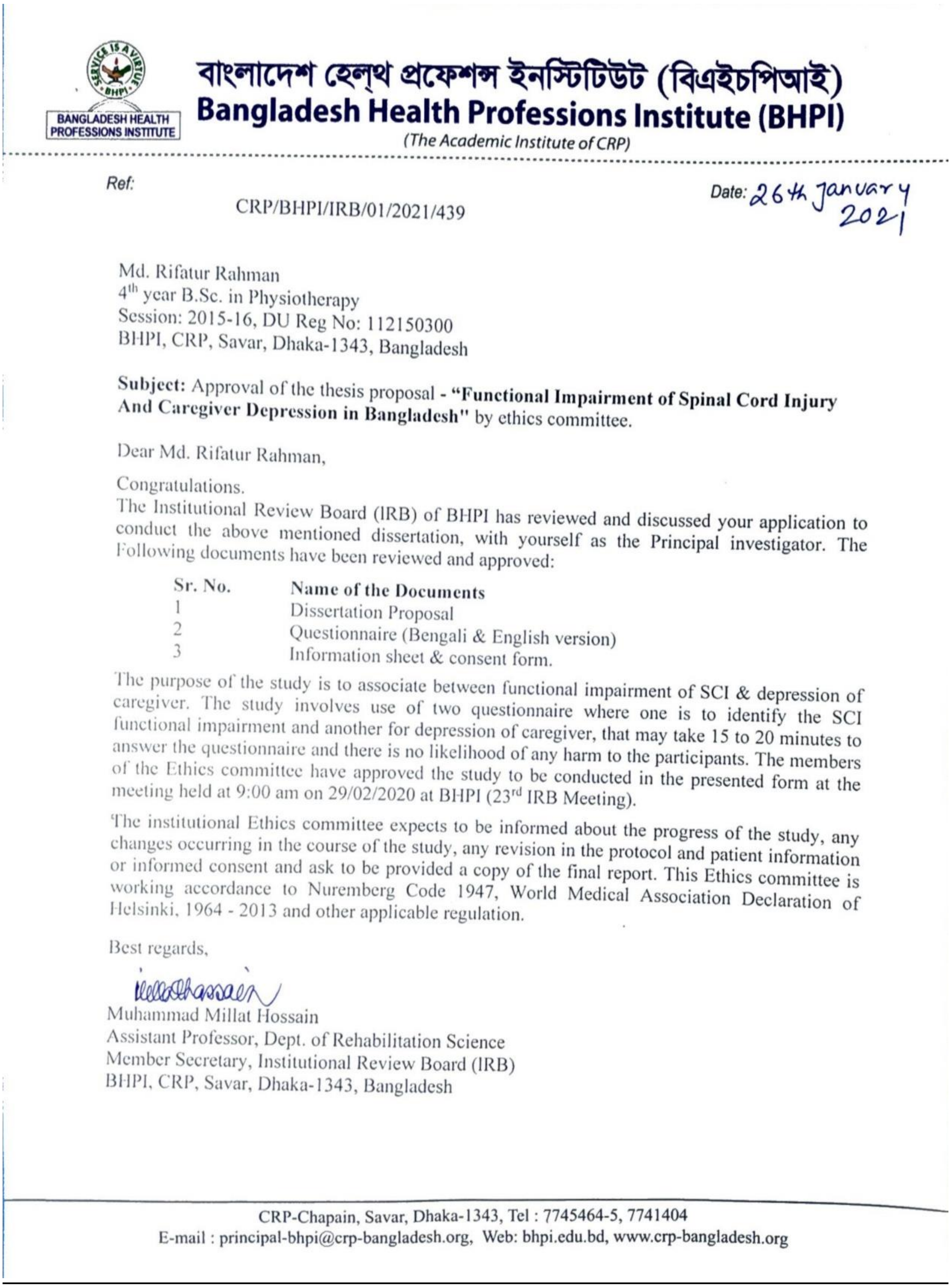
CRP, Chapain, Savar, Dhaka-1343

# IRB Permission letter



BANGLADESH HEALTH PROFESSIONS INSTITUTE

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

Ref: CRP/BHPI/IRB/01/2021/439

Date: 26th January 2021

Md. Rifatur Rahman
4th year B.Sc. in Physiotherapy
Session: 2015-16, DU Reg No: 112150300
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

**Subject:** Approval of the thesis proposal - **"Functional Impairment of Spinal Cord Injury And Caregiver Depression in Bangladesh"** by ethics committee.

Dear Md. Rifatur Rahman,

Congratulations.
The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned dissertation, with yourself as the Principal investigator. The Following documents have been reviewed and approved:

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

The purpose of the study is to associate between functional impairment of SCI & depression of caregiver. The study involves use of two questionnaire where one is to identify the SCI functional impairment and another for depression of caregiver, that may take 15 to 20 minutes to answer the questionnaire and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 9:00 am on 29/02/2020 at BHPI (23rd IRB 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

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E-mail : principal-bhpi@crp-bangladesh.org, Web: bhpi.edu.bd, www.crp-bangladesh.org

# **সম্মতিপত্র**

আসসালামু আলাইকুম,

আমি মোঃ রিফাতুর রহমান, ৪র্থ বর্ষ, ঢাকা বিশ্ববিদ্যালয়ের চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশন ইন্সটিটিউট (বিএইচপিআই) এর বিএসসি ইন ফিজিওথেরাপি বিভাগের একজন শিক্ষার্থী। অধ্যয়নের অংশ হিসেবে আমাকে একটি গবেষণা সম্পাদনা করতে হবে এবং এটা আমার প্রাতিষ্ঠানিক কাজের একটি অংশ। নিম্নোক্ত তথ্যাদি পাঠ করার পর অংশগ্রহণকারীদের গবেষণায় অংশগ্রহণের জন্য অনুরোধ করা হল।

আমার গবেষণার শিরোনাম **“বাংলাদেশে স্পাইনাল কর্ড ইনজুরির কার্যকারিতা হানি এবং পরিচর্যাকারীর বিষণ্ণতা”**। এই গবেষণার মাধ্যমে আমি স্পাইনাল কর্ড ইনজুরি রোগীদের কার্যকারিতা হানি এবং পরিচর্যাকারীর বিষণ্ণতা এর মধ্যে সংযোগ স্থাপন করবো। আমার গবেষণা প্রকল্প বাস্তবায়নের জন্য এসসিআই রোগী ও তার পরিচর্যাকারীর কাছ থেকে তথ্য সংগ্রহের প্রয়োজন। আমার গবেষণায় অংশগ্রহণে আপনার কোন বিপদ বা ক্ষতি হবে না। আপনি যেকোন সময় নিজেকে এ গবেষণা থেকে প্রত্যাহার করতে পারেন। এই গবেষণার প্রাপ্ত তথ্য সম্পূর্ণভাবে গোপনীয় থাকবে এবং অংশগ্রহণকারীর ব্যক্তিগত তথ্য অনুমতি ব্যতিরেকে অন্য কোথাও প্রকাশ করা হবে না।

শুরু করার পূর্বে আপনার কোন প্রশ্ন আছে কি?

আমি কি শুরু করতে পারি? ☐ হ্যাঁ ☐ না

অংশগ্রহণকারীর স্বাক্ষর এবং তারিখ

………………………………………………………………………………………

গবেষকের স্বাক্ষর এবং তারিখ

………………………………………………………………………………………

# Verbal Consent Form

Assalamualaikum,

I am Md. Rifatur Rahman, the 4th year B.Sc. (Hon's) in Physiotherapy student of Bangladesh Health Professions Institute (BHPI) under Medicine faculty of University of Dhaka. To obtain my Bachelor degree, I shall have to conduct a research and it is a part of my study. The participants are requested to participate in the study after reading the following.

My research title is "**Functional Impairment of Spinal Cord Injury and Caregiver Depression in Bangladesh".** Through this study I will associate between functional impairment of SCI & depression of caregiver. To implement my research project, I need to collect data from the persons with spinal cord injury & their caregiver. Therefore, you could be one of my valuable subjects for the study.

I am committed that the study will not pose any harm or risk to you. You have the absolute right to withdraw or discontinue at any time without any hesitation or risk. I will keep all the information confidential which I obtained from you and personal identification of the participant would not be published anywhere.

If you have any query about the study, you may contact with me and/or S. J.M. Ummul Ambia, Lecturer- Rehabilitation Science, Department of M.Sc. in Rehabilitation Science (MRS), Bangladesh Health Professions Institute (BHPI), Savar, Dhaka. Do you have any questions before I start?

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

Yes ……..   No………

Signature of the participant & Date…………………………….

Signature of the researcher & Date……………………………..

## প্রশ্নাবলী

**রোগীর তথ্যঃ**

- **নামঃ**

- **বয়সঃ**

- **লিঙ্গঃ** ১। পুরুষ ২। মহিলা

- **রোগীর আইডিঃ**

- **সাক্ষাৎকারের তারিখঃ** ______/______/______________(দিন/মাস/বছর)

- **আঘাতের প্রকারভেদঃ ১।** ট্রমাটিক
  **২।** নন-ট্রমাটিক

- **আঘাতের স্কেলেটাল লেভেলঃ**
  ১। সারভাইকাল [______]-[______]
  ২। থোরাসিক [______]-[______]
  ৩। লাম্বার [______]-[______]

- **এসিয়া স্কেল অনুযায়ী নিউরোলজিকাল লেভেলঃ**

  ১। কমপ্লিট এ ২। ইনকমপ্লিট বি
  ৩। ইনকমপ্লিট সি ৪। ইনকমপ্লিট ডি

**পরিচর্যাকারীর তথ্যঃ**

- **নামঃ**

- **বয়সঃ**

- **লিঙ্গঃ ১।** পুরুষ **২।** মহিলা

- **বসবাসের জায়গাঃ**
  ১।শহর
  ২।গ্রাম

- **বৈবাহিক অবস্থাঃ**
  ১। বিবাহিত
  ২। অবিবাহিত
  ৩। তালাকপ্রাপ্ত
  ৪। অন্যান্য

- **পেশাঃ**
  ১। গৃহিণী
  ২। চাকরিজীবী
  ৩। ব্যবসা
  ৪। ছাত্র/ছাত্রী
  ৫। অন্যান্য

- **শিক্ষাগত যোগ্যতাঃ**
  ১। কখনো স্কুলে যায় নি
  ২। প্রাইমারী শিক্ষা
  ৩। মাধ্যমিক শিক্ষা
  ৪। উচ্চমাধ্যমিক শিক্ষা
  ৫। স্নাতক/স্নাতকোত্তর
  ৬। অন্যান্য

- **রোগীর সাথে সম্পর্কঃ**
  ১। স্বামী/স্ত্রী
  ২। বাবা/মা
  ৩। ভাই/বোন
  ৪। অন্যান্য

- **মাসিক আয়ঃ (টাকা)**
  ১। ১০,০০০ থেকে কম
  ২। ১০,০০০-৩০,০০০
  ৩। ৩০,০০০-৫০,০০০
  ৪। ৫০,০০০ থেকে বেশী

- **দৈনিক পরিচর্যার মোট সময়ঃ _________ ঘন্টা**

- **পরিচর্যাকারী হিসেবে আছেনঃ_____ মাস**

# SCIM-SPINAL CORD INDEPENDENCE MEASURE

| **নিজের যত্ন** | **স্কোর** |
|---|---|
| **১। খাওয়া-দাওয়া** (কাটা, পাত্র খোলা, ঢালা, মুখ পর্যন্ত খাবার নেয়া, তরল পূর্ণ কাপ ধরতে পারা)<br>০. প্যারেন্টারাল, গ্যাস্ট্রোস্টোমি বা সম্পূর্ণরূপে মৌখিক খাওয়ানো প্রয়োজন<br>১. খাওয়া এবং / বা পানীয়, বা অভিযোজক ডিভাইস পরার জন্য আংশিক সহায়তা প্রয়োজন<br>২. স্বাধীনভাবে খায়; কেবল খাদ্য কেটে এবং / অথবা ঢালা এবং / অথবা পাত্রে খোলার জন্য অভিযোজিত ডিভাইস বা সহায়তা প্রয়োজন<br>৩. খাওয়া-দাওয়া স্বাধীনভাবে; সহায়তা বা অভিযোজক ডিভাইসের প্রয়োজন হয় না | |
| **২। গোসল করা** (সাবান লাগানো, ধোয়া, দেহ ও মাথা শুকানো, পানির ট্যাপ ব্যবহার করা) **এ-উপরের শরীর; বি- নিচের শরীর**<br>**এ।**<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. আংশিক সহায়তা প্রয়োজন<br>২. স্বাধীনভাবে ধোয়া; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংয়ের প্রয়োজন হয়<br>৩. স্বাধীনভাবে ধোয়া; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংয়ের প্রয়োজন হয় না (স্বাস্থ্যকর মানুষের জন্য প্রথাগত নয়) | |
| **বি।**<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. আংশিক সহায়তা প্রয়োজন<br>২. অভিযোজিত ডিভাইসগুলির সাথে বা নির্দিষ্ট সেটিংসে (যেমন, বার, চেয়ার) স্বাধীনভাবে ধুয়ে ফেলা হয়<br>৩. স্বাধীনভাবে ধোয়া; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংয়ের প্রয়োজন হয় না (স্বাস্থ্যকর মানুষের জন্য প্রথাগত নয়) | |
| **৩। ড্রেসিং** (কাপড়, জুতা, স্থায়ী অর্থোসিস- পরা এবং খুলে ফেলা). **এ- উপরের শরীর; বি- নিচের শরীর**<br>**এ।**<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. বোতাম, জিপার বা লেইস ছাড়া কাপড় পড়তে আংশিক সহায়তা প্রয়োজন<br>২. পোশাক পরতে স্বতন্ত্র; অভিযোজিত ডিভাইস এবং / অথবা নির্দিষ্ট সেটিংস প্রয়োজন<br>৩. পোশাক পড়তে স্বতন্ত্র; সহায়ক প্রয়োজন হয় না; কেবল বোতাম, জিপস বা লেইস ছাড়া কাপড় এর জন্য সহায়তা বা সহায়ক প্রয়োজন<br>৪. (যে কোনও কাপড়) স্বাধীনভাবে; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংসের প্রয়োজন হয় না | |

| | |
|---|---|
| **বি।**<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. বোতাম, জিপার বা লেইস ছাড়া কাপড়ের জন্য আংশিক সহায়তা প্রয়োজন<br>২. পোশাক পড়তে স্বতন্ত্র; অভিযোজিত ডিভাইস এবং / অথবা নির্দিষ্ট সেটিংস প্রয়োজন<br>৩. পোশাক পড়তে স্বতন্ত্র; সহায়ক প্রয়োজন হয় না; কেবল বোতাম, জিপস বা লেইস ছাড়া কাপড় এর জন্য সহায়তা বা সহায়ক প্রয়োজন<br>৪. (যে কোনও কাপড় পড়তে পারে) স্বাধীনভাবে; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংসের প্রয়োজন হয়না | |
| **৫. সাজ-গোজ করা** (হাত ও মুখ ধোয়া, দাঁত ব্রাশ করা, চুল আঁচড়ানো, শেভ করা, মেকআপ করা)<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. আংশিক সহায়তা প্রয়োজন<br>২. অভিযোজিত ডিভাইসগুলির সাথে স্বতন্ত্রভাবে সাজগোজ করে<br>৩. অভিযোজিত ডিভাইসগুলি ছাড়া স্বাধীনভাবে সাজগোজ করে | |
| **উপসমষ্টি (০-২০)** | |
| **রেস্পিরেশন এবং স্ফিংক্টার ব্যবস্থাপনা**<br>**৫। রেস্পিরেশন**<br>০. ট্রাকিয়াল টিউব অথবা স্থায়ী বা অস্থায়ী সাহায্যকারী ভেন্টিলেশন প্রয়োজন।<br>২. ট্রাকিয়াল টিউব দ্বারা স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে বা ট্রাকিয়াল টিউব ব্যবস্থাপনায় অনেক সাহায্য প্রয়োজন।<br>৪. ট্রাকিয়াল টিউব দ্বারা স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে বা ট্রাকিয়াল টিউব ব্যবস্থাপনায় অল্প সাহায্য প্রয়োজন।<br>৬. ট্রাকিয়াল টিউব দ্বারা স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে বা ট্রাকিয়াল টিউব ব্যবস্থাপনায় অনেক সাহায্য প্রয়োজন, (মাস্ক) বা আইপেপ।<br>৮. ট্রাকিয়াল টিউব ছাড়া স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে অল্প সাহায্য প্রয়োজন।<br>১০. স্বতন্ত্রভাবে শ্বাস নেয় কোন ডিভাইস বা সাহায্য ছাড়া। | |
| **৬। স্ফিংক্টার ব্যবস্থাপনা - ব্লাডার**<br>০. অভ্যন্তরীন ক্যাথেটার<br>৩. Residual urine volume (RUV) > 100cc; নিয়মিত ক্যাথেটার বা সাহায্য নিয়ে ক্যাথেটারাইজেশন করা লাগে না।<br>৬. RUV < 100cc অথবা মাঝে মাঝে স্ব-ক্যাথেটারাইজেশন; নিকাশী যন্ত্র প্রয়োগের জন্য সহায়তা প্রয়োজন<br>৯. মাঝে মাঝে স্ব-ক্যাথেটারাইজেশন; বাহ্যিক নিষ্কাশন যন্ত্র ব্যবহার করে; আবেদনের জন্য সহায়তার দরকার নেই<br>১১. মাঝে মাঝে স্ব-ক্যাথেটারাইজেশন; বাহ্যিক নিষ্কাশন যন্ত্র ব্যবহার করে না<br>১৩. RUV <100cc; শুধুমাত্র বাহ্যিক প্রস্রাব নিষ্কাশন প্রয়োজন; নিকাশীর জন্য কোনও সহায়তার প্রয়োজন নেই<br>১৫. RUV <100cc; শুধুমাত্র বাহ্যিক প্রস্রাব নিষ্কাশন প্রয়োজন; নিকাশীর জন্য কোনও সহায়তার প্রয়োজন নেই | |

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| **৬। স্ফিংক্টার ব্যবস্থাপনা -- বাওয়েল**<br>০. অনিয়মিত সময় বা খুব কম অনুপাত (৩ দিনের মধ্যে একবারেরও কম) অন্ত্রের গতিবিধি<br>৫. নিয়মিত সময়, তবে সহায়তার প্রয়োজন (যেমন, সাপোজিটরি প্রয়োগের জন্য); কখনো কখনো (এক মাসে দু'বারেরও কম)<br>৮. নিয়মিত অন্ত্রের গতিবিধি, সহায়তা ছাড়াই; কখনো কখনো (এক মাসে দু'বারেরও কম)<br>১০. নিয়মিত অন্ত্রের গতিবিধি, সহায়তা ছাড়াই | |
| **৮। টয়লেট ব্যবহার** (পেরিনিয়াল হাইজিন, কাপড় পড়তে/খুলতে ,ন্যাপকিন বা ডায়াপার ব্যবহার)<br>০. সম্পুর্ণ সহায়তা প্রয়োজন<br>১. আংশিক সহায়তা প্রয়োজন; নিজেকে পরিষ্কার করতে পারে না<br>২. আংশিক সহায়তা প্রয়োজন; স্বতন্ত্রভাবে নিজেকে পরিষ্কার করে<br>৪. স্বতন্ত্রভাবে টয়লেট ব্যবহার করে তবে অভিযোজিত ডিভাইস বা বিশেষ সেটিং প্রয়োজন (যেমন, বার)<br>৫. টয়লেট স্বাধীনভাবে ব্যবহার করে; অভিযোজিত ডিভাইস বা বিশেষ সেটিং প্রয়োজন হয় না | |
| **উপসমষ্টি (০-৪০)** | |
| **মোবিলিটি (রুম এবং টয়লেট)** | |
| **৯। বিছানায় এবং চাপজনিত ঘা মুক্ত করনে মোবিলিটি**<br>০. সমস্ত ক্রিয়াকলাপে সহায়তার প্রয়োজন: বিছানায় উপরের দেহ ঘুরিয়ে দেওয়া, বিছানায় নীচের দেহ ঘুরিয়ে দেওয়া, বিছানায় বসে, হুইলচেয়ারে পুশ-আপ করা, অভিযোজিত ডিভাইসগুলির সাথে বা ছাড়াই, তবে বৈদ্যুতিক সহায়তায় না<br>২. সহায়তা ছাড়াই একটি কার্যক্রম সম্পাদন করে<br>৪. সহায়তা ছাড়াই দুটি বা তিনটি কার্যক্রম সম্পাদন করে<br>৬. বিছানার সমস্ত মোবিলিটি এবং চাপজনিত ঘা মুক্তির কার্যক্রম স্বাধীনভাবে সম্পাদন করে | |
| **১০। ট্রান্সফারঃ বিছানা-হুইলচেয়ার** হুইলচেয়ার লক করা, ফুটরেস্ট সরানো এবং আর্ম রেস্টগুলি সামঞ্জস্য করা, স্থানান্তরিত করা, পা তোলা।<br>০. সম্পুর্ণ সহায়তা প্রয়োজন<br>১. আংশিক সহায়তা এবং / বা তদারকি, এবং / অথবা অভিযোজিত ডিভাইসগুলির (যেমন, স্লাইডিং বোর্ড) প্রয়োজন।<br>২. স্বতন্ত্র (বা হুইলচেয়ারের প্রয়োজন নেই) | |
| **১১। ট্রান্সফারঃ হুইলচেয়ার-টয়লেট-টাব** (যদি টয়লেট হুইলচেয়ার ব্যবহার করেঃ এতে স্থানান্তরিত হয় যদি নিয়মিত হুইলচেয়ার ব্যবহার করা হয়ঃ হুইলচেয়ার লক করা, ফুটরেস্ট সরানো,আর্মরেস্টস সরানো এবং সামঞ্জস্য করা, স্থানান্তর করা, পা তোলা)<br>০. সম্পুর্ণ সহায়তা প্রয়োজন<br>১. আংশিক সহায়তা এবং / বা তদারকি, এবং / অথবা অভিযোজিত ডিভাইসগুলির (যেমন, দখল - বার) প্রয়োজন<br>২. স্বতন্ত্র (বা হুইলচেয়ারের প্রয়োজন নেই) | |

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| **১২। মোবিলিট- ইন্ডোর**<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. ইলেক্ট্রিকাল হুইলচেয়ার প্রয়োজন অথবা ম্যানুয়াল হুইলচেয়ার পরিচালনা করতে আংশিক সহায়তা প্রয়োজন।<br>২. ম্যানুয়াল হুইলচেয়ারে স্বাধীনভাবে চালাতে পারে<br>৩. হাঁটার সময় তদারকির প্রয়োজন<br>(ডিভাইস সহ বা ছাড়া)<br>৪. ওয়াকিং ফ্রেম বা ক্রাচগুলি (সুইং) নিয়ে হাঁটা<br>৫. ক্রাচ বা দুটি বেত (কেইন) নিয়ে হাঁটেন (পরিবর্তিত হাটা)<br>৬. এক বেত (কেইন) নিয়ে হাঁটেন<br>৭. শুধুমাত্র পায়ের অর্থোসিসের প্রয়োজন<br>৮. ডিভাইস ছাড়া হাঁটা | |
| **১৩। মাঝারি দূরত্বে মোবিলিটি (১০-১০০ মিটার)**<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. ইলেক্ট্রিকাল হুইলচেয়ার প্রয়োজন অথবা ম্যানুয়াল হুইলচেয়ার পরিচালনা করতে আংশিক সহায়তা প্রয়োজন।<br>২. ম্যানুয়াল হুইলচেয়ারে স্বাধীনভাবে চালানো<br>৩. হাঁটার সময় তদারকির প্রয়োজন<br>(ডিভাইস সহ বা ছাড়া)<br>৪. ওয়াকিং ফ্রেম বা ক্রাচগুলি (সুইং) নিয়ে হাঁটা<br>৫. ক্রাচ বা দুটি বেত (কেইন) নিয়ে হাঁটেন (পরিবর্তিত হাটা)<br>৬. এক বেত (কেইন) নিয়ে হাঁটেন<br>৭. শুধুমাত্র পায়ের অর্থোসিসের প্রয়োজন<br>৮. ডিভাইস ছাড়া হাঁটা | |
| **১৪। মোবিলিটি আউটডোর (১০০ মিটারের বেশি)**<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. ইলেক্ট্রিকাল হুইলচেয়ার প্রয়োজন অথবা ম্যানুয়াল হুইলচেয়ার পরিচালনা আংশিক সহায়তা প্রয়োজন।<br>২. ম্যানুয়াল হুইলচেয়ারে স্বাধীনভাবে চালানো<br>৩. হাঁটার সময় তদারকির প্রয়োজন<br>(ডিভাইস সহ বা ছাড়া)<br>৪. ওয়াকিং ফ্রেম বা ক্রাচগুলি (সুইং) নিয়ে হাঁটা<br>৫. ক্রাচ বা দুটি বেত (কেইন) নিয়ে হাঁটেন (পরিবর্তিত হাটা)<br>৬. এক বেত (কেইন) নিয়ে হাঁটেন<br>৭. শুধুমাত্র পায়ের অর্থোসিসের প্রয়োজন<br>৮. ডিভাইস ছাড়া হাঁটা | |

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| **১৫। সিঁড়ি ব্যবস্থাপনা**<br>০. সিঁড়ি বেয়ে উঠতে বা নামতে অক্ষম<br>১. অন্য ব্যক্তির সাহায্য বা তদারকি সহ কমপক্ষে ৩ সিঁড়ি উঠা এবং নামা<br>২. হ্যান্ড রেইল এবং/অথবা ক্রাচ বা বেতের সাহায্যে কমপক্ষে ৩ সিঁড়ি উঠা এবং নামা<br>৩. কোনও সমর্থন বা তদারকি ছাড়াই কমপক্ষে ৩ সিঁড়ি উঠা এবং নামা | |
| **১৬। ট্রান্সফারঃ হুইলচেয়ার-গাড়ি** (গাড়ির কাছে পৌঁছানো, হুইলচেয়ার লক করা, আর্মরেস্ট ও ফুটরেস্ট সরানো, গাড়িতে স্থানান্তর করা, হুইলচেয়ার গাড়িতে নেয়া এবং বাইরে আনা)<br>০. সম্পূর্ন সহায়তা প্রয়োজন<br>১. আংশিক সহায়তা এবং / অথবা তদারকি এবং / অথবা অভিযোজিত ডিভাইসগুলির প্রয়োজন<br>২. স্বতন্ত্র স্থানান্তর; অভিযোজিত ডিভাইসগুলির প্রয়োজন নেই (বা হুইলচেয়ারের প্রয়জন নেই) | |
| **১৭। ট্রান্সফারঃ গ্রাউন্ড - হুইলচেয়ার**<br>০. সাহায্য প্রয়োজন<br>১. অভিযোজিত ডিভাইসগুলির সাথে বা ছাড়াই স্বতন্ত্র স্থানান্তর (বা হুইলচেয়ারের প্রয়োজন নেই) | |
| **উপসমষ্টি (০-৪০)** | |
| **মোট SCIM স্কোর (০-১০০)** | |

## Part-2: Depression was measured by The Patient Health Questionnaire (PHQ-9)

নয়টি লক্ষণের তালিকা:

**নাম ______________________ তারিখ _________**

| **গত ২ সপ্তাহের মধ্যে, আপনি নীচের যে কোনও সমস্যার দ্বারা কতবার বিরক্ত হয়েছেন?** | একদমই না | **বেশ কিছু দিন** | দিনের অর্ধেকেরও বেশি | **প্রায় প্রতিদিন** |
|---|---|---|---|---|
| **১. কাজ করতে খুব আগ্রহ বা আনন্দ** | ০ | ১ | ২ | ৩ |
| **২. হতাশ, হতাশা বা নিরাশা** | ০ | ১ | ২ | ৩ |
| **৩. পড়ে যাওয়া বা ঘুমিয়ে থাকতে সমস্যা, বা খুব বেশি ঘুমানো** | ০ | ১ | ২ | ৩ |
| **৪. ক্লান্ত বোধ করা বা অল্প শক্তি আছে** | ০ | ১ | ২ | ৩ |
| **৫. কম ক্ষুধা বা অতিরিক্ত খাওয়া** | ০ | ১ | ২ | ৩ |
| **৬. নিজের সম্পর্কে খারাপ লাগা - বা নিজেকে ব্যর্থ মনে করা অথবা নিজেকে বা আপনার পরিবারকে হতাশ করেছেন মনে হওয়া** | ০ | ১ | ২ | ৩ |
| **৭. সংবাদপত্র পড়া বা টেলিভিশন দেখার মতো বিষয়গুলিতে মনোনিবেশ করতে সমস্যা** | ০ | ১ | ২ | ৩ |
| **৮. এত আস্তে আস্তে চলা বা কথা বলা যাতে অন্য লোকেরা খেয়াল করতে পারে? বা বিপরীতে- এতটা অধৈর্য বা অস্থির যে আপনি স্বাভাবিকের চেয়ে অনেক বেশি এলোমেলোভাবে ঘুরছেন** | ০ | ১ | ২ | ৩ |
| **৯. আপনি মরে যাওয়াই ভালো বা কোনভাবে নিজেকে আঘাত করাই ভাল- এমন ধারণা** | ০ | ১ | ২ | ৩ |

**(অফিস কোডিংয়ের জন্যঃ মোট স্কোর ____ + ____ + ____ =____)**

## QUESTIONNAIRE

**Patient's information:**

- **Name :**
- **Age :**
- **Sex :**
- **Patient ID :**
- **Date of interview : ____/_____/__________** (dd/mm/yyyy)
- **Type of injury :** 1.Traumatic
  2. Non-Traumatic
- **Skeletal level of injury :**

1. Cervical [____]-[____] 2. Thoracic [____]-[____] 3.Lumber [____]-[____]

- **Initial Neurological level according to ASIA Scale :**

  1. Complete A 2.Incomplete B
  3. Incomplete C 4. Incomplete D

**Caregiver's Socio-demographic Information:**

- **Name:**
- **Age:**
- **Sex:** 1. Male 2. Female
- **Living Place:**
  1. Urban
  2. Rural
- **Marital status:**
  1. Married
  2. Unmarried
  3. Divorced
  4. Other
- **Occupation:**
  1. House wife
  2. Service Holder
  3. Business

4. Student
5. Others (specify)

- **Educational Level:**
  1. Never attended school
  2. Primary school
  3. Secondary school
  4. Higher secondary
  5. Bachelor or above
  6. Others (specify)

- **Relation with patient:**
  1. Husband/Wife
  2. Father/Mother
  3. Brother/Sister
  4. Others (specify)

- **Monthly income (taka):**
  1. Less than 10,000
  2. 10,000-30,000
  3. 30,000-50,000
  4. More then 50,000

- **Daily caregiving time: ______** hours

- **Length of time as a caregiver: _____** month

# SCIM-SPINAL CORD INDEPENDENCE MEASURE

| Self-Care | Score |
|---|---|

| | |
|---|---|
| **1.Feeding** (cutting, opening containers, pouring, bringing food to mouth, holding cup with fluid)<br><br>0. Needs parenteral, gastrostomy, or fully assisted oral feeding<br>1. Needs partial assistance for eating and/or drinking, or for wearing adaptive devices<br>2. Eats independently; needs adaptive devices or assistance only for cutting food and/or pouring and/or opening containers<br>3. Eats and drinks independently; does not require assistance or adaptive devices | |

| | |
|---|---|
| **2. Bathing** (soaping, washing, drying body and head, manipulating water tap).<br>A-upper body; B-lower body<br><br>A. 0. Requires total assistance<br>1. Requires partial assistance<br>2. Washes independently with adaptive devices or in a specific setting (e.g., bars, chair)<br>3. Washes independently; does not require adaptive devices or specific setting (not customary for healthy people) (adss)<br><br>B. 0. Requires total assistance<br>1. Requires partial assistance<br>2. Washes independently with adaptive devices or in a specific setting (adss)<br>3. Washes independently; does not require adaptive devices (adss) or specific setting | |

| | |
|---|---|
| **3. Dressing** (clothes, shoes, permanent orthoses: dressing, wearing, undressing).<br>A-upper body; B-lower body<br><br>A. 0. Requires total assistance<br>1. Requires partial assistance with clothes without buttons, zippers or laces (cwobzl)<br>2. Independent with cwobzl; requires adaptive devices and/or specific settings (adss)<br>3. Independent with cwobzl; does not require adss; needs assistance or adss only for bzl<br>4. Dresses (any cloth) independently; does not require adaptive devices or specific setting<br><br>B. 0. Requires total assistance | |

| | |
|---|---|
| 1. Requires partial assistance with clothes without buttons, zipps or laces (cwobzl)<br>2. Independent with cwobzl; requires adaptive devices and/or specific settings (adss)<br>3. Independent with cwobzl without adss; needs assistance or adss only for bzl<br>4. Dresses (any cloth) independently; does not require adaptive devices or specific setting | |

| | |
|---|---|
| **4. Grooming** (washing hands and face, brushing teeth, combing hair, shaving, applying makeup)<br>0. Requires total assistance<br>1. Requires partial assistance<br>2. Grooms independently with adaptive devices<br>3. Grooms independently without adaptive devices | |

| | |
|---|---|
| **SUBTOTAL(0-20)** | |

| | |
|---|---|
| **Respiration and Sphincter Management** | **Score** |

| | |
|---|---|
| **5. Respiration**<br>0. Requires tracheal tube (TT) and permanent or intermittent assisted ventilation (IAV)<br>2. Breathes independently with TT; requires oxygen, much assistance in coughing or TT management<br>4. Breathes independently with TT; requires little assistance in coughing or TT management<br>6. Breathes independently without TT; requires oxygen, much assistance in coughing, a mask (e.g., peep) or IAV (bipap)<br>8. Breathes independently without TT; requires little assistance or stimulation for coughing<br>10. Breathes independently without assistance or device | |

| | |
|---|---|
| **6. Sphincter Management – Bladder**<br>0. Indwelling catheter<br>3. Residual urine volume (RUV) > 100cc; no regular catheterization or assisted intermittent catheterization<br>6. RUV < 100cc or intermittent self-catheterization; needs assistance for applying drainage instrument<br>9. Intermittent self-catheterization; uses external drainage instrument; does not need assistance for applying<br>11. Intermittent self-catheterization; continent between catheterizations; does not use external drainage instrument | |

| | |
|---|---|
| 13. RUV <100cc; needs only external urine drainage; no assistance is required for drainage<br>15. RUV <100cc; continent; does not use external drainage instrument | |

| | |
|---|---|
| **7. Sphincter Management – Bowel**<br>0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements<br>5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less than twice a month)<br>8. Regular bowel movements, without assistance; rare accidents (less than twice a month)<br>10. Regular bowel movements, without assistance; no accidents | |

| | |
|---|---|
| **8. Use of Toilet** (perineal hygiene, adjustment of clothes before/after, use of napkins or diapers).<br>0. Requires total assistance<br>1. Requires partial assistance; does not clean self<br>2. Requires partial assistance; cleans self independently<br>4. Uses toilet independently in all tasks but needs adaptive devices or special setting (e.g., bars)<br>5. Uses toilet independently; does not require adaptive devices or special setting) | |

| | |
|---|---|
| **SUBTOTAL(0-40)** | |

| **Mobility (room and toilet)** | **Score** |
|---|---|

| | |
|---|---|
| **9. Mobility in Bed and Action to Prevent Pressure Sores**<br>0. Needs assistance in all activities: turning upper body in bed, turning lower body in bed, sitting up in bed, doing push-ups in wheelchair, with or without adaptive devices, but not with electric aids<br>2. Performs one of the activities without assistance<br>4. Performs two or three of the activities without assistance<br>6. Performs all the bed mobility and pressure release activities independently | |

| | |
|---|---|
| **10. Transfers: bed-wheelchair** (locking wheelchair, lifting footrests, removing and adjusting arm rests, transferring, lifting feet).<br>0. Requires total assistance<br>1. Needs partial assistance and/or supervision, and/or adaptive devices (e.g., sliding board)<br>2. Independent (or does not require wheelchair) | |

| | |
|---|---|
| **11. Transfers: wheelchair-toilet-tub** (if uses toilet wheelchair: transfers to and from; if uses regular wheelchair: locking wheelchair, lifting footrests, removing and adjusting armrests, transferring, lifting feet)<br>0. Requires total assistance<br>1. Needs partial assistance and/or supervision, and/or adaptive devices (e.g., grab-bars)<br>2. Independent (or does not require wheelchair) | |

| **Mobility (indoors and outdoors, on even surface)** | **Score** |
|---|---|
| **12. Mobility Indoors**<br>0. Requires total assistance<br>1. Needs electric wheelchair or partial assistance to operate manual wheelchair<br>2. Moves independently in manual wheelchair<br>3. Requires supervision while walking (with or without devices)<br>4. Walks with a walking frame or crutches (swing)<br>5. Walks with crutches or two canes (reciprocal walking)<br>6. Walks with one cane<br>7. Needs leg orthosis only<br>8. Walks without walking aids | |
| **13. Mobility for Moderate Distances (10-100 meters)**<br>0. Requires total assistance<br>1. Needs electric wheelchair or partial assistance to operate manual wheelchair<br>2. Moves independently in manual wheelchair<br>3. Requires supervision while walking (with or without devices)<br>4. Walks with a walking frame or crutches (swing)<br>5. Walks with crutches or two canes (reciprocal walking)<br>6. Walks with one cane<br>7. Needs leg orthosis only<br>8. Walks without walking aids | |
| **14. Mobility Outdoors (more than 100 meters)**<br>0. Requires total assistance<br>1. Needs electric wheelchair or partial assistance to operate manual wheelchair<br>2. Moves independently in manual wheelchair<br>3. Requires supervision while walking (with or without devices)<br>4. Walks with a walking frame or crutches (swing)<br>5. Walks with crutches or two canes (reciprocal waking)<br>6. Walks with one cane<br>7. Needs leg orthosis only<br>8. Walks without walking aids | |

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| **15. Stair Management**<br>0. Unable to ascend or descend stairs<br>1. Ascends and descends at least 3 steps with support or supervision of another person<br>2. Ascends and descends at least 3 steps with support of handrail and/or crutch or cane<br>3. Ascends and descends at least 3 steps without any support or supervision | |

| | |
|---|---|
| **16. Transfers: wheelchair-car** (approaching car, locking wheelchair, removing arm and footrests, transferring to and from car, bringing wheelchair into and out of car)<br>0. Requires total assistance<br>1. Needs partial assistance and/or supervision and/or adaptive devices<br>2. Transfers independent; does not require adaptive devices (or does not require wheelchair) | |

| | |
|---|---|
| **17. Transfers: ground-wheelchair**<br>0. Requires assistance<br>1. Transfers independent with or without adaptive devices (or does not require wheelchair) | |

| | |
|---|---|
| **SUBTOTAL(0-40)** | |
| **TOTAL SCIM SCORE (0-100)** | |

**Part-2: Caregiver Depression was measured by The Patient Health Questionnaire (PHQ-9)**

Nine-symptom Checklist:

| | | | | |
|---|---|---|---|---|
| **Name ________________________ Date __________** | | | | |
| **Over the last 2 weeks, how often have you been bothered by any of the following problems?** | Not at all | Several days | More than half the days | Nearly every day |
| **1. Little interest or pleasure in doing things** | 0 | 1 | 2 | 3 |
| **2. Feeling down, depressed, or hopeless** | 0 | 1 | 2 | 3 |
| **3. Trouble falling or staying asleep, or sleeping too much** | 0 | 1 | 2 | 3 |
| **4. Feeling tired or having little energy** | 0 | 1 | 2 | 3 |
| **5. Poor appetite or overeating** | 0 | 1 | 2 | 3 |
| **6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down** | 0 | 1 | 2 | 3 |
| **7. Trouble concentrating on things, such as reading the newspaper or watching television** | 0 | 1 | 2 | 3 |
| **8. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual** | 0 | 1 | 2 | 3 |
| **9. Thoughts that you would be better off dead or of hurting yourself in some way** | 0 | 1 | 2 | 3 |
| **(For office coding: Total Score ____ = ____ + ____ + ____)** | | | | |