FACTORS AFFECTING FOR DELAY ADMISSION IN REHABILITATION CENTER AFTER SPINAL CORD INJURY 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

FACTORS AFFECTING FOR DELAY ADMISSION IN REHABILITATION CENTER AFTER SPINAL CORD INJURY IN BANGLADESH

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DECLERATION

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

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Acronyms

ASIA	American Spinal Injury Association
ADLs	Activities of daily living
BHPI	Bangladesh Health Professions Institute
BMRC	Bangladesh Medical & Research Council
CRP	Centre for the Rehabilitation of the Paralysed
IRB	Institutional Review Board
RTA	Road traffic accident
SCI	Spinal Cord Injury
SCL	Spinal Cord Lesion
SPSS	Statistical Package of the Social Sciences
US	United States
WHO	World Health Organization

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Abstract

Background: Spinal cord injury may be defined as damage of the spinal cord resulting from trauma, disease or degeneration (WHO). This study was conducted to find out which problems are responsible for delay in come to rehabilitation center the context of Bangladesh. Objectives: The aim of this study was to identify the factor affecting in delay admission in rehabilitation center after spinal cord injury in Bangladesh. Methodology: The study design was cross sectional. The sample size was 60 and purposive sampling technique was used for sample selection who was admitted in Centre for the Rehabilitation of the Paralysed (CRP) in Bangladesh which is the largest spinal cord injury rehabilitation center in South Asia. Data was collected by a standard questionnaire and it was analyzed by SPSS software version 16.0. Results: Among 60 spinal cord injury patients, most of the patients were young. The age range are 12-55 years, mean age 31.56(±11.016) years and male 85% (n=51) are predominantly higher than female 15% (n=09). Majority of the participants were came from rural area 72% (n=43) and they were farmer 22% (n=13). Paraplegia was (60%), Tetraplegia was (40%). The result of the study indicated that the patients were come at CRP after long time from their injury onset and most common of delay was lake of awareness low socio economic condition and low educational level. In this study shows that most of the common risk factor for delay admission in this rehabilitation center were do not get information from doctors almost 42% (n=25), 60% (n=36) have various type of transport problem, all of participants 83% (n=50) had financial problem, 65% (n=39) could not come at rehabilitation center for long distance. Conclusion: The study may help to provide awareness among the people of Bangladesh. Most of the spinal cord injury patients come from rural area for this reason transport and distance are big risk factor for coming late or delay admission as a results they become more prone to develop complications are the major factor of mortality and morbidity. And also express the vulnerable cause, occupation which is responsible for the spinal cord injury. After injury a proper rehabilitation is so much important to continue their good quality of life. So SCI rehabilitation can be reduced through taking preventative measure.

CHAPTER I INTRODUCTION

1.1. Background

Spinal cord injury is one of the most common type of injury and generally a dissociate from type of disorder that be able to reason damage in physical, psychological, and social functioning(Session et al., 2016). According to Sharif-Alhoseini & Rahimi-Movaghar, (2014) in their recent research paper was shown that traumatic spinal cord injury (TSCI) can principal to variable degrees of motor, sensory, and/or autonomic deficits (Session et al., 2016). The disease and injury, which have an effect on the spinal cord and the neurological structures are damaged, are the important health problem in this subcontinent, so they carry high rates of morbidity and mortality (Agarwal et al., 2007). The purpose of this research is to find out which problems are responsible for delay in come to rehabilitation center the context of Bangladesh. center of rehabilitation for paralyzed (CRP) in Savar is the only center providing intensive rehabilitation process for SCI patients in Bangladesh with its sub branches among other districts, however of having the 300 beds occupancy with good rehabilitation team members, still there is lack of achieving the ideal rehabilitation process. Early rehabilitation in an organized multidisciplinary SCI care system has been shown to be beneficial, with lower mortality, decreased pressure sores, slightly greater chance of neurologic recovery, and shorter lengths of stay with lower hospital charges (Lim et al., 2007). Mainly out of this thesis we can know about the drawbacks or risk factors causing delay in rehabilitation and ultimately we can find out incidence of major risk factors causing delaying rehabilitation process.

Spinal cord injury may be defined as damage of the spinal cord resulting from trauma, disease or degeneration (WHO). Spinal cord injury is an injury to the spinal cord causing in a change either temporary or permanent in the cord's normal motor, sensory, or autonomic function. Spinal cord injury results in permanent or partial paralysis and loss of sensation to many individuals. After spinal cord injury people are confronted with discontinuity in almost all areas of life, leading to question on how to live a meaningful life again (Littooij et al., 2015).

Traumatic spinal cord injury (SCI) is a life threaten condition for individuals who develop motor, sensory, and autonomic deficits and for society as a result of the financial

problem(Furlan & Noonan, 2011). According to (Yılmaz & Kaptanoğlu, 2015) indicate that the prevalence of acute SCI has been conversant as 15 to 40 in a million in the world (Session *et al.*, 2016). Spinal cord injury (SCI) is a shocking condition; it often affects early and hale and hearty individuals all over the world. As many as 250 ,000 and 500, 000 people suffer a spinal cord injury each year, people with spinal cord injuries are 2 to 5 times more likely to die prematurely , with worse survival rates in low and middle income countries (WHO).

Spinal cord injury is considered as a devastating neurological deficit (Janssen, 1987) and life alternating event (Burns & connel, 2012). Annual incidence if SCI occurs in various countries average up to 15-40 cases per million (Sekhon et al., 2001). Spinal cord injury make a make a bad impact of equality of life results in long term disability, mortality and morbidity and make a burden of communities (Razzak et al., 2009). According to previous study reports, most patient with spinal cord injury were in around second and third decade (Rathore et al., 2006). Patient with SCI around 2/3rd between 30 years (Sekhon et al., 2001). In Bangladesh most common age group between 25-29 years in spinal cord injury patients and where 83% are male and 53% are illiterate (Islam et al., 2011).

Spinal cord injury happens all over the world with an yearly prevalence of 15 to 40 cases per million, with the causes of these injuries ranging from motor vehicle accidents and community violence to recreational activities and work place related injuries (Sewon et al., 2009).The incidence rate of SCI varies in developing and developed countries. Traffic accidents are leading cause of injury in developed countries and falls are leading cause in developing countries (Chin et al., 2010).There is also increased incidence of falls in elderly and have non- traumatic injury (Vanden Berg et al., 2010).

The majority of spinal cord injuries are due to preventable causes such as road traffic crashes, falls or violence (WHO). Any organized program to reduce the incidence of the tragic problem must focus on the reduction of motor vehicle crashes or the severity of injuries sustained to them (Kraus et al., 2009).

Patients who have been suffering from spinal cord injury often face life threatening complications so they need appropriate management and specialized rehabilitation. It requires prompt medical attention to avoid neurological compromise, morbidity and death (Furlan et al., 2008). The patients of SCI are going into the different hospital for the

treatment but they do not have enough facilities for their treatment. In Bangladesh there is only one non-government organization is Center for the Rehabilitation of the Paralyzed, which has conducting a rehabilitation program for the last 32 years through which the patients can improve their life style (Islam et al., 2011).

Comprehensive Inpatient rehabilitation programs are required for patients with spinal cord injury (SCI) immediately after injury. In Bangladesh, many patients with SCI are admitted to rehabilitation facilities only after a long interval has passed since injury and without effective treatment in an acute care setting. How this delay affects patient's need to be examined. Heinemann et al., (2011) have reported improvement of rehabilitation outcomes with a specialized rehabilitation program. However, it has been difficult to differentiate between the effects of rehabilitation and natural recovery of motor function. How early rehabilitation contributes to improving activities of daily living (ADLs) has not been clearly reported previously, though neurologic level has affected ADLs at discharge from inpatient rehabilitation. This multicenter study examined the status of SCI rehabilitation in Bangladesh, and sought to determine the natural course of SCI and the effect early intervention has on rehabilitation (Sumida *et al.,* 2001).Several study on spinal cord injury (SCI) recovery have been conducted to evaluate the role of medical, personal, and demographic variables in functional outcome. Age and degree of disability at admission have been identified as strong prognostic factors influencing rehabilitation programs and amount of recovery. Although the relation between age and outcomes (with increasing age being associated with worse outcomes) is very well known in SCI patients,1 only few data are reported about the effect of either precocious or delayed rehabilitation (Scivoletto et al., 2005). The developments in the management of spinal cord injury (SCI) have led to decrease in morbidity and mortality rates, thereby increasing the prevalence of patients with varying degrees of functional limitations (Agarwal et al., 2007).Other complication such as cardiovascular complication is growing concern for SCI patients (Myers et al., 2007). Other complications include pain, it is a common complication for SCI patients, and it is associated with reduction in global health and higher level of distress (Barrett et al., 2008).

The Spinal cord injury patients, the victims who are usually young and in their most productive stage of life multiple medical, social and vocational complications affect to them. Spinal cord injury causes burden and suffering not only the victim but also their

families, the health care system and the community (Wyndaele & Wyndaele, 2006). How early rehabilitation contributes to improving activities of daily living (ADLs) has not been clearly reported previously, though neurologic level has affected ADLs at discharge from inpatient rehabilitation. Acute spinal-cord injury has been extraordinarily resistant to effective treatment. The improved longevity of patients with spinal-cord injuries is almost certainly due to general advances in nursing and acute medical and rehabilitation care (Collins et al., 2007). Several studies on spinal cord injury (SCI) recovery have been conducted to evaluate the role of medical, personal, and demographic variables in functional outcome. Age and degree of disability at admission have been identified as strong prognostic factors influencing rehabilitation programs and amount of recovery. Although the relation between age and outcomes (with increasing age being associated with worse outcomes) is very well known in SCI patients, only few data are reported about the effect of either precocious or delayed rehabilitation.

1.3. Justification:

A multidisciplinary medical and rehabilitation facilities are requiring restoring their lives and expecting the opportunity for an independent and productive future for SCI patients (Crewe & Krause., 2009). Now a day Spinal cord Injury is most commonly occurring disabling condition in all developing and developed countries in the world and it will increase day by day due to lack of awareness. Injuries that are affecting the spinal cord and complicated by physical damage are an important health problem in Bangladesh as they carry a high rate of morbidity and mortality. Demography of spinal cord injury is important to know as Bangladesh is a developing country and trying to develop health care system. It is generate exact information considering detail about which causes, occupation, age, gender, diagnosis, residential area, educational level and economic level were responsible for that injury. It is also help to raise awareness among the population and will help full to get information about spinal cord injury. And indicate that the spinal cord injury patient who needs a specialized and comprehensive rehabilitation services to continue their activities of daily living in the community. A number of studies indicated that patients who undergo early surgical Decompression can have similar outcomes to patients who received a delayed decompressive operation. However, there is evidence to suggest that early surgical intervention is safe and feasible and that it can improve clinical and neurological outcomes and reduce health care costs (Julio et al., 2011).

In our country we are not conscious about spinal cord injury. Spinal cord injury can destroy of one's life and his whole family. The patient can survive with full struggle. Life is so much challenging to him or her. In some area people think that spinal cord injury is the curse by Allah. This devastating condition not only generates massive physical and sensitive cost to individuals but also is a significant economic problem to society at large. It is just an accident which destroys the whole life. So it is very important to aware about the incidence so that we can prevent the injury. So the study enhances the knowledge about SCI and its nature such as type, extent etc. There are no national spinal cord injury programs in developing countries like Bangladesh, Bhutan, India, and Pakistan etc; but after stabilization, the person with a spinal cord injury needs to go to a specialized rehabilitation center. Confirming an sufficient medical and rehabilitation response, according to supportive services and accessible environments can help decrease the disruption to people with spinal cord injury and their families (WHO).Any care in

rehabilitation process will improve the quality of their lives (Razzak, 2013). This study help to know why is the patient late to come to a Rehab center. It can be help to know the predisposing factor for delay in come to a rehab center. Identifying those factors can help in minimizing the delayed come in rehabilitation center and to whole rehabilitation process within required period of time.

1.4. Research questions

What are the factors affecting in delay admission in rehabilitation center after spinal cord injury in Bangladesh?

1.5. Aim of the study

The aim of the study is to find out the factors affecting in delay admission in rehabilitation center after spinal cord injury in Bangladesh.

1.6. Study Objectives

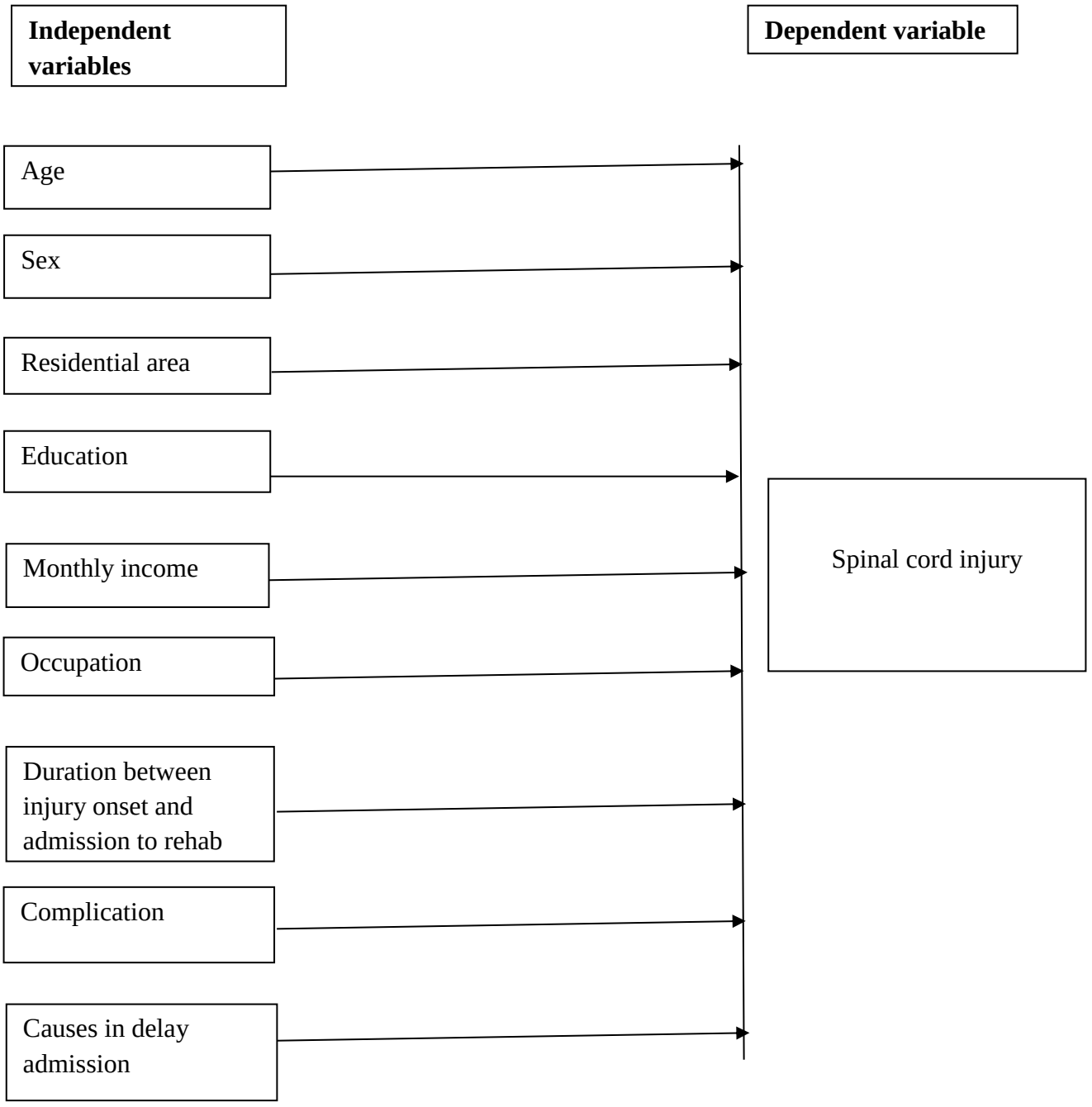
1.6.1. General Objectives

To identify the factors affecting for delay admission in rehabilitation center after spinal cord injury in Bangladesh.

1.6.2. Specific Objectives

- To identify the socio demographic characteristics of SCI patients.
- To estimate annual incidence of SCI patients whose rehabilitation process is delayed.
- To determine the major factor causing delayed rehabilitation.
- To find out time lapse from injury to admission at CRP.
- To find out the common complications of SCI patient during admission.

1.7. Conceptual framework:



1.8. Operational definition

Spinal cord injury: A spinal cord injury (SCI) is caused by damage or trauma to the spinal cord that results in a loss or impaired function causing reduced mobility or sensation. Spinal cord injury (SCI) is a devastating condition that requires intensive and specialized clinical rehabilitation.

Key muscle group- The 10 muscle group that are tested in the standardized spinal cord examination.

Motor level- The most caudal key muscle group that is graded3/5 or greater with the segment cephalic to the level graded normally.

Sensory level- It is the most caudal dermatome which have normal sensation for both pinprick and light touch on both sides.

Neurological level- The most caudal level at which both motor and sensory modalities is intact.

Tetraplegia - Paralysis of the arms, legs, and trunk of the body below the level of an associated injury to the spinal cord.

Paraplegia - Paraplegia describes complete or incomplete paralysis affecting the legs and possibly also the trunk, but not the arms.

Complete injury- Absence of sensory and motor function in the lowest sacral segment.

Incomplete injury- Preservation of motor or sensory function bellows the neurological level of injury that included the lowest sacral segment.

Zone of partial preservation- All segment bellow the neurological level that have preserve motor and sensory findings, used only in complete injury.

Sacral sparing- Presence of motor function (voluntary external anal sphincter contraction) or sensory function (light touch, pinprick, at s4/5 dermatome, or anal Sensation on rectal examination) in the lowest sacral segments.

ASIA impairment scale

- **Complete:** No motor or sensory function is preserved in the sacral segment.
- **Incomplete**: Sensory but no motor function is preserved bellow the neurological level and includes the sacral segment s4-s5

- **B- Incomplete:** Motor function is preserved bellow the neurological level, and more than half of key muscle bellows the neurological level have a muscle grade less than 3.
- **C- Incomplete:** Motor function is preserved bellow the neurological level, and at least half of key muscles bellow the neurological level has a muscle grade of 3 or more.
- **D- Normal:** Motor and sensory function is normal.

Trauma- Body damage produces by sudden physical injury.

Non traumatic injury- Body damage that produced by any diseases condition.

Potts disease- Tuberculosis of thoracic or lumber vertebral bodies. It is a common form of skeletal tuberculosis.

Spinal tumors- Tumors that locate in the spinal cord.

Transverse myelitis- Neurological disorder caused by inflammation of the spinal cord.

Rehabilitation program: Rehabilitation of people with disabilities is a process aimed at enabling them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels. Rehabilitation provides disabled people with the tools they need to attain independence and self-determination (WH0).

CHAPTER II LITERATURE REVIEW

Spinal cord injury (SCI) is defined as an insult to the spinal cord resulting in a change, either temporary or permanent, in its normal motor, sensory or autonomic function (Dawodu, 2007).

"A Spinal cord Injury is defined as damage or trauma to the spinal cord that in turn results in a loss or impaired function resulting in reduced mobility or feeling" (Quadriplegic and Paraplegic Spinal Cord Injury, 2009).

(Ekman, 2008) described that common dysfunction of the spinal segments occurs as a result of trauma to the spinal cord. Spinal cord injuries usually occur after a sudden traumatic injury to the spine. This injury or damage results in fractures, dislocations of vertebrae, intervertebral discs, which in turn break the spinal cord partially or completely. Axons are cut off or irreparably damaged and the neural cell membranes are broken. Blood vessels can rupture and cause severe bleeding in the central gray matter, which may spread to other areas of the spinal cord in the next few hours.

Severe traumatic SCI, although not common, is a serious condition with life changing implication for the individual and his family. It often result in profound and long term disability with major effects on the injured person's functional, medical, financial, and psychological well-being (Pickett et al., 2006). The life altering experience is spinal cord injury that affects not only the patients with SCI but also their spouse, parents, siblings and children and the significant cause of mortality and morbidity (Ali & Tawfiq, 2013). Spinal cord injury results in a high level of individual disability, which is reflected in radical change in lifestyle (Kawanishi & Gregoul, 2013). In developing country like Bangladesh, life expectancy of spinal cord injury patients was much lower than developed country (Razzak et al., 2011).

The spinal cord is the part of Central nervous system, which extends caudally and is protected by the bony structures of the verbal column. It is covered by the three membranes of the CNS such as Dura mater, arachnoids mater and innermost pia mater. In most mammals it occupies only the upper two thirds of the vertebral canal as the growth of the bones composing the vertebral column is proportionally more rapid than that of the spinal

cord. According to the rostrocaudal location the spinal cord can be divided into four parts: cervical, thoracic, limber, sacral, two of these are marked by an upper or cervical) and lower or lumber (Nogradi & vrobova, 2010). Damage to the spinal cord can occur if the blood supply is cut off or if it is bruised by a bone fragment, or if it is crushed or severed (Eng & Millar 2008).

Spinal cord injury is an enormous devastating condition often affecting young and male healthy individuals and which result negatively at all the parameters of their life including physical, emotional, financial, and social cost, which can result in paralysis or paresis of the affected areas of the body and the extent of their injury determined by how high or low on the spine the damage occurs, leading finally to tetraplegia or paraplegia, with an estimated annual incidence of 11000 cases of spinal cord injury are added every year 60-70% of them are illiterate, poor villagers (Singh et al., 2010).

There is some cord syndrome associated with spinal cord injury, they are anterior cord Syndrome, conus medullaris syndrome, brown sequard syndrome, cauda equine syndrome and central cord syndrome. Anterior cord syndrome is associated with a lesion causing variable loss of motor function and sensitivity to pain and temperature, Proprioception is preserved (Dawodu, 2008).

Cause of spinal cord injury varies from country to country. According to spinal cord injury statistics (2003) annual incidence of spinal cord injury (SCI), not including those who die at the scene of the accident, is approximately 40 cases per million populations in the US or approximately 12,000 new cases each year. Here the cause of SCI is RTA 36.8%, falls 41.7%, sharp trauma 2.7%, sports 11.6%, collision/lifting 4.2%, nonspecific trauma 3.3%. In Australia transport related injuries (52%) and falls (29%) accounted for over three-quarters of the 271 cases of traumatic SCI. Cases also occurred during sport and working for income, including travel to and from work. Falling was the most common type of event leading to traumatic SCI at older ages (Spinal cord injury, Australia, 2006).

In united states the number of people in the which are alive in 2009 who have SCI has been estimated to be approximately 262,000 persons, with a range of 231,000 to 311,000 persons where vehicular 41.3%, falls 27.3%, violence 15%, sports 7.9%, other/unknown cause 8.5% (Spinal Cord Injury, 2010). In India the most common cause of injury was fall from height including roof, trees, and electricity pole (44.5%) followed by motor vehicle

accidents (34.7%). Falls were more prominent in second and third decades. Roadside accidents were common in third and fourth decade (Singh et al., 2003).

In Canada there are currently 85,556 persons living with spinal cord injury in Canada. Of this total, 51 Percent (43,974 people) were the result of traumatic, and 49 percent from non-traumatic causes. 4,259 new cases per year of SCI in Canada today. Of this total, an estimated 42 percent (1,785 cases) are the result of traumatic spinal cord injury and 58 percent are from non-traumatic causes (Farry & Hansen, 2009). In Iran according to Chabok et al., (2009) the most common cases of spinal injuries are motor vehicle accidents (52%) and fall (43%) the remainder was caused by falling heavy object on spine (2.4%) and other mechanism (2.4%).

In Finland the mean annual incidence for entire population was 13.8/1000 000, person for men 23.8/1000 000 and for women4.6/1000 000. The external cause of injury was fall 41.2%, traffic in 39.5%, and violence in 2.7% and other in 10% (Ahoniemi et al., 2008). In china, average incidence rate was 23.7/1000 000 in year from 2004 to 2008. Leading cause of injury was fall (56.9%) which include high and low fall. Next common cause was motor vehicle accident (34.1%). Other cause include 6.3% of being struck by an object, 1.4% of assault 0.8% of work accident and 02% was sports
related injury (Ning et al., 2011).

In Ireland most prominent cause of spinal cord injury was motor vehicle collision (50%). Fall (37%) was the second most causes of injury. 9% was injured during sports or recreational activity (Connor & Murray, 2006). According to Divanoglou & Levi, (2009) in Greece, leading cause of spinal cord injury was transportation accident (51%), fall were 37%, iatrogenic 4%, assault 2%, sports related injury include diving in (4%) and other in (2%). Divanoglou & Levi, (2009) shows in Sweden the leading cause o injury was fall occurred in (47%). Transportation accident occurred in (23%), sports injury including diving (17%), iatrogenic in (4%), assault in (4%) and other cause in 3%.

Important non-traumatic etiology of spinal cord lesion is spinal tumor, pot's spine, transverse myelitis, ischemic myelopathy (Gupta et al., 2009). In Bangladesh a epidemiological study was conducted by Hoque et al., (1994) and it revealed most

important cause was fall and road traffic accident and most common non-traumatic cause was pots diseases, spinal tumor and transverse myelitis.

The prevalence of SCI at 650–900 per million American epidemiological data approximately showed that (Genis et al., 2005). Expected data showed that the rates of adolescents with disabilities range from 108 per 100,000 in Myanmar to 6,726 per 100,000 in Canada (Groce, 1999).

In Australia a study showed that most devastating medical conditions are Spinal cord injury (SCI) or damage. In all facets of human functioning and existence it causes life changing consequences. The incidence of Traumatic SCI a recent review reported that worldwide varied between 10-4 and 83 per million per year. About 15–17 cases per million per year over the past decade the age-adjusted incidence rate of TSCI in adults aged 15 years has remained at and older surviving to reach hospital. In currently 11.9 cases per million adults per year is the incidence in Victoria in Australia (New & Sundararajan, 2008).

The acute phase ranges from 10 to 25/million inhabitants per year which data is recently published in Europe on the incidence of SCI in survivors. Showing consistent rates between 22 and 25/100 000 inhabitants, in the Nordic countries, two register-based studies have been published (Dahlberg et al., 2005). The retrospective study of Japan showed that the annual incidence of spinal column injuries ranges from 19-88/100,000. 15-50 per million per year is the incidence of spinal cord injury. 480-813 per million is the prevalence of SCI. In Pakistan exact incidence of these injuries in this region is not known though there are few reports on demographics of spinal injuries (Qureshi et al., 2010).

A Pakistani study suggested that, in developed country male and female ratio almost 4:1 whereas in the developing country it was 13:5:1 over common in men than women (Rathore et al., 2006). Traumatic spinal cord injury is4 times more common in men than women (Nair et al., 2005).

Patients who have been suffering from spinal cord injury often face life threatening complications so they need appropriate management and specialized rehabilitation. The patients of SCI are going into the different hospital for the treatment but they do not have enough facilities for their treatment. In Bangladesh there is only one non-government organization is Center for the Rehabilitation of the Paralyzed, which has conducting a

rehabilitation program for the last 32 years through which the patients can improve their life style (Islam et al., 2011).

Spinal cord injury is a demoralizing event on a person and family level, as well as a tremendous financial burden to the society as because of its attendant morbidity, expense and prolonged treatment is required. Near about 40% of patients with spinal cord injury are complete SCI, 40% with incomplete injury and about 20% with either no cord or root lesions, In Bangladesh the overall age group for SCI is ranged from 10-70 years. The majority of the patients age from 10-40 years, with 19% between 10-20 years, 42% between 20-30 years, 20% between 30-40 years, 15% between 40-50 years and 4% between 50-60 years. The spinal cord injury lesions are considered to be either traumatic or non-traumatic. In case of traumatic injury, there were three main causes in our country. Resulted from the fall from height are 43%, 20% are associated with falling while carrying a heavy load on the head which one is a common practice in Bangladesh, 18% are resulted of a road traffic accident and 6% from a diverse group in which include assault, stab injury, sports injury and bull attack. In the "Non traumatic spinal cord lesion" group the main cause are pot's diseases with a tumor, transverse myelitis, prolapsed inter-vertebral disc and gullian barre syndrome (Rahman, 2008).

Injury and disease affecting the spinal cord and complicated by neurological damage are an important health problem in Bangladesh as they carry high rates of morbidity and mortality, However life expectancy of patients with SCI continues to increase and the median survival time of patients sustaining an SCI between the age of 25 and 34 years has been predicted to be 38 years post injury, with 43% surviving for at least 40 Years (Wyndaele & Wyndaele, 2006). Spinal cord injury (SCI) occurs suddenly, primarily to young people, and result in different degrees of impairment (Kreuter et al., 2008). Nearly every aspect of a person's life physical health, work, personal relationships, and recreation may be affected following SCI (Thomas & Maggi, 2016).

Inactivity may have negative effects on physical fitness, social participation and quality of life; it may increase the risk of developing secondary health problems, such as cardiovascular disease, obesity and no insulin independent diabetes mellitus, person with a spinal cord injury (SCI) might be at risk for such secondary condition as pressure ulcers, urinary tract infection, autonomic dysreflexia, spasticity, joint contractures, depression, de conditioning and weight gain, syringomyelia, poor cardio respiratory function, chronic pain

and bowel bladder problems and in some cases the secondary disability may be more limiting than the primary disability (Warburton et al.,2006).

Complication is the leading cause of mortality and complication hampers the process of active rehabilitation. A recent study report that, occurrence of complication was high both during and after rehabilitation (Hisama et al., 2007). Complication was common among tetraplegic and paraplegic. But urinary tract incontinence is more common in paraplegic patients than tetraplegic patients (Nair et al., 2005). Almost 74.7% of patients with spinal cord injury commit pain, spasticity, contractures and heterotrophic ossification (Nair et al., 2005). In the developed country, DVT and pulmonary embolism shows higher rate, whereas pressure ulcer and urinary tract infection are the most common among the developing country (Rathor, 2010). Decubitus ulcers and urinary tract infection are common in America (Donovan et al., 1984). In an Indian study reports, 90.62% patients reports at least one complication and among them average 50% patients suffer with urinary tract infections(Gupta et al., 2009) and other study highlights on the prevalence of the complications, in these report confirm that 70% patients suffer with neurogenic bladder dysfunction, 60% report spasticity, 45% with pain, 25% with pressure ulcer, 20% with heterotrophic ossification, 10% urinary tract infection, 10% for autonomic dysreflexia, 10% edema, 10% report disability (Vijayakumar & Resodent, 2004). In Bangladesh 62% report urinary tract infection and 38% for pressure sore (Hoque et al., 2007). According to the study of Anthony, most of the patients get pain after spinal cord injury (Chiodo et al., 2007). Pain is a subjective sensation (Nair et al., 2005). Approximately 45% patients suffer with pain according to a study of New Delhi (Vijayakumar & Singh, 2004). Almost 94% patients report pain within the 1st year after injury and tingling sensation are most common (Mckineky et al., 2002) and it is almost 47% (Barrett et al., 2003). Pain among the spinal cord injury patients can classify into musculoskeletal pain and neuropathic pain. Musculoskeletal pain described as aching and throbbing type and neuropathic pain consider as sharp, shooting and burning sensation (Schust et al., 2009). According to a study on pain, average 25% pain are musculoskeletal origin, 15% referred pain and 5% report central cord pain (Vijayakumar & Singh, 2004). About 64-80% patients report pain and among them 38% characterized the pain as severe pain. Among 75% almost 27% patients feels pain in upper extremities may involve shoulder (75%), wrists (53%), hands (43%) and 35% in elbows (Chido et al., 2007). Patients with pain in SCI have psychological distress

than much more who have no pain (Barrett et al., 2003). In a study of Netherland found that, if the degree of pain decrease, the degree of spasticity increased (Haisma et al., 2007).

Complication causes loss of therapy time, interferes with the rehabilitation and causes more disability (Nair et al., 2005). The cost of initial hospital average $ 95203 and life time expenses is around $ 500000 to 2 million for high tetraplegic patients (Sekhon & Fehlings, 2001).

There is possible correlation with time lapse between injury and admission, ultimately with any other type of incidence such as awareness, complication, financial support education etc. Early admission is more helpful to prevent any complications (Atio, 2003). But the study suggest that since 1992, the number of days from to admission to specialized center has steadily decreased , as a result increase chance of developing secondary complication (Chiodo et al., 2007). A study of Bangladesh highlights 96.4% reached at physician within 24 hours but there were no appropriate treatment for them only 30.4% reached territory care within 24 hours. In this study point out that people with spinal cord injury at center for the rehabilitation of the paralyzed (CRP) were the low monthly income people- almost 48.3% were or day laborer and 55.4% had only less than 5000 taka monthly income (Razzak., 2013). A study in Pakistan reports, almost 39.7% patients were suffered with pressure sore during admission in rehabilitation center and 86% patient's reports regular or occasional urinary incontinence (Burns & Connel, 2012). Complications of spinal cord injury patients markedly increase the cost of management and length of hospital stay. Delay admission increase the length of hospital stay and reduction of complications during early acute phase is most helpful to reduce length of stay (Edmonds et al., 2003).

Actually, the information about spinal cord injury in developing country are not well established (Rathore, 2010). But in developed countries there is well furnished report in every field and these information helps to overcome the growing problems. We all know that the prevention is better than cure. When there is arise any type of complication of spinal cord injury patients, the patient's faces lots of problems those always try to decline the patient condition. Early detection prevents the chance of decline and helps to make awareness among the population and will be helpful to prevent all types' complications due to complication of spinal cord injury.

The rehabilitation of people with SCI reduces the time spending in hospital, increasing consumer control over the rehabilitation environment and enhancing community re-integration (Kendall et al., 2003). Rehabilitation is based on a model of collaborative interdisciplinary care, operating within a holistic framework to develop rehabilitation plans in collaboration with the patient and their family. Early rehabilitation is important to prevent joint contractures and the loss of muscle strength, conversation of bone density and to ensure normal functioning of the respiratory and digestive system (Nas et al., 2015). SCI demands difficult psychological adjustment and in addition it place great strain on family roles and relationships (Norths, 2000).

Rehabilitation program must emphasize patient and family education covering self-care and possible SCI complication (Lugo et al., 2007). Early rehabilitation is an important factor in securing a good outcome (Vander et al., 2001). It contributes to good physical activities of daily living for motor function (Sumida et al., 2001). It seems to be relevant prognostic factor of functional outcome and intervention should begin as soon as possible because delay may affect functional recovery (Scivoletto et al., 2005).

There is need for patient focused goal planning rehabilitation programs which are tailored to the individuals need and must involve a comprehensive multidisciplinary team (Byrnes et al., 2012). Through understanding of the epidemiology of the SCI in developing countries, appropriate preventive strategies and recourses allocation may decrease the incidence and improve the care of these injuries (Rahimi et al., 2013).

Therefore rehabilitation of persons with SCI is essential, to return them to their previous level of function or as close to it as possible. Rehabilitation, according to the World Health Organization, (1989) “aims not only at training disabled and handicapped persons to adapt to their environment, but also at intervening in their immediate environment and society as a whole in order to facilitate their social integration”.

In (2012) Chhabra, shows in his study, 93.4% neglected spinal cord injury patient’s rehabilitation had not been initiated early and result in significant poorer functional outcome. Mainly lake of or inadequate awareness causes higher incidence of complications, result in longer hospitalization, increase cost of hospitalization and severely affected the functional outcome. In his study, represent 10.4% patient admitted after 3

week of injury. Evidence of Chhabra focus interval between injury and correct diagnosis actually more than 3 weeks (Chhabra & Arora, 2012). Higher risk of developing complications among the delay admitted patients (2-60 days of post injury) the admitted patients at SCI centers (Sekhon & Fehlings, 2001). Lake of awareness among 52.5% patients and other and lower economics status, inaccessibility of definitive hospital (16.4%) act as predisposing factors to increase incidence of complications (Chhabra & Arora, 2012).

CHAPTER III METHODOLOGY

3.1. Study design

A cross sectional study design was used to conduct the study to accomplishing the study objectives. This design involves identifying group of people and then collecting the information that requires when they use the particular service. All the measurements on each person were made at one point in time. The data were collected all at the same time or within a short time frame. A cross-sectional design provides a snapshot of the variables included in the study, at one particular point in time (Fraenkel, 2005). The data were collected from the community through a standard questionnaire.

The purpose of the study was to find out, what risks factors are responsible for delay in rehabilitation. Case control design was administered to determine number of annual incidence of the SCI people whose rehabilitation process was delayed. Through case control study, the investigator was able to identify and estimate the magnitude of association between an exposure and an outcome.

3.2. Study population

Patients admitted in SCI department in center of rehabilitation for the paralyzed (CRP), Bangladesh between the year (2017-2018). The population was set into one group, those who have delay in admission in a rehabilitation center more than one month often spinal cord injury. The target population was the patient with Spinal Cord Injury who was admitted in CRP spinal cord injury unit, Savar, Dhaka. The target population was about 60.

3.3. Study site

Patients those were registered during the rehabilitation program were taken as samples. It was done in the center for the Rehabilitation of the Paralyzed (CRP), Savar in Bangladesh which is the largest spinal cord injury rehabilitation center for the patient with spinal cord injury. At first the standard questionnaire was developed and then collected data from SCI registered unit.

3.4. Sample size

The equation of sample size calculation are given below-

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

Here,

Z= 1.96

p=0.36 (Here, p= Prevalence= 0.5)

q= 1-0.5

= 1-0.5

= 0.5

d= 0.05

3.5. Inclusion Criteria:

- SCI patients those who admitted this rehabilitation after one month from their injury.
- Patient with spinal cord lesion who were admitted in CRP.
- Traumatic and non-traumatic spinal cord lesion patient.
- People who agree willingly participate in the study as maintaining ethical rules.
- From April 2018 t0 September 2018 which patients admitted in CRP.
- Both male and female are included.

3.6. Exclusion Criteria:

- Age duration under 10 years over 60 years.
- Medically unstable patient.
- Patient with cognitive problem as they won't cooperate with researcher.
- Undiagnosed patient.
- Patient who are disagree to give information.

3.7. Sampling technique

Purposive sampling technique was chosen to collect required data. The reason of choosing purposive sampling was to include required number of subject based on developed inclusion and exclusion criteria. Purposive sampling, also known as judgmental**,** selective or subjective sampling, is a type of non-probability sampling technique. Non-probability sampling focuses on sampling techniques where the units **t**hat are investigated are based on the judgment of the researcher.

The investigator had chosen purposive sampling as method, as it has the ability to gather large amounts of information by using a range of different techniques. This variety, in turn, gave investigator better cross-section of information. Purposive sampling is useful to a researcher because they can use the variety of methods available to build and increase their research data.

3.8. Data collection tools

Data was collected by using Pen, Pencil, Papers, Diary, pen drive, files, questionnaire and computer. A good structured questionnaire was developed to assess the complications of SCI in both case and control group. The questionnaire was made in line to achieve the objectives of the study. The questionnaire consisted three parts, part I included socio demographic variables such as age, gender, marital status, employment status, education status, past medical history, personal history, nutritional status, date of injury, date of admission, cause of injury, type of injury, level of injury, first aid, type of surgery, complications of SCI such as pressure sore, urinary tract infection, urinary incontinence, bowel control, orthostatic hypotension, respiratory complications, muscle tone, delay in hospitalization, delay in rehabilitation and other related problem. Data was collected through face to face interview with participants and from the hospital record. A retrospective approach was done to obtain the required information. From the hospital record investigator collected information from those who have exceeded the injury time, admission time total and rehabilitation time, with that investigator found out the risk factor for delay in admission in a rehabilitation center.

3.10. Data analysis

After obtaining required information, entire data was inserted in SPSS (Statistical package of social science) software version 16. SPSS can take data from almost any type of file and use them to generate tabulated reports, charts, and descriptive statistics and conduct complex statistical analyses. SPSS is a flexible statistical analysis and management solution for generating interested result. Descriptive statistics was used to attain research objectives. Association between different variables was also determined through SPSS.

Frequency table and percentage distribution were calculated for demographic data. Pie charts and bar charts were analyzed based on frequencies and percentage. For demographic such as to find age range, data were re -coded.

The mean, minimum and maximum age of the participants were calculated in percentage distribution and shown through pie charts and bar charts. Frequency calculations were done to know who were exposed to delay in rehabilitation. Same as above mentioned ways it was done for rest of the socio demographic variables. Cross tabulations were done in order to know the exposure and association. Odd ratio was calculated through SPSS as well as manually to estimate the risk factor. Through odd ratio, investigator was able to find the risk factor of after SCI in comparison to delay in admission a rehabilitation center. Through data analysis, investigator was able to conclude which risk factor directly caused delay in admission a rehabilitation center and which are the contributing risk factors.

3.11. Ethical consideration

The research proposal was submitted to the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) and approval was taken from the board. The whole process of this research project was done by following the Bangladesh Medical Research Council (BMRC) guidelines and World Health Organization (WHO) Research guidelines. After obtaining necessary ethical approval, written permission letter was written to the Head of the program for data collection. After getting permission from the Head of the program, a formal permission from SCI department was also obtained to check patient file and collect the data. As research was retrospective, no informed

consent form was given however confidentiality of the samples was maintained and data were kept and returned safely.

CHAPTER IV RESULT

In this study cross sectional study design are used to conduct dissertation and all the data was analyzed by SPSS v.16 software. These result was based on different types of variables such as Scio demographic variables, injury related variables and delay admission related variables. Here descriptive data was collected and presented by pie chart and tables by using Microsoft excel office 2010.

4.1. Demographic information of the participants:

4.1.1. Age

In this study 60 participants with spinal cord injury were enrolled at various time points followed by at least 3 months during rehabilitation protocol from SCI unit of CRP. The age ranges 12-55. Among the 60 participants the mean age 31.56 years. Standard deviation was 13.8.

Table-1: Age of participants.

Title Number	Number
Mean age	31.56
Std. Deviation	11.016

4.1.2. Male and Female ratio:

Among the participants females were nearly 15% (n=9) whereas male were 85% (n=51). So this result shows that male were more vulnerable than female.

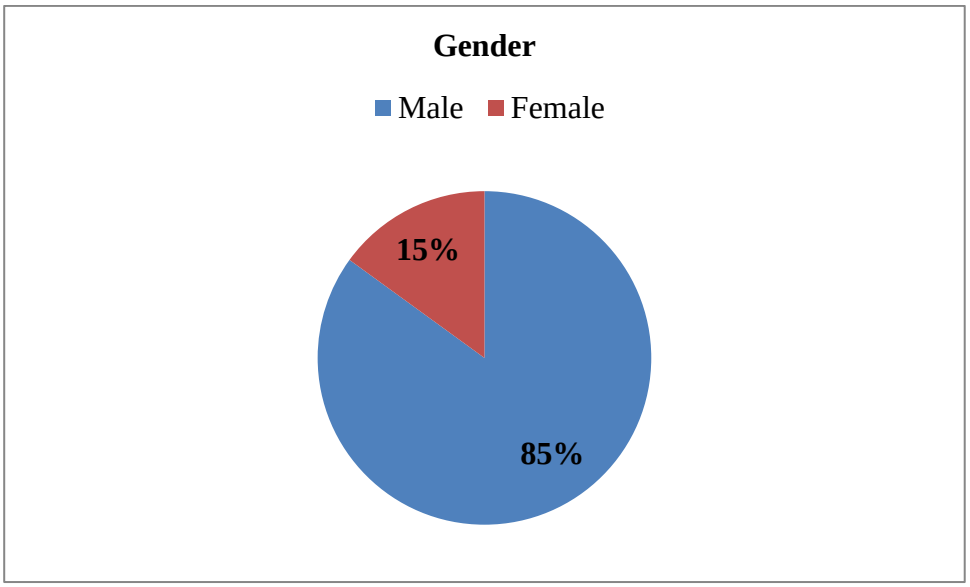


Figure-1: Male and Female ratio of SCI patients.

4.1.3. Residential area:

In this study, the people, who lived in rural, were more affected than the people who lived in urban. Among these approximately 672% (n=43) were in rural and 28% (n=17) were in urban.

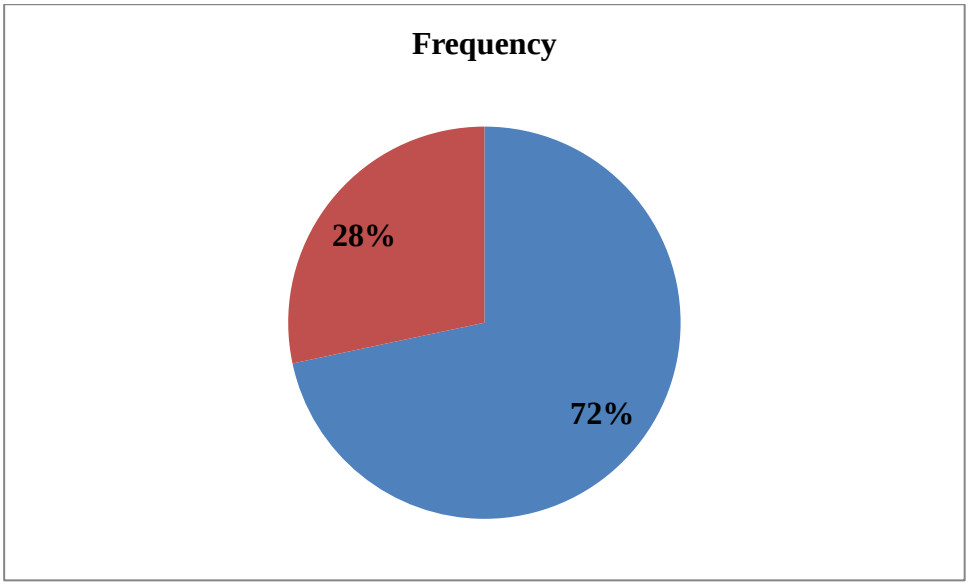


Figure-2: Residential area of the participants.

4.1.4. Educational status:

The bar chart shows that, among 60 (100%) participants in this study about 22% (n=13) were completed their PSC, 20% (n=12) were completed their JSC, 15% (n=9) participants were completed their SSC, 10% (n=06) were completed their HSC, They were completed their graduation level about 10% (n=06), 2% (n=01) were completed their post-graduation level and the illiterate level of participants were 22% (n=13).

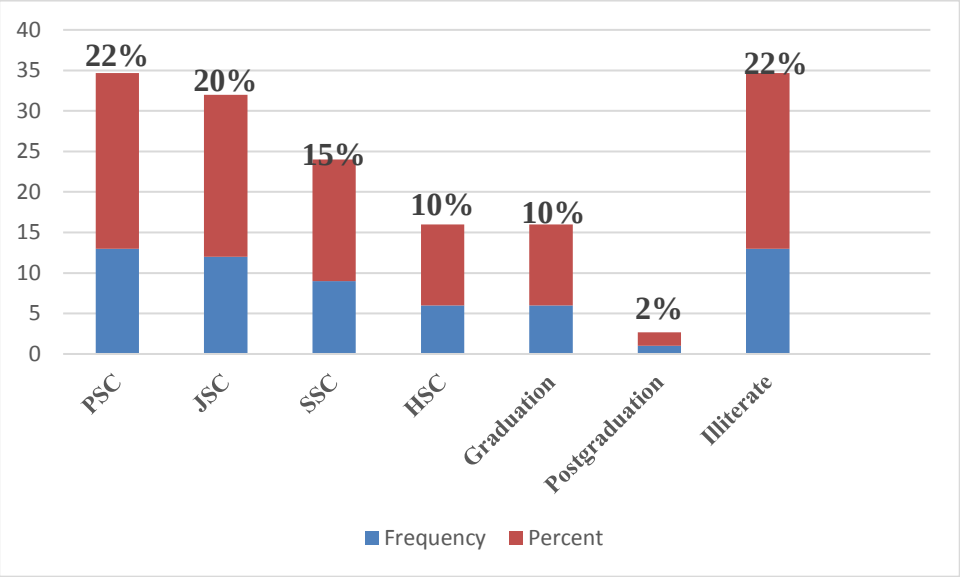


Figure-3: Educational level of participants.

4.1.5. Occupation:

About 60 participants were involved as sample in this study. Among them almost 22% (n=13) were farmer, 5% (n=3) were housewife, 12% (n=7) were shopkeeper, 25% (n=15) were student, 18% (n=11) were in job, 10% (n=6) were in business, other 8% (n=5).

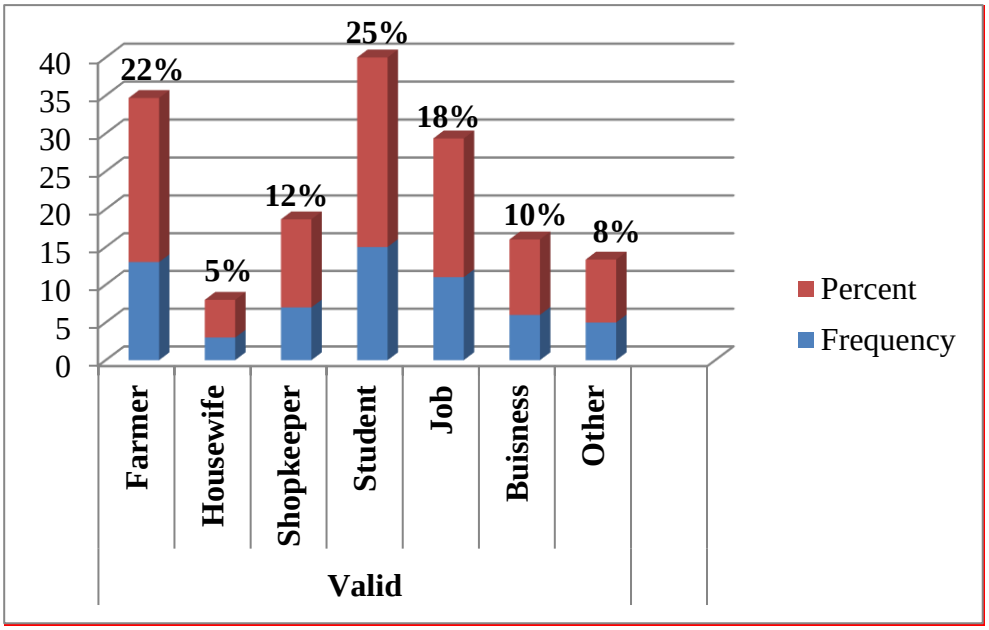


Figure-4: Occupations of the spinal cord injury patients.

4.1.6. Monthly income:

Most of the participant's monthly income within 5000 taka almost 37% (n=22), 5000-10000 among 35% (n=21), income within 20000-30000 taka minimum 25% (n=15) and > 30000 almost 4% (n=1, n=1).

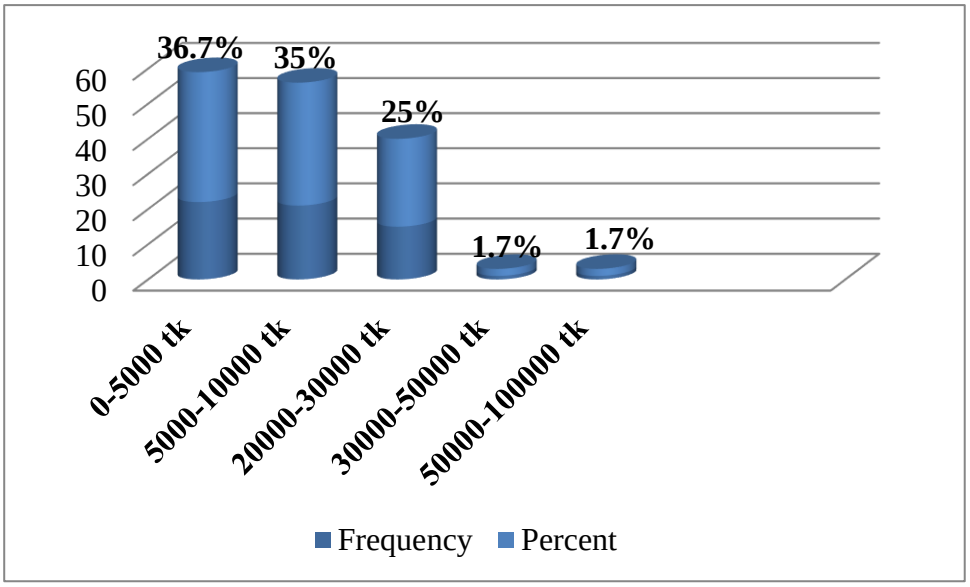


Figure-5: Monthly income among the participants

4.2. Participant's injury related information:

The major cause of spinal cord injury in the study was traumatic including road accident about 43% (n=26), fall from height 38% (n=23), violence 2% (n=1) and diving 2% (1) and non-traumatic other about 15% (n=9) and the neurological level were largely involved thoracic about 47% (n=28), cervical 35% (n=21), lumber 18% (n=11). Among the participant about 60% (n=36) were paraplegia and 40% (n=24) were tetraplegia.

Table-2: Injury related information about the participants.

Injury related information	Percentage (%) (n)
Cause of injury:	
Road accident	43.3(26)
Fall from height	38.3(23)
Violence	1.7(1)
Diving	1.7(1)
Other	15.0(9)

Table-3: Injury related information about the participants.

Injury related information	Percentage (%) (n)
Neurological level:	1.7(1)
Cervical 2	1.7(1)
Cervical 3	13.3(8)
Cervical 4	3.3(2)
Cervical 5	10.0(6)
Cervical 6	3.3(2)
Cervical 7	1.7(1)
Thoracic 1	1.7(1)
Thoracic 4	3.3(2)
Thoracic 5	1.7(1)
Thoracic 7	5.0(3)
Thoracic 10	11.7(7)
Thoracic 11	21.7(13)
Thoracic 12	8.3(5)
Thoracic 1	8.3(5)
Lumber 2	1.7(1)
Lumber 3	1.7(1)
Lumber 5	

4.2.1. Causes of injury:

The bar chart shows that most of the injuries caused by road accident almost 43% (n=26) followed by fall from height were 38% (n=23), then violence almost 2% (n=1), diving also 2% (n=26) and other causes were 15% (n=9).

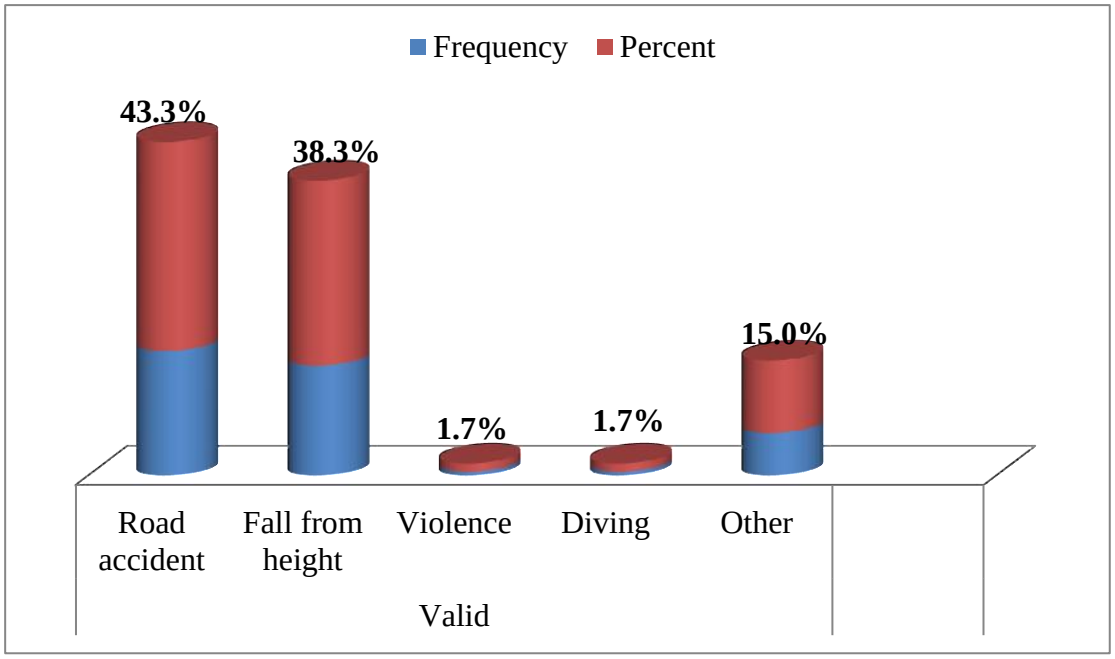


Figure-6: Causes of injury among SCI patients.

4.2.2. Types of paralysis:

Among the participant almost 60% (n= 36) were paraplegia and 40% (n=40) were tetraplegia.

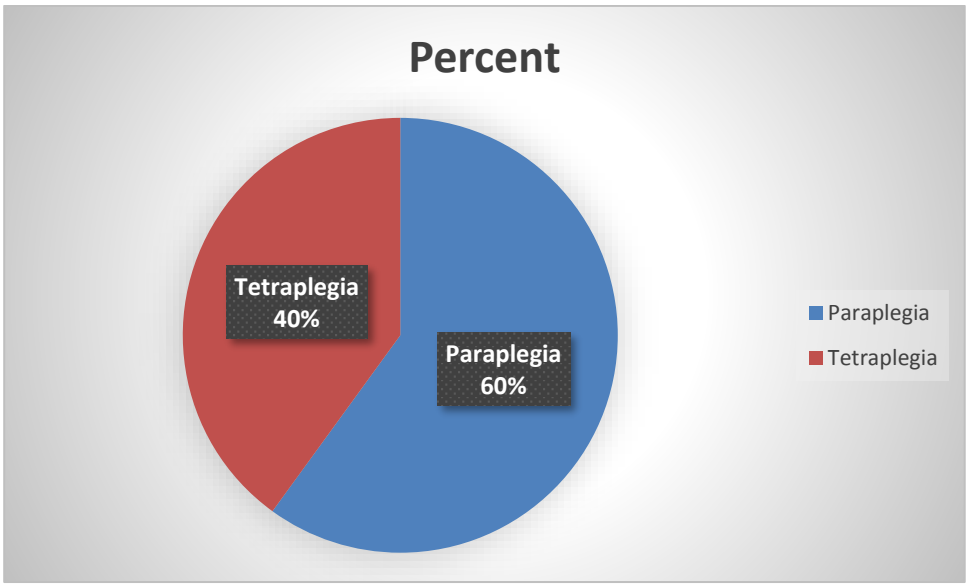


Figure-8: Types of paralysis among SCI patients.

4.2.3. Admission history of SCI patients:

Most of the patients were admitted in Govt. hospital almost 72% (n=43), private hospital 27% (n=16) and rehabilitation center 2% (n=1).

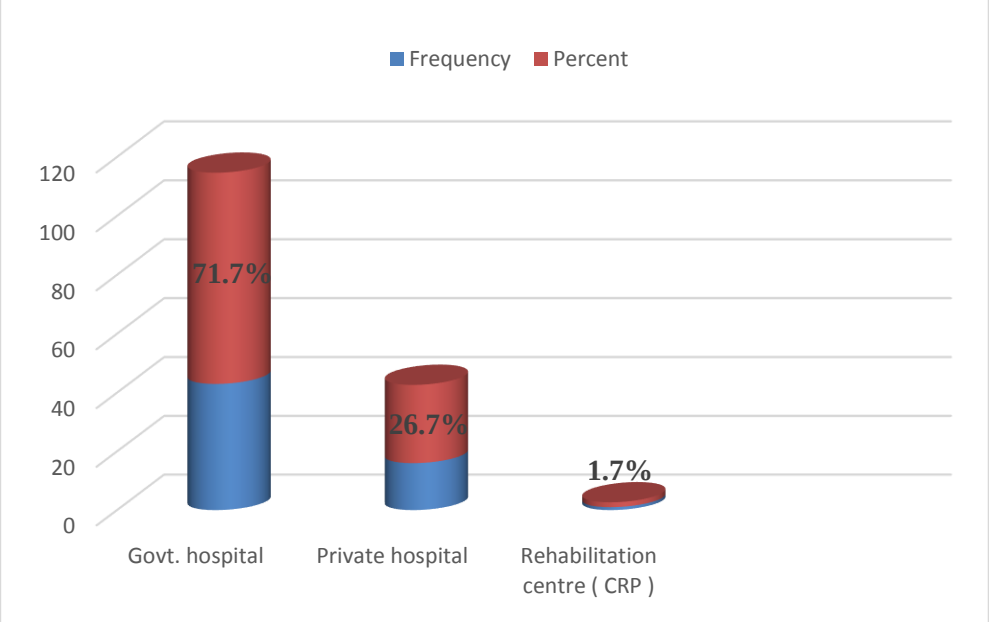


Figure-7: Admission history of SCI patients

4.2.4. Investigation:

Almost 67% Participant's investigated MRI (n=40), 33% X-Ray (n=20)

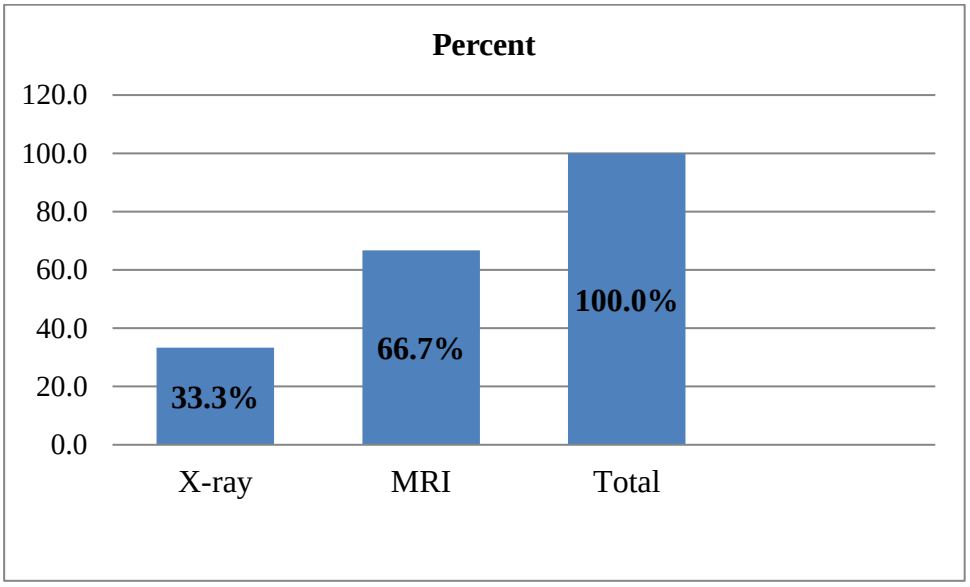


Figure-8: Investigation information about the participants

4.2.5. Get information about CRP at first after injury:

Among the participants almost 28% (n=17) known about CRP by neighbor, 15% (n=9) by relatives, 5% (n=03) by self and most of the participants known about CRP by doctor 53% (n=31).

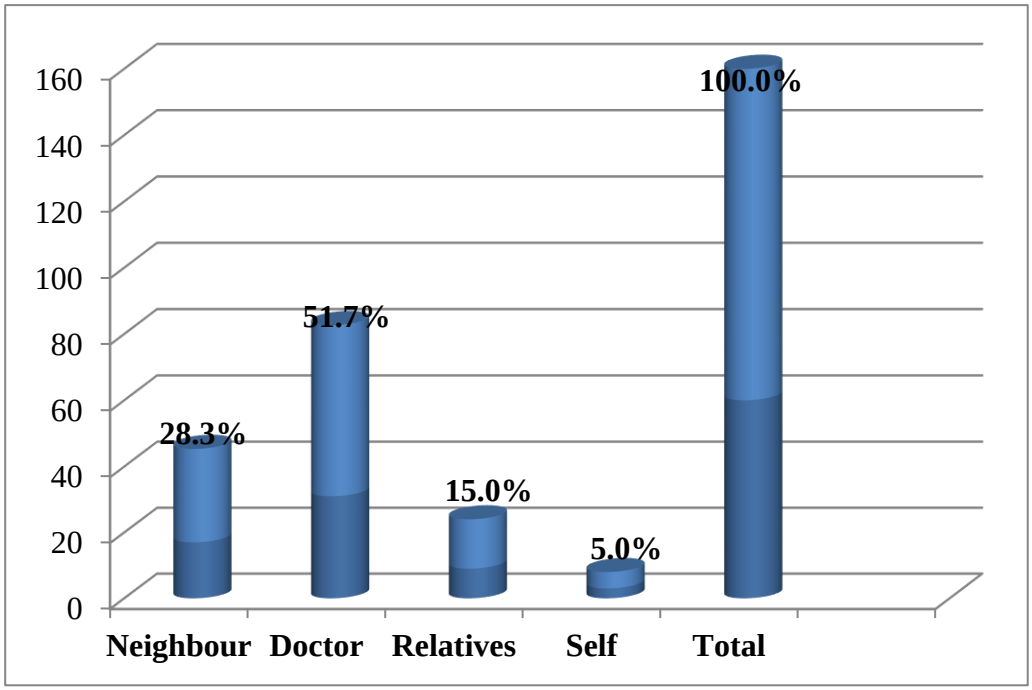


Figure-09: Get information about CRP at first after injury

4.2.6. Know anything about rehabilitation in that time after injury:

88% participants did not know about rehabilitation after injury and 12% were known.

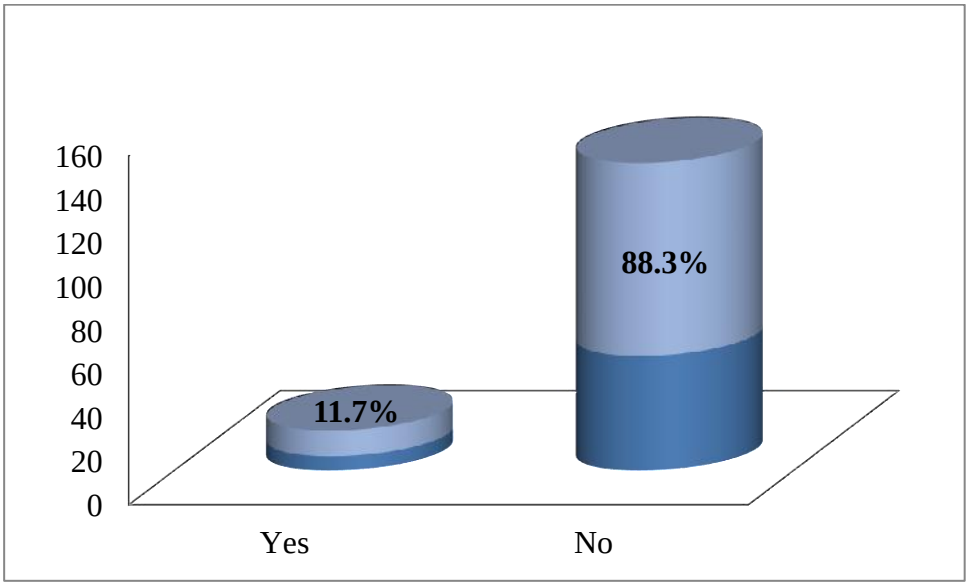


Figure-10: Know anything about rehabilitation in that time after injury

4.2.7. Time between injury onset and admission to rehabilitation center:

Among the participants about 38% (n=23) patients were admitted within 0-1 month after injury, 53% (n=32) admitted within 1-3 months after injury, 3% (n=2) admitted within 3-6 months after injury, almost 2% (n=1) admitted within 6-12 months after injury, 3% (n=2) admitted within 1-2 years.

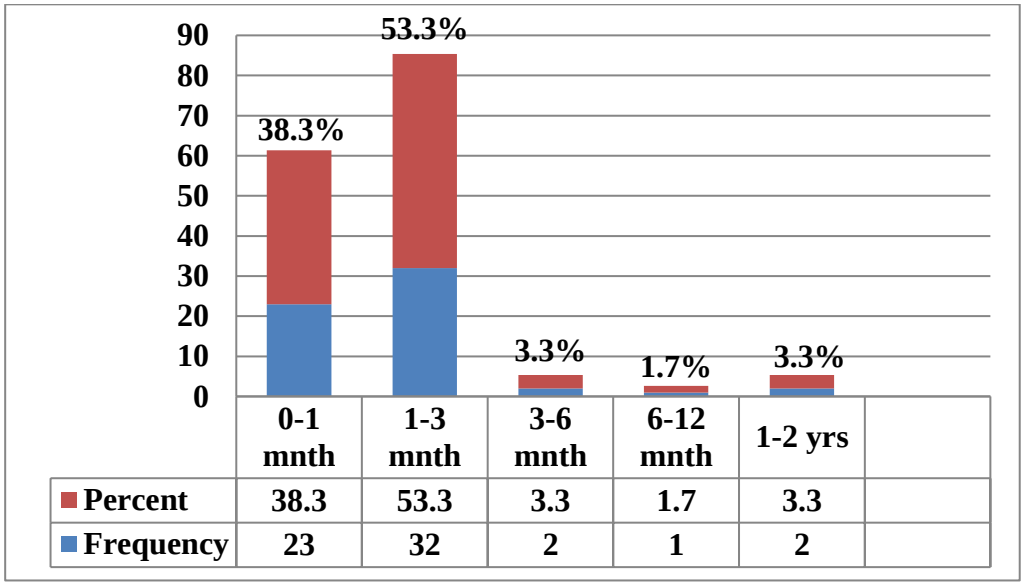


Figure- 11: Duration between injury onset and admission to rehabilitation center.

The study was conducted with 60 participants. Among the participants mean duration between injury onset and admission to rehabilitation center 1.8 (±.8) months, median 2, mode 2, standard deviation 0.865.

Table no-3: Statistics between injury onset and admission to rehabilitation center.

Mean	1.78
Median	2.00
Mode	2
Std. Deviation	.865

4.2.8. Surgery after injury:

Almost 82% participants had spine surgery (n=49), 5% participants had decompressive surgery (n=3), Almost 2% participants had internal fixation (n=1), Almost 2% participants had other surgery (n=1), 10% participants had no surgery (n=6).

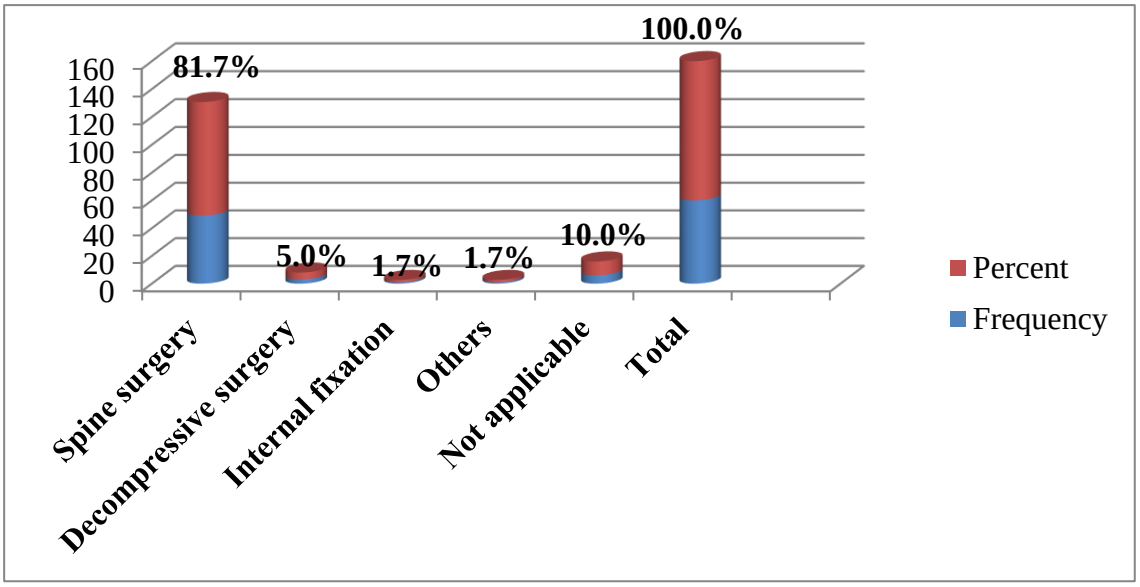


Figure- 12: Surgery after injury.

4.2.9. Common complication after injury:

The most common complications detected during admission were pressure sore 35% (n=21), muscle atrophy 28% (n=17), dyspnea 10% (n=-6), others 2% (n=1) and there were no complication 25% (n=15).

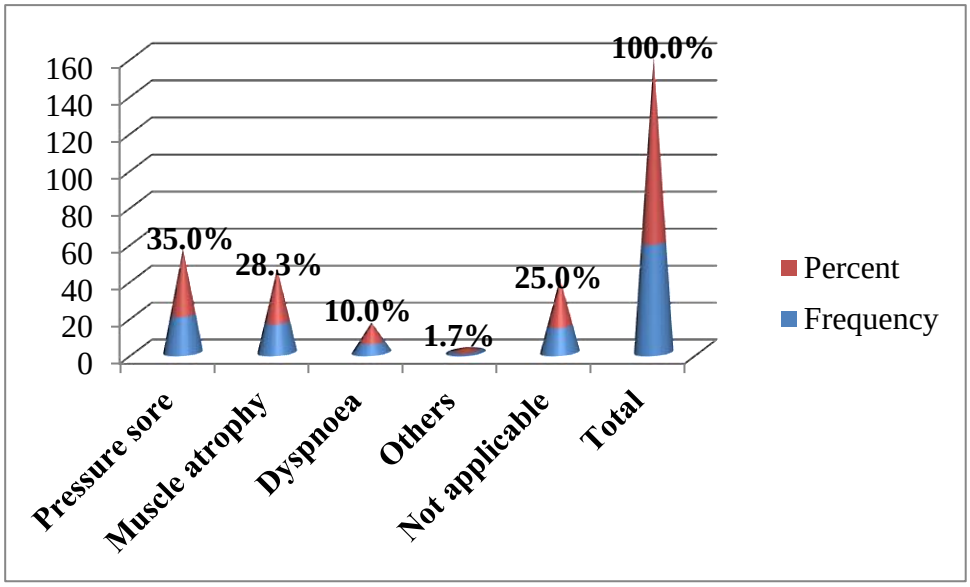


Figure- 13: Common complications during admission at CRP

4.2.10. Lack of awareness to come here in late: These bar chart shows that 75% (n=45) were not any reason to come here in late and 25% (n=15) had different type of reason.

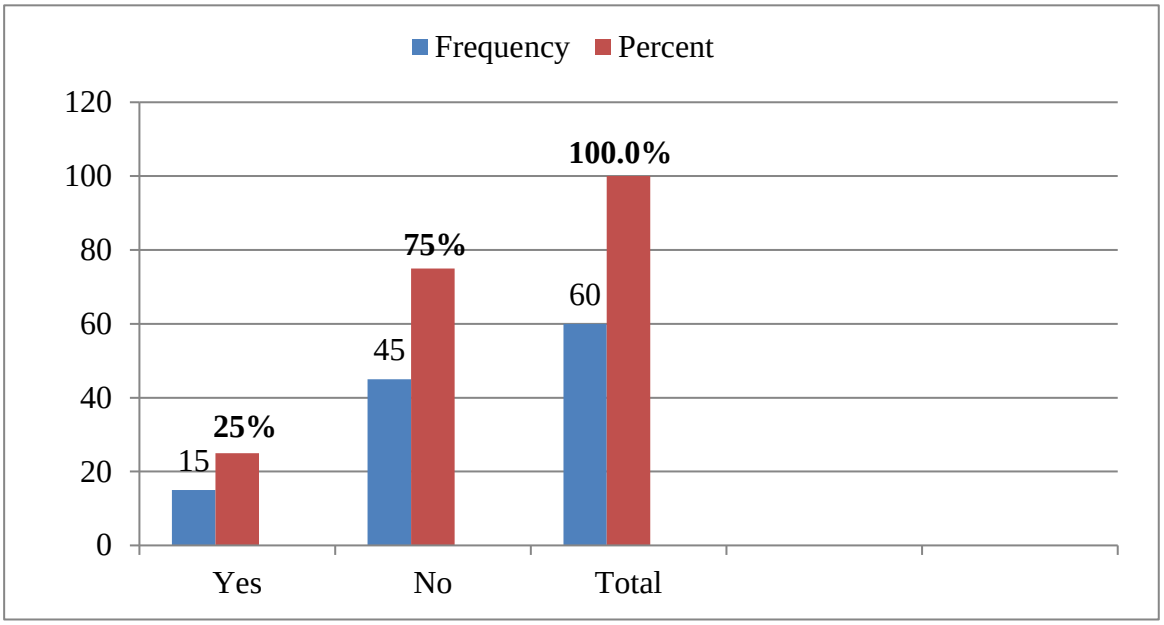


Figure 14: Lack of awareness to come here in late.

4.3. Causes of delay admission

4.3.1. Doctors said anything to patients about rehabilitation: Most of the participants get information from doctors near about 58% (n=35), other participants do not get information from doctors almost 42% (n=25).

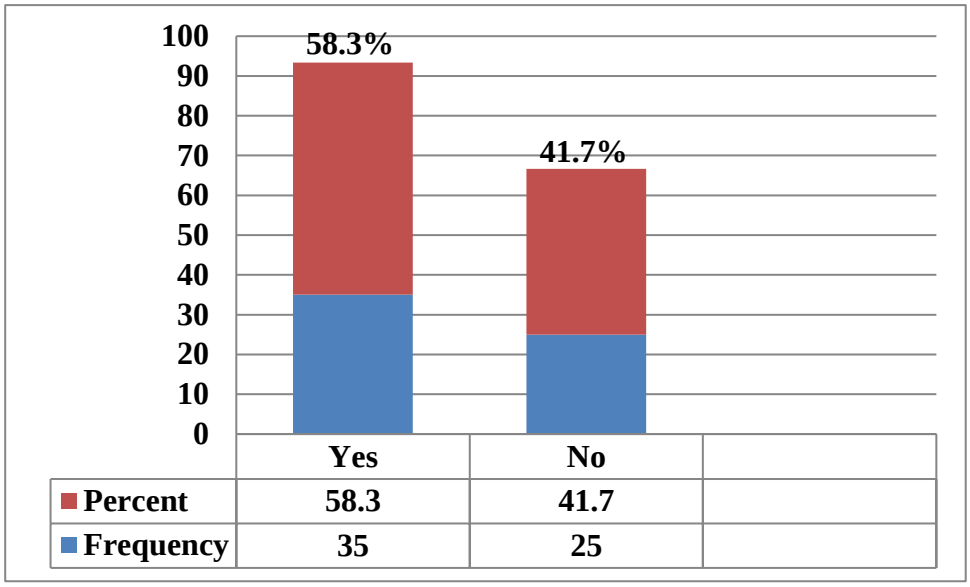


Figure 15: Doctors participations about SCI.

4.3.2. Transport problem: The pie chart shows that within 60 participants 40%(n=24) have no problem to come at rehabilitation center 60% (n=36) have various type of transport problem.

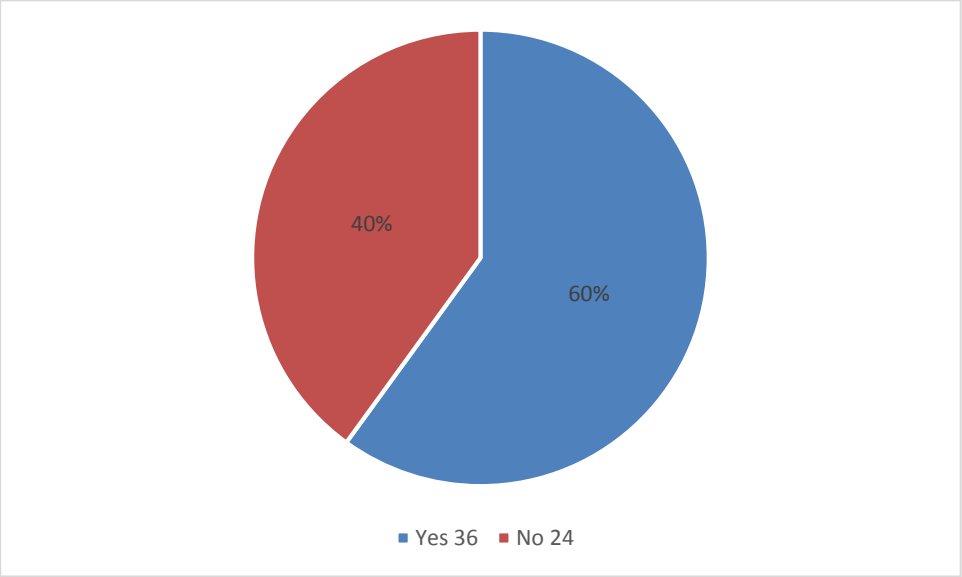


Figure 16: Transport problem

4.3.3. Financial problem: All of participants 83% (n=50) had financial problem and 17% (n=10) had no financial problem.

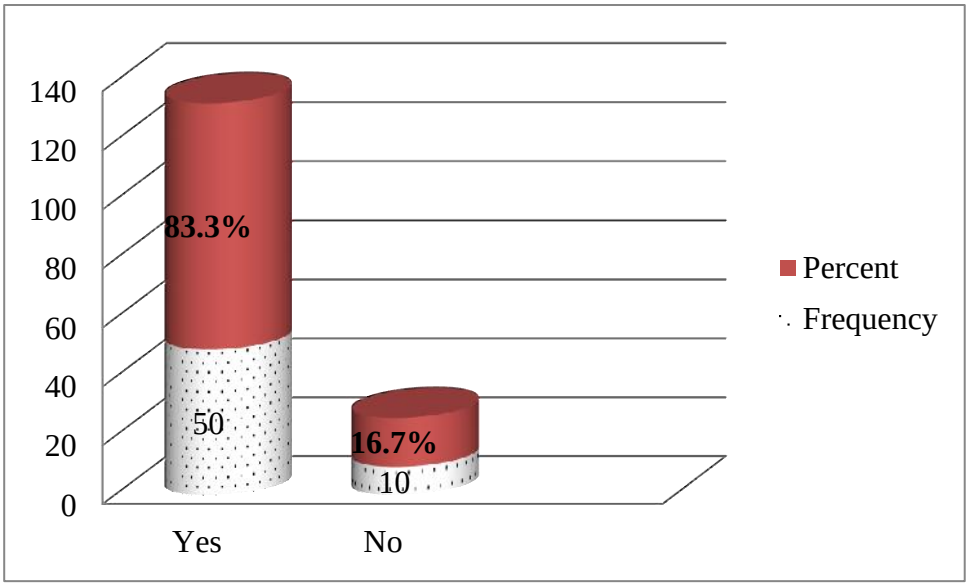


Figure 17: Financial problem after spinal cord injury.

4.3.4. Problem to come here for distance: The study was conducted with 60 participants. Among the participants 65% (n=39) could not come at rehabilitation center for long distance and for 35% (n= 21) participants distance was not a big issue to come at rehabilitation center.

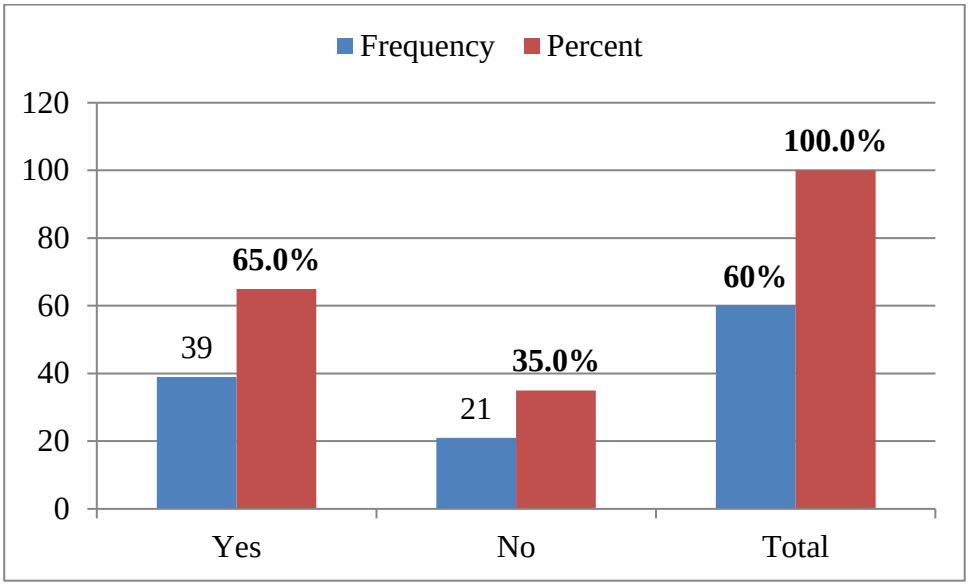


Figure 18: Distance issue for the patients with spinal cord injury.

Table-4: Distribution of the responder of association between various components of questionnaire.

Association between	**Chi-Square**	**P- value**	**Significance**
5.1. Education and time between injury onset and admission at CRP	23.020	0 .814	Non-significant
5.2. Area and duration between injury onset and admission to rehabilitation center.	11.833	0 .029	Significant
5.3. Education and know anything about rehabilitation in that time after your injury	13.120	0.041	Significant
5.4. Education and financial problem	15.154	0.019	Significant
5.5. Monthly income and financial problem	11.062	0.026	Significant
5.6. Financial problem and transport problem to come a rehab center.	8.000	0.005	Significant

5.7. Know about CRP at the first time after injury by whom and reason to come rehab center in late	8.164	.043	Significant
5.8. Any surgery after injury and how many days after injury patients come.	2.497	.645	Non-significant
5.9. Reason to come rehab center in late and surgery.	9.551	.049	Significant
5.10. Reason to come rehab center in late and problem faced by patients to come for distance.	13.714	.008	Significant
5.11. Reason to come rehab center in late education	14.917	.021	Significant
5.12. Reason to come rehab center in late transport problem to come a rehab center.	.000	1.00	Non-significant
5.13. Complication after injury and reason to come rehab center in late	.160	.689	Non-significant

From Table: 5.1- The observed Chi-square value was 23.020 and 5% level of significant state chi-square was 1.96 which is more than the observed chi-square value. The result was not significant so there was no significant association between Education and how much time between injury onset and admission at CRP.

From Table: 5.2- The observed Chi-square value was 11.18 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. The result was significant so there was significant association between area and duration between injury onset and admission to rehabilitation center.

From Table: 5.3- In these result, Pearson Chi-square between educations and know anything about rehabilitation in that time after injury was 13.120 and the P- value is .041, which indicates that there is a strong positive relationship between the variables.

From Table: 5.4- The observed Chi-square value was 15.154 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. The result was significant so there was a good significant association between educations and financial problem.

From Table: 5.5- The observed Chi-square value was 11.062 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. In this result, the p-values for the correlation between monthly income and financial problem are .026, which indicates that the correlation coefficients are significant.

From Table: 5.6- In this result, the p-values for the correlation between financial problem and transport problem to come a rehab center are.005, which indicates that the correlation coefficients are significant. The observed Chi-square value was 8.000 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value.

From Table: 5.7- The observed Chi-square value was 11.062 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. In this result, the p-values for the correlation between know about CRP at the first time after injury by whom and reason to come rehab center in late .043, which indicates that the correlation coefficients are significant.

From Table: 5.8- The observed Chi-square value was 2.497 and 5% level of significant state chi-square was 1.96 which is more than the observed chi-square value. The result was

not significant so there was no significant association between any surgery after injury and how many days after injury patients come.

From Table: 5.9- The observed Chi-square value was 9.551 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. The result was significant so there was a strong significant association between reason to come rehab center in late and surgery.

From Table: 5.10- The observed Chi-square value was 13.714 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. The result was significant so there was a strong significant association between reason to come rehab center in late and problem faced by patients to come for distance.

From Table: 5.11- The observed Chi-square value was 14.917 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. The result was significant so there was a strong significant association between reason to come rehab center in late and education.

From Table: 5.12- In this result, the p-values for the correlation between reason to come rehab center in late and transport problem to come a rehab center 1.00 which indicates that the correlation coefficients are not significant. The observed Chi-square value was .000 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value.

From Table: 5.13- In this result, the p-values for the correlation between complication after injury and reason to come rehab center in late .160 which indicates that the correlation coefficients are not significant. The observed Chi-square value was .160 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value.

CHAPTER V DISCUSSION

The objective of the study was to find out the factors affecting in delay admission in rehabilitation center after spinal cord injury. In this study 60 participants were taken who has spinal cord injury and completed rehabilitation from CRP. Out of 60 participants the majority was male 85% (n=51) and female was 15% (n=9). In a study of Gaza shows that males were 88.9% and females were 11.1%

Among them 18.3% was in 10-20 years, 21.7% was in 20-30 years, 30% was in 30-40 years, 26.7% was in 40-50 years, 3.3% was 50-60 years. Among the study of Bangladeshi most common age group between 25-29 years in spinal cord injury patients (Islam et al., 2011).

Education status was, about 22% (n=13) were completed their PSC, 20% (n=12) were completed their JSC, 15% (n=9) participants were completed their SSC, 10% (n=06) were completed their HSC, 10% (n=06) were completed their graduation level, 2% (n=01) were completed their post-graduation level and the illiterate level of participants were 22% (n=13). A study of India shows that almost 60-70% was illiterate. A Brazilian study shows that of the 60 patients, 38 (63.3%) had complete or incomplete primary education, 19 (31.7%) had complete or incomplete secondary education, and 3 (5%) had college education (Blanes et al., 2009).

In this study most of the participant live in rural area the percentage was 72% (n=43) and 28% (n=17) live in urban area. An epidemiological study in India has been found that approximate 20000 new cases of spinal cord injury are added every year and among them 60-70% was poor villagers (Singh et al.,2003).

In this study, at the time of the lesion occupation of the participants, (n=13) were farmer, 5% (n=3) were housewife, 12% (n=7) were shopkeeper, 25% (n=15) were student, 18% (n=11) were in job, 10% (n=6) were in business, other 8% (n=5). In a Nigerian study were 20%, businessman 20%, civil servant 14%, artisans 14%, farmer 12.9% drivers 9.4%, police 8.1%, clergy 1.8% and toddler 1.8% (Nwankwo & Uche, 2013).

Monthly income of the family was, about 37% (n=22) was almost within 5000 taka, 35% (n=21) was within 5000-10000 taka, 25% (n=15) was minimum 20000-30000taka and 4%

(n=1, n=1) was almost > 30000 taka. So most of the patients had monthly income within 5000 followed by 5000-10000. Another study found that the mean monthly family income of the patients was US $ 60 (±$53) (Islam et al., 2011).

In this study found that the neurological level were largely involved thoracic about 47% (n=28), cervical 35% (n=21), lumber 18% (n=11). Another study revealed that about 44% patients had cervical lesion, 27% had thoracic and 29% had lumber injury. Of the cervical, C6, C5, and C7 had quite close frequency distribution ranging between 9 and 15%. Among the thoracic, T12 with 13% had the majority and among lumber, L1 had the majority incidence (Islam et al., 2011).

Among the participants 60% (n=36) were paraplegic and 40% (n=24) were tetraplegic. Majority of the cause of spinal cord injury in the study was traumatic. In Canadian study, paraplegia was more prone rather than tetraplegia, this study 58% were paraplegia and 42% were tetraplegia (Rouleau et al., 2011).

In this study, traumatic cause about half of the participants (n=26, 43%) was road traffic accident, fall from height was (n=23, 38%), violence was (n=1, 2%) and diving was (n=1, 2%). On the other hand in the developed country, road traffic accident is the major cause of spinal cord injury followed by fall and then sports injury (Rathore, 2010). In Nigeria 48% case due to fall and 36% case occur for road traffic accident. In Romania 59% give history of fall and 13% for road traffic accident. In an another study of Bangladesh shows that, 72% case are traumatic and among them 43% due to fall from height, 20% cause of spinal cord injury are carry heavy load on head and 18% spinal cord injury occur due to road traffic accident (Hoque et al., 1999).

After injury 88% participants did not know about rehabilitation and 12% were known. Most of the patients were admitted in Govt. hospital almost 72% (n=43), private hospital 27% (n=16) and rehabilitation center 2% (n=1). 38% (n=23) patients were admitted within 0-1 month, 53% (n=32) admitted within 1-3 months, 3% (n=2) admitted within 3-6 months, almost 2% (n=1) admitted within 6-12 months, 3% (n=2) admitted within 1-2 years. 75% (n=45) were not any reason to come here in late and 25% (n=15) had different type of reason. Another study of Bangladesh highlights 96.4% reached at physician within 24 hours but there was no appropriate treatment for them and only 30.4% reached tertiary care within 24 hours (Razzak, 2013).

Among them 28% (n=17) known about CRP by neighbor, 15% (n=9) by relatives, 5% (n=03) by self and 53% (n=31) by doctor. Most of the participants get information from doctors near about 58% (n=35), other participants do not get information from doctors almost 42% (n=25).within 60 participants 40%(n=24) have no problem to come at rehabilitation center, 60% (n=36) have various type of transport problem, 83% (n=50) had financial problem and 17% (n=10) had no financial problem. 65% (n=39) could not come for long distance and 35% (n= 21) participants distance was not a big issue. On the another study shows that, lack of awareness among 52.5% patients and others are lower economic status, inaccessibility of definitive hospital (16.4%) acts as a predisposing factors to increase incidence of complications (Chhabra & Arora 2012).

In this study revealed that, the most common complications detected during admission were pressure sore 35% (n=21), muscle atrophy 28% (n=17), dyspnea 10% (n=-6), others 2% (n=1) and there were no complication 25% (n=15). A study in Pakistan reports , almost 39.7% patients were suffered with pressure sore during admission in rehabilitation center and 86% patients report regular or occasional urinary incontinence (Burns & Connell, 2012). In an Indian study reports, average 50% patients suffer with urinary tract infection (Gupta et al., 2009). An Italian researcher points out the statistics, shows that 29.6% patients suffer with pressure sore, 7.9% heterotropic ossification, 13.9% urinary complications, 12.3% respiratory complications, 5,5% DVT (Aito, 2003). Almost 94% patients report pain within the 1st year after injury and tingling sensation are most common (Mckinley et al., 2002). One study remarks 10.7% in person under 30 years, 13.1% under 30-59 years, 19.9% more than 60 years developed atelectasis or pneumonia (Chen et al., 1999).

5.1 Limitation of the study:

Regarding this study there are some limitation s or barrier to consider the result of the study as below:

- The first limitation of the study was sample size. It was taken only 60 samples.
- In this study, convenience sampling was used as it was easy to study.
- The questioner was not valid. Self-administrate questioner.

CHAPTER VI CONCLUSION AND RECOMMENDATION

6.1. Conclusion

Spinal cord injury is a catastrophic, devastating and life altering even. Annual incidence of SCI occur in various countries average up to 15-40 cases per million. But in Bangladesh there is no well proper evidence or documents about spinal cord injury and also lake of specialized care of spinal injury patients. But spinal cord injury causes a bad impact of quality of life results in long term disability, mortality and morbidity and a burden for communities. On the other hand Bangladesh is a developing country. This study shoes that most of the people with spinal cord injury lived within lower economic status where most of them have monthly income that was only 5-10000 thousands and poor educational level that can only primary level or cannot read and write. Male are more vulnerable than female and most vulnerable age group between 20-40 years. In this country peoples after spinal cord injury come under the rehabilitation center after within or more than 6 months and causes include lake of awareness, financial problems, and lake of accessibility in specialized hospital (CRP). Among the 60 participants almost 53% (n=32) admitted within 1-3 months after injury and the cause of delay admission in rehabilitation center was financial problem, education, lake of awareness, surgery and complication. And the study also found that, the factor in delay admission after SCI including transport problem, distance, lots of complications which commonly develop within the SCI patients before admission at CRP are pressure ore, respiratory complication, pain, muscular atrophy etc.

From the study it can be concluded that most of the participants were village people. So they cannot understand the preventative measure of SCI. At the one hand spinal cord injury is a devastating condition most of the patients with spinal cord injury are lower economic status, poor educational level, and their have lake of knowledge about any type of rehabilitation about spinal cord injury and do not come under specialized hospital or rehabilitation center. Another big issue for delay admission is area. Most of the spinal cord injury patients come from rural area for this reason transport and distance are big risk factor for coming late or delay admission as a results they become more prone to develop complications are the major factor of mortality and morbidity. So, only awareness and proper treatment can help to survive after SCI. But awareness should be

about early hospitalization, early rehabilitation, and early initiation of complication and early prevention of death.

6.2. Recommendations

The aim of the study was to find out the "Factors affecting in delay admission in rehabilitation center after spinal cord injury in Bangladesh." I recommended the following things:

- Should take more samples for generating the result and try to make more valid and reliable.
- Should take a valid questioner.
- Sample should collect from the only rehabilitative institute in Bangladesh.
- But research would need to be carried out considering proof of hypothesis; the method should be changed from cross sectional to case control.
- But during further research it is recommended to take more samples with adequate time to solve the recent problems areas for better result and perspectives.
- Needs to arrange awareness program among the population about specialized treatment or rehabilitation and prevention of complication or death.

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APPENDIX I

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

Ref. CRP-BHPI/IRB/10/18/1264

Date: 24.01.2018

To,
Pranab Mallik
B.Sc. in Physiotherapy,
Session: 2013-2014, Student ID:112130230,
BHPI, CRP, Savar, Dhaka-1343, Bangladesh.

Subject: Approval of the thesis proposal**"Factor effecting for delay admission in Rehabilitation Center after Spinal Cord Injury in Bangladesh"**by ethics committee.

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

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

The purpose of the study is to identify thefactor effecting for delay admission in Rehabilitation Center after Spinal Cord Injury in Bangladesh. The study involves use of a questionnaire of self-structure and measurement tools to explore theresult 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 11 AM on January 24, 2018 at BHPI.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Millat Hossain

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন ঃ ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স ঃ ৭৭৪৫০৬৯
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APPENDIX II

CONSENT FORM (ENGLISH)

Assalamu-alaikum,

I am Pranab Mallik, Student 4th Professional year B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI), CRP. I shall have to conduct a research and it is a part of my academic activity. My research title is "Factor affecting in delay admission in Rehabilitation Centre after spinal cord injury in Bangladesh". Through this research I will find out which factors are responsible for delay admission in Rehabilitation Centre after spinal cord injury in Bangladesh.

To fulfill my research project, I need to collect data. So you can be a respected participant of my research and I would like to request you as a subject of my study. I want to meet with you, during your physiotherapy treatment. I am assuring you that this conversation will not harmful your daily activity.

I would like to inform you that this is a purely academic study and will not be used for any other purposes. I assure that all data will be kept confidential. Your participation will be voluntary. You may have the right to withdraw consent and discontinue participation at any time of the experiment. You also have the right not to answer a particular question that you don't like.

If you have any query about the study or right as a participant, you may contact with me or my Supervisor Farjana Sharmin, Junior Consultant and OPD incharge, CRP, Savar, Dhaka-1343, Bangladesh.

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 data collector ……. Date ……

Signature of the witness …….. Date …….

APPENDIX III

সম্মতিপত্র

আসসালামু আলাইকুম,

আমি প্রনব মল্লিক, বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট (বি.এইচ.পি.আই), সি.আর.পি এর বি.এস.সি ইন ফিজিওথেরাপী কোর্সের ৪র্থ বর্ষের শিক্ষার্থী। আমার প্রাতিষ্ঠানিক কাজের অংশ হিসেবে আমাকে একটি গবেষণা করতে হবে। আমার গবেষণার বিষয় হলো, "বাংলাদেশেমেরুরুজ্জ জনিত আঘাতের পরে পুনর্বাসন কেন্দ্রে বিলম্বে ভর্তি হতে কোন কারণগুলো প্রভাবিত করে"। এই গবেষণার মাধ্যমে আমি খুঁজে বের করব মেরুরুজ্জ জনিত আঘাতের পরে এপুনর্বাসন কেন্দ্রে বিলম্বে ভর্তি হতে কোন কারণগুলো প্রভাবিত করে।

গবেষণাটি সম্পাদনের জন্য, আমার তথ্য সংগ্রহ করা প্রয়োজন হবে। এজন্য, আপনি আমার গবেষণার একজন সম্মানিত অংশগ্রহনকারী হতে পারেন। তাই আমি আপনাকে অনুরধ করছি আমার গবেষণায় একজন অংশগ্রহনকারী হতে। আমি নিশ্চিত করছি যে, এই আলোচনা আপনার দৈনন্দিন কাজকর্মকে কোন ধরনের ক্ষতিকর প্রভাব ফেলবে না।আমি আপনাকে অবগত করছি যে, এটি একটি সম্পূর্ণ প্রাতিষ্ঠানিক গবেষণা এবং এটি অন্য কোনো উদ্দেশ্যে ব্যবহৃত হবে না। আমি আপনাকে আরো নিশ্চিত করছি যে, আপনার প্রদত্ত সকল তথ্য গোপন রাখা হবে। আপনার অংশগ্রহন হবে ইচ্ছাকৃত। এই গবেষণা থেকে আপনি যে কোনো মুহূর্তে সম্মতি প্রত্যাহার করতে পারবেন।

আপনার যদি এই গবেষণা সম্পর্কে এবং অংশগ্রহণকারী হিসেবে আপনার অধিকার সম্পর্কে কোনো জিজ্ঞাসা থাকে তবে আপনি আমার সাথে অথবা আমার পর্যবেক্ষক ফারজানা শারমিন,জুনিয়র কনসালটেন্ট এন্ড ওপিডি ইনচার্জ, সি আর পি, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ এর সাথে যোগাযোগ করতে পারবেন।

উপাত্ত সংগ্রহের পূর্বে আপনার কি কোনো প্রশ্ন আছে?

আমি কি আপনার সাক্ষাৎকার গ্রহনের সম্মতি পেতে পারি?

☐ হ্যাঁ ☐ না

অংশগ্রহণকারীর স্বাক্ষর.....তারিখ.....

তথ্যসংগ্রহকারীর স্বাক্ষর.....তারিখ.....

স্বাক্ষীর স্বাক্ষর.....তারিখ.....

APPENDIX IV

English questionnaire

Name of patient: **Reg No:**

Patient code no: **Mobile No:**

Ward No: **Date:**

Bed No: **Address:**

This questionnaire was developed to find out the factors for delay admission. There are few question listed in the below table and few possible answers were selected as per each question. It seems that you may feel comfortable in multiple answers of a single question but please give tick (√) mark on single answer seems that you may feel comfortable in multiple which seems most closely linked to you.

Part I: Socio demographic characteristics

SL No.	Question	Response
1.	Age of the participant	……(years)
1.1	Age range	1. 10-19 2. 20-29 3. 30-39 4. 40-49 5. 50-60
2.	Gender	☐ Male ☐ Female

3.	Residential setting	☐ Rural ☐ Urban
4.	Occupation	1. Farmer 2. Housewife 3. Shopkeeper 4. Student 5. Job 6. Business 7. Other 8. Not- applicable
5.	Education	1. PSC 2. JSC 3. SSC 4. HSC 5. Graduation 6. Post-graduation 7. Illiterate
6.	Monthly income	1. 0-5000 tk 2. 5000-10000 tk 3. 20000-30000 tk 4. 30000-50000 tk 5. 50000-100000 tk 6. More
7.	Causes of injury	1. Road accident 2. Fall from height 3. Violence 4. During play 5. Diving 6. Other

		7. Not applicable
8.1	Any remarkable disease condition prior to SCI	1. Yes…… 2. No……..
8.2	If yes, What type of disease?	1. TB 2. Bone TB 3. TM 4. Spine TB 5. Cancer 6. Other 7. Not applicable

Part 2: Before admit in the hospital

9.	Did you receive first aid immediately post Injury?	1. Yes…… 2. No……..
10.1	Were you conscious immediately after your injury?	1. Yes…… 2. No…….
10.2	If not, when did you regain consciousness?	1. 0-1 min 2. 1-10 min 3. 20-40 min 4. 40-60 min 5. More time 6. Not applicable

Part 3: Patient journey

11.1	Place of injury	1. House 2. Own village 3. Own Upazilla 4. Own district 5. Other district 6. Abroad
11.2	After injury where patient was admit?	1. Govt. hospital 2. Private hospital 3. Specialized hospital 4. Rehabilitation center (CRP) 5. Other 6. Not applicable

Part 4:

Serial no.	**Question**	**Answer**
12.1	Which mode of transport used after injury to come hospital?	1. Ambulance 2. Trolley 3. Stretcher 4. Pickup van 5. Other 6. Not applicable
12.2	How much time between injury onset and admission to hospital?	1. 0-60 sec 2. 1-60 min 3. 1-3 hours 4. 3-6 hours 5. 6-12 hours 6. 12-24 hours 7. More time
13.	Duration of journey to hospital	1. 0-60 sec 2. 1-60 min

		3. 1-3 hours 4. 3-6 hours 5. 6-12 hours 6. 12-24 hours 7. More time
14.1	Do you have any investigation in Hospital?	1. Yes…… 2. No…….
14.2	If you have, what type of investigation?	1. X-ray 2. MRI 3. CT-scan 4. CBC 5. Other 6. Not applicable
15	Diagnosis confirm	1. Yes…… 2. No…….
16	Location injury	1. Cervical 2. Thoracic 3. Lumber 4. Sacrum 5. Coccyx 6. Other
17	Neurological level	1. C1 2. C2 3. C3 4. C4 5. C5 6. C6 7. C7 8. C8 9. T1 10. T2 11. T3 12. T4

		13. T5 14. T6 15. T7 16. T8 17. T9 18. T10 19. T11 20. T12 21. L1 22. L2 23. L3 24. L4 25. L5 26. S1 27. S2 28. S3 29. S4 30. Other 31. Not applicable
18	Type of paralysis	1. Paraplegia 2. Tetraplegia 3. Other 4. Not applicable
19	How do you know about CRP at first after injury?	1. 0-24 hours 2. 1-30 days 3. 1-3 months 4. 3-6months 5. 6-12 months 6. More time

Part 5: Causes of delay admission

20	How many days after the injury you come?	1. Neighbour 2. Doctor 3. Relatives 4. Self 5. Others 6. Not applicable
21	Did you know anything about rehabilitation in that time after your injury?	1. Yes…… 2. No…….
22	Do you have any reason to come here in late?	1. Yes…… 2. No…….
23	Did doctors say anything to you about rehabilitation?	1. Yes…… 2. No…….
24	Did you have any financial problem?	1. Yes…… 2. No…….
25	Any transport problem to come here?	1. Yes…… 2. No…….
26.1	Did you face any problem to come here for distance?	1. Yes…… 2. No…….
26.2	Problems faced by patients to come here for distance	1. Vehicles 2. River 3. Broken road 4. Others 5. Not applicable
27.1	Did you get any support from your family member?	1. Yes…… 2. No…….
27.2	If not, why?	1. Financial problem 2. Small family 3. Business family member 4. Bad relationship 5. Prejudice

		6. Others 7. Not applicable
28.1	Did you have any surgery after injury?	1. Yes…… 2. No…….
28.2	Type of surgery	1. Spine surgery 2. Decompressive surgery 3. Internal fixation 4. Bone surgery 5. Brain surgery 6. Others 7. Not applicable
29.1	Did you have any complication after injury?	1. Yes…… 2. No…….
29.2	If you would have, What type of complication you developed?	1. Pressure sore 2. Muscle atrophy 3. Autonomic dysreflexia 4. Shock 5. Postural hypotension 6. Fracture 7. Dyspnea 8. Others 9. Not applicable
30.1	Have you been cheated after injury?	1. Yes…… 2. No…….
30.2	If yes, By whom are you betrayed?	1. Neighbour 2. Doctor 3. Relatives 4. Others 5. Not applicable

Appendix V

প্রশ্নপত্র

বাংলাদেশে মেরুরুজ্জ জনিত আঘাতের পরে পুনর্বাসন কেন্দ্রে বিলম্বে ভর্তি হতে কোন কারণগুলো প্রভাবিত করে ।

রোগীর নামঃ তারিখঃ

রোগীর কোড নম্বরঃ ঠিকানাঃ

মোবাইল নম্বরঃ বেড নম্বরঃ

ওয়ার্ড নম্বরঃ

আঘাতের তারিখ:

সিআরপিতেভর্তির তারিখ:

বাংলাদেশের একটি পুনর্বাসন কেন্দ্রে মেরুরুজ্জ জনিত আঘাতের পরে বিলম্বে ভর্তি হতে যেই কারণগুলো প্রভাবিত করে। সেই সীমাবদ্ধতাবের করতে এই প্রশ্নপত্রটি ধার্য করা হয়েছে। এটা মনে হতে পারে যে, আপনি একক প্রশ্নের একাধিক উত্তরগুলিতে সন্তুষ্ট অনুভব করতে পারেন দয়া করে একক উত্তরটি টিক (√)চিহ্ন দিন যেটা আপনি একাধিকের মধ্যে সন্তুষ্টিজনক মনে করেন যা আপনার সমস্যাটিকে সঠিকভাবে নির্দেশ করে।

পর্ব ১: সামাজিক ও বৈশ্বয়িক বিষয়ক বৈশিষ্ট্য

ক্রমিক	প্রশ্ন	উত্তর

নং		
১.১	অংশগ্রহণকারীর বয়স	.....বছর
১.২	বয়সসীমা	১. ১০-১৯ বছর ২. ২০-২৯ বছর ৩. ৩০-৩৯ বছর ৪. ৪০-৪৯ বছর ৫. ৫০-৬০ বছর ৬. এরওবেশি বছর
২.	লিঙ্গ	১.পুরুষ ২. মহিলা
৩.	বসবাসের এলাকা	১.গ্রাম ২.শহর
৪.	পেশা	১. কৃষক ২ .গৃহিণী ৩. দোকানদার ৪. শিক্ষার্থী ৫. চাকুরীজীবী ৬.ব্যাবসায়ী ৭.অন্যান্য
৫.	শিক্ষা	১. পি এস সি ২. জে এস সি ৩. এস এস সি ৪. এইস এস সি ৫. স্নাতক

		৬. স্নাতকোত্তর ৭. অশিক্ষিত
৬.	মাসিক আয়	১. ০-৫০০০টাকা ২. ৫-১০ হাজার ৩. ১০-২০ হাজার ৪. ২০-৩০ হাজার ৫. ৩০-৫০ হাজার ৬. ৫০ হাজার -১ লক্ষ ৭. আরবেশি
৭.	আঘাতের কারণ	১.সড়ক দুর্ঘটনা ২. উঁচু থেকে পড়া ৩. সহিংসতা ৪. খেলাধুলা জনিত কারন ৫. ডাইভিং আঘাত ৬. অন্যান্য
৮.১	আঘাতের আগে কোন রোগ ছিল কি না ?	১. হ্যা ..... ২. না .....
৮.২	যদি থাকে সেটা কি রোগ?	১. যক্ষ্মা ২. বোন টিবি ৩. ট্রান্সভারস মায়েলাইটিস ৪. স্পাইন টিবি ৫. ক্যান্সার

		৬. অন্যান্য ৭. প্রযোজ্য নয়

পর্ব ২: হাসপাতালে আসার পূর্বে

ক্রমিক নং	প্রশ্ন	উত্তর
৯.	আঘাতের পরে কোন ধরনের প্রাথমিক চিকিৎসা নিয়েছিলেন কি না ?	১. হ্যাঁ..... ২. না.....
১০.১১	আঘাতের পরে আপনার জ্ঞান ছিল কি না?	১. হ্যাঁ..... ২. না.....
১০.২	যদি না থাকে তাহলে কত সময় পরে এসেছিল ?	১. ০-১ মিনিট ২. ১-১০ মিনিট ৩. ১০-২০ মিনিট ৪. ২০-৪০ মিনিট ৫. ৪০-৬০ মিনিট ৬. অনেক পরে ..... ৭. প্রযোজ্য নয়

পর্ব ৩ : রোগীর চলা

১১.১ রোগীর দুর্ঘটনার অবস্থান	১. নিজ বাসায় ২. নিজ গ্রামে

	৩. নিজ জেলায় ৪. অন্য জেলায় ৫. অন্য বিভাগে ৬. বিদেশে
১১.২ দুর্ঘটনার পরে রোগী যেখানে যেখানে ভর্তি হয়েছিল	১. সরকারি হাসপাতাল ২. প্রাইভেট হাসপাতাল ৩. বিশেষায়িত হাসপাতাল ৪. পুর্নবাসন কেন্দ্র (সি আর পি) ৫. অন্যান্য

পর্ব ৪:

ক্রমিক নং	প্রশ্ন	উত্তর
১২.১	আঘাতের পরে কি ধরনের যানবাহনে আপনাকে হাসপাতাল আনা হয়েছিল?	১. এ্যাম্বুলেন্স ২. ট্রলি ৩. স্ট্রেচার ৪. পিকাপ ভ্যান ৫. অন্যান্য ৬. প্রযোজ্য নয়
১২.২	আঘাত এবং হাসপাতালে ভর্তির মাঝে সময়ের ব্যাবধান কত ছিল ?	১. ০-৬০ সেকেন্ড ২. ১-৬০ মিনিট ৩. ১-৩ ঘণ্টা ৪. ৩-৬ ঘণ্টা

		৫. ৬-১২ ঘণ্টা ৬. ১২-২৪ ঘণ্টা ৭. আর বেশী
১৩	হাসপাতালে যেতে কত সময় লেগেছে?	১. ০-৬০ সেকেন্ড ২. ১-৬০ মিনিট ৩. ১-৩ ঘণ্টা ৪. ৩-৬ ঘণ্টা ৫. ৬-১২ ঘণ্টা ৬. ১২-২৪ ঘণ্টা ৭. আরো বেশী
১৪.১	হাসপাতালে কি কোন ধরনের পরীক্ষা করেছিলেন?	১. হ্যাঁ..... ২. না.....
১৪.২	যদি হ্যাঁ হয় তাহলে কি ধরনের পরীক্ষা	১. এক্সরে ২. এম আর আই ৩. সিটি স্ক্যান ৪. সি বি সি ৫. অন্যান্য ৬. প্রযোজ্য নয়
১৫.	রোগ নির্নয় নিশ্চিত	১. হ্যাঁ..... ২. না.....
১৬.	আঘাতের অবস্থান	১. সারভাইকল ২. থোরাসিক

		৩. লাম্বার ৪. সেক্রাম ৫. কক্সিস ৬. অন্যান্য
১৭.	নিউরোলজিক্যাল লেভেল	১.সি$_{১}$ ২. সি$_{২}$ ৩. সি$_{৩}$ ৪. সি$_{৪}$ ৫. সি$_{৫}$ ৬. সি$_{৬}$ ৭. সি$_{৭}$ ৮. সি$_{৮}$ ৯. টি$_{১}$ ১০. টি$_{২}$ ১১. টি$_{৩}$ ১২. টি$_{৪}$ ১৩. টি$_{৫}$ ১৪. টি$_{৬}$ ১৫. টি$_{৭}$ ১৬. টি$_{৮}$ ১৭. টি$_{৯}$ ১৮. টি$_{১০}$

		১৯. টি$_{১১}$ ২০. টি$_{১২}$ ২১. এল$_{১}$ ২২. এল$_{২}$ ২৩. এল$_{৩}$ ২৪. এল$_{৪}$ ২৫. এল$_{৫}$ ২৬. এস$_{১}$ ২৭. এস$_{২}$ ২৮. এস$_{৩}$ ২৯. এস$_{৪}$ ৩০. অন্যান্য ৩১. প্রযোজ্য নয়
১৮.	প্যারালাইসিসের ধরণ	১. প্যারাপ্লেজিয়া ২. টেট্রাপ্লেজিয়া ৩. অন্যান্য ৪. প্রযোজ্য নয়
১৯.	আঘাত এবং পুনর্বাসন কেন্দ্রে আসার মাঝে সময়ের ব্যাবধান কত ছিল ?	১. ০-১ মাস ২. ১-৩ মাস ৩. ৩-৬ মাস ৪. ৬-১২ মাস ৫. ১-২ বছর

		৬. আরো বেশী

পর্ব ৫: বিলম্বে ভর্তি হতে যেই কারণগুলো প্রভাবিত করে

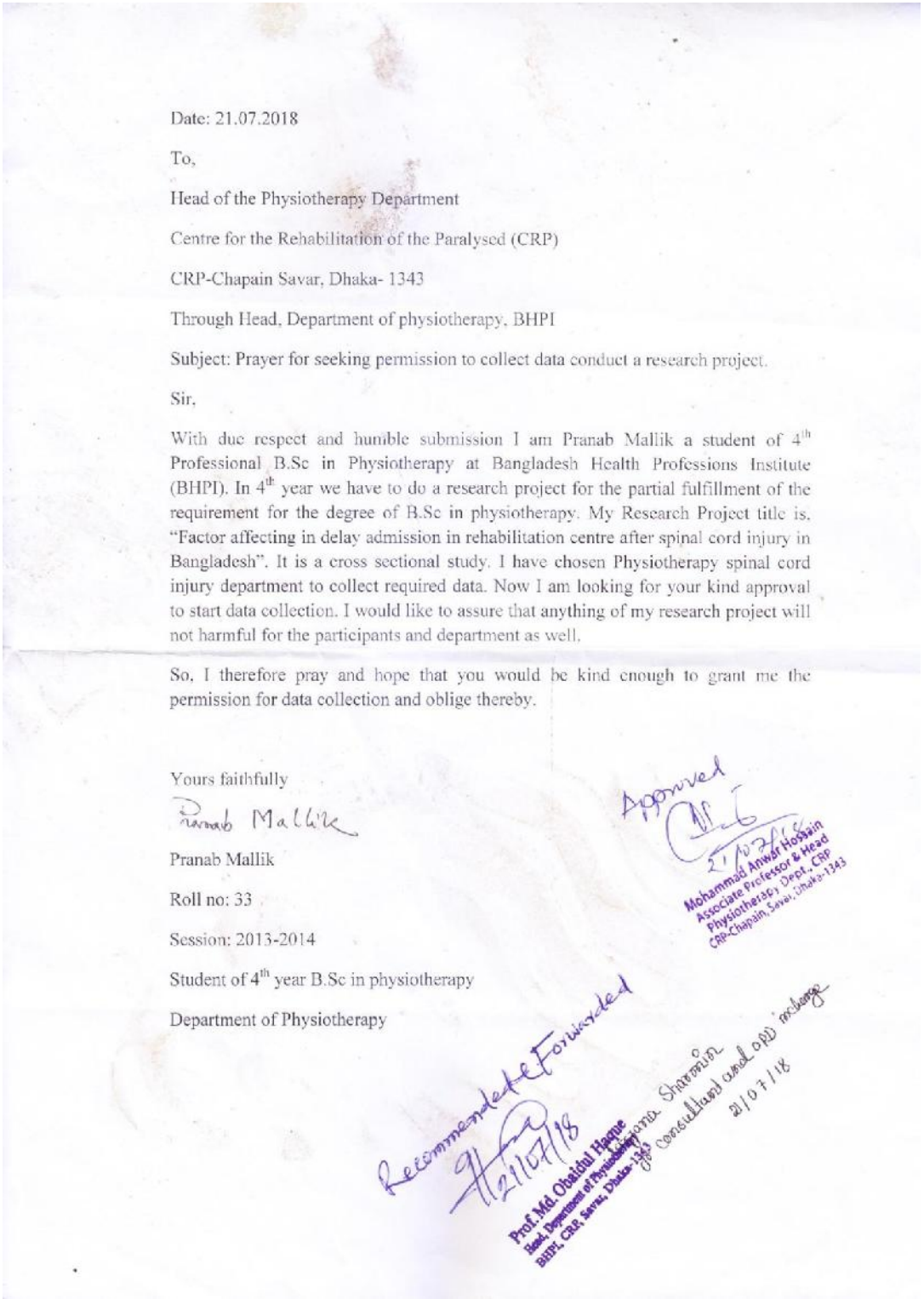
ক্রমিক নং	প্রশ্ন	উত্তর
২০.	আঘাতের পরে সি আর পি সম্পর্কে কার কাছে শুনেছেন?	১. প্রতিবেশী ২. ডাক্তার ৩. আত্মীয় ৪. রোগী নিজে ৫. অন্যান্য ৬. প্রযোজ্য নয়
২১.	যখন আপনি আঘাত প্রাপ্ত হয়েছিলেন তখন কি আপনি পুনর্বাসন সম্পর্কে জানতেন ?	১. হ্যাঁ..... ২. না.....
২২.	এখানে দেরি করে আসার কি কোন কারন ছিল ?	১. হ্যাঁ..... ২. না.....
২৩.	আপনাকে কি ডাক্তার পুনর্বাসন সম্পর্কে কিছু বলে নাই ?	১. হ্যাঁ..... ২. না.....
২৪.	আপনার কি কোন আর্থিক সমস্যা ছিল ?	১. হ্যাঁ..... ২. না.....
২৫.	আপনার এখানে আসতে কি কোন যানবাহনের সমস্যা হয়েছে ?	১. হ্যাঁ..... ২. না.....
২৬.১	দূরত্বের কারনে কি আপনার এখানে	১. হ্যাঁ.....

	আসতে কি কোন সমস্যা হয়েছে?	২. না.....
২৬.২	যদি হ্যাঁ হয়, তাহলে দূরত্বের কারণে আপনারকোন সমস্যার সম্মুখিন হতে হয়েছে?	১. যানবাহন ২. নদীপথ ৩. খারাপ রাস্তা ৪. অন্যান্য ৫. প্রযোজ্য নয়
২৭.১	আপনি কি আপনার পরিবার এর কাছ থেকে কোন সহযোগিতা পেয়েছেন?	১. হ্যাঁ..... ২. না.....
২৭.২	যদি না হয়, কেন?	১. আর্থিক অসচ্ছলতা ২. পরিবারের সদস্য সংখ্যা কম ৩. পরিবারের সদস্যদের ব্যস্ততা ৪. পারস্পরিক সম্পর্কের অবনতি ৫. কুসংস্কারাচ্ছন্নতা ৬. অন্যান্য ৭. প্রযোজ্য নয়
২৮.১	আপনার কি কোন সার্জারি হয়েছিলো?	১. হ্যাঁ..... ২. না.....
২৮.২	যদি হয়, তাহলে কোন ধরনের সার্জারি?	১. স্পাইন সার্জারি ২. ডি-কম্প্রেসিভ সার্জারি ৩. ইন্টারনাল ফিক্সেসন

		৪. হাড়ের সার্জারি ৫. ব্রেনের সার্জারি ৬. অন্যান্য ৭. প্রযোজ্য নয়
৩০.১	আঘাতের পরে আপনার কি কোন জটিলতা হয়েছিল?	১. হ্যাঁ..... ২. না.....
৩০.২	যদি হ্যাঁ হয় , জটিলতার ধরন	১. প্রেসার সোর (ঘা) ২.পেশী শুকিয়ে যাওয়া ৩. অটোনমিক ডিজরিফ্লেকসিয়া ৪. শক ৫. পশ্চারাল হাইপোটেনসন ৬. হাড়ভাঙ্গা ৭. শ্বাসকষ্ট ৮. অন্যান্য ৯. প্রযোজ্য নয়
৩১..১	আপনি কি প্রতারনার শিকার হয়েছেন?	১. হ্যাঁ..... ২. না.....
৩১.২	যদি হন, কার মাধ্যমে প্রতারিত হয়েছেন?	১. প্রতিবেশী ২. ডাক্তার ৩. আত্মীয় ৪. অন্যান্য ৫. প্রযোজ্য নয়

APPENDIX V

Permission letter



Date: 21.07.2018

To,

Head of the Physiotherapy Department

Centre for the Rehabilitation of the Paralysed (CRP)

CRP-Chapain Savar, Dhaka- 1343

Through Head, Department of physiotherapy, BHPI

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

Sir,

With due respect and humble submission I am Pranab Mallik a student of 4th Professional B.Sc in Physiotherapy at Bangladesh Health Professions Institute (BHPI). In 4th year we have to do a research project for the partial fulfillment of the requirement for the degree of B.Sc in physiotherapy. My Research Project title is. "Factor affecting in delay admission in rehabilitation centre after spinal cord injury in Bangladesh". It is a cross sectional study. I have chosen Physiotherapy spinal cord injury department to collect required data. Now I am looking for your kind approval to start data collection. I would like to assure that anything of my research project will not harmful for the participants and department as well.

So, I therefore pray and hope that you would be kind enough to grant me the permission for data collection and oblige thereby.

Yours faithfully

Pranab Mallik

Pranab Mallik

Roll no: 33

Session: 2013-2014

Student of 4th year B.Sc in physiotherapy

Department of Physiotherapy

Approved

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

Recommended/Forwarded

Prof. Md. Obaidul Haque
Head, Department of Physiotherapy
BHPI, CRP, Savar, Dhaka-1343