

**EFFECT OF DEPRESSION ON QUALITY OF LIFE:
FOLLOWING SPINAL CORD INJURY**



By

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Abstract

Background: SCI is a condition which affects many people at every year. It is continuous major cause of disability throughout Asia as well as Bangladesh. SCI is a common injury and it adversely affects person's QOL. SCI negatively can raise depression. Depression also associated with a person's age, sex, occupation, educational status.

Objectives of the study: The objectives were to evaluate the level of depression, to know about any association between depression and overall QOL in people after having SCI. Objectives also were to know about any association in between depression and socio-demographic information (age, sex, educational status, marital status, monthly income, types of injury, treatment stage).

Methodology: This study was conducted by using quantitative descriptive analysis. Cross sectional was chosen to conduct this study among 102 participants who were selected according to inclusion criteria. The 'WHOQOL-BREF' and 'Depression scale', this two standard structured questionnaires were used to assess the depression and QOL on 102 participants.

Result and Discussion: After analyzing data result was found the level of depression. The minimal level of depression was 82.4%, mild 7.8%, moderate 5.9% and severe was 3.9%. A significance association was found at level of depression and QOL after SCI ($P > .001$). Association also found some demographic information with depression. Association was found between occupation ($P > .027$), incidence ($P > .000$), phage of treatment, ($P > .020$) and weak association age with level of depression, and ($P > .048$). No statistical significance was found between depression with sex, educational status, marital status, monthly income and cause of injury.

Conclusion: SCI is a consequence which may impact a person's whole life. After SCI when depression becomes high, it affects overall QOL directly or indirectly. It seems like that if depression levels become less or reduce it may high the overall QOL.

Key words: SCI, QOL, depression.

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List of Abbreviations

CRP: Centre for the Rehabilitation of the Paralysed
NSCISC: National Spinal Cord Injury Statistical Center
SCI: Spinal Cord Injury
QOL: Quality of life
WHOQOL: World Health Organization Quality of Life
WHO: World Health Organization

CHAPTER 1 INTRODUCTION

1.1 Introduction

Spinal Cord Injury (SCI) is a devastating condition that disrupts every facet of life (Radomski and Latham, 2008). Damage to the spinal cord has profound and global effects. Every year many people are experiencing in SCI (Law, 2002). Rathore (2010) mentioned that though more than 80% SCI patients live in more than 100 developing countries there is lack of epidemiological information regarding SCI. SCI, either traumatic or non-traumatic in origin, and the disabilities that follow are of great concern to the medical world, to the person affected, their family and society as whole (Berg *et al.* 2010).

The causes of SCI is extensive lifelong consequences, epidemiological data are of fundamental importance in tracing its occurrence, deciding upon preventive strategies, and planning clinical resources and social services (Berg *et al.* 2010). SCI continues to be a major cause of disability throughout Asia as well as in Bangladesh (Islam, Hafez and Akter, 2011).

In Bangladesh, there is no specialized government hospital for the treatment and rehabilitation of people with SCI. The only one non- government organization is the Centre for the Rehabilitation of the Paralysed (CRP), which has been working in this field for the last 30 years (Islam, Hafez and Akter, 2011). These injuries can also devastating condition with enormous financial, social, and personal costs (Movaghar *et al.* 2013).

As the spinal cord is responsible for conducting afferent and efferent stimuli between the periphery and the brain, when this organ is injured, organic structures and functions are compromised, resulting in limitations to perform Activities of Daily Living (ADLs), aspects that affect victims QOL (França *et al.* 2011). Haran *et al.* (2005) has mentioned in his study, some factors such as negative mood, spasticity, socioeconomic disadvantage, and medical complications have been found to be associated with lower QOL.

SCI negatively influences physical and psychological aspects of health and QOL. This disorder can have a profound impact on independence and lifestyle, causing loss of

motor and sensory function as well as associated problems like bladder, bowel, and sexual dysfunction, chronic pain, increased risk of mental health problems and drug dependence, increased risk of re-hospitalization, relationship and marital difficulties, and poor vocation prospects (Middleton, Tran and Craig, 2007).

The high prevalence of depression after SCI is well-established (Kalpakjian *et al.* 2009). Depressive disorders are the most common psychological problems in SCI patients (Elliot, 1996). Major depression (MD) is a highly prevalent (9.8% to 35%) and disabling secondary condition associated with SCI (Graves and Bombardie, 2008). Depression with the grieving time right after the injury, depression however may persist long after the injury. Depressive symptoms are also associated with lack of social and occupational involvement (Radomski and Latham, 2008). Psychological issues such as stress are known to have correlations with the QOL. The heightened stress levels in individuals with SCI further decrease their QOL (Ditor *et al.* 2003).

1.2 Background Information

SCI is a condition with an annual incidence of 12.1–57.8 cases per million (Movaghar *et al.* 2013). According to the National Spinal Cord Injury Statistical Center (2012) the number of people living with SCI in the US is approximately 270,000. SCI is associated with permanent disability and decreased life expectancy (Movaghar *et al.* 2013). SCI patients who survive with the condition for a long time often develop depression.

Wyndaele and Wyndaele (2006) stated that the 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.

SCI causes a disruption in the motor and sensory pathways at the site of lesion (Radomski and Latham, 2008). Paralysis of voluntary musculature can lead to reduced mobility as well as self-care abilities (Somers, 1992). SCI also can greatly reduce physical capacities, functional independence; carry out daily routines, impairment of social communication and vocational activities (Craig, Tran and Middleton, 2009). People with SCI have difficulties adjusting their daily life with this condition. Many People with SCI have experience of secondary medical complications including pressure ulcers, pneumonia, deep venous thrombosis, kidney

and/or ureter calculi, spasticity, and pain. persons with SCI also have the experience of serious psychological, psychosocial, and neurobehavioral issues and have the possibilities risk of anxiety disorders, feelings of helplessness, poor coping skills, low self-esteem, and depression (Arango-Lasprilla *et al.* 2013).

Depression is the most common psychological issue associated with SCI (Craig, Tran and Middleton, 2009). Depression is typically reported to occur in 20% to 40%, depending on the definition of depression, the time since injury, and the duration of the study (Anderson *et al.* 2007). Depression is very harmful for the person with SCI because it is effect on the ability to perform day- to-day-life activities. Sakakibara *et al.* (2009) they are reviewed the psychological morbidity and SCI and found that people with SCI 20% to 43% they having a risk of developing depression or depressive disorder during rehabilitation and when living in the community 11% to 60% of SCI having the risk of raised depressive symptoms.

Negative outcomes associated with depression among persons with SCI include diminished quality of life, poor social integration, and increased secondary medical complications (Arango-Lasprilla *et al.* 2013). QOL has been found to be diminished following SCI (Dijkers, 2005). According to WHOQOL group (1998); QOL has been described as ‘individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns’.

QOL in persons with SCI is much related to mental health, mobility, employment, accessibility of the external environment, social support and coping (Geyh *et al.* 2013). Some factors can also is influenced QOL, including physical, psychological and emotional function, ability to work and to perform leisure activities and relations to other people and society (Kreuter *et al.* 2005).

Literature shows that QOL after SCI is not uniformly worse, but rather a spectrum of recovery outcomes exist that range from QOL well below the general population to QOL that surpasses healthy population averages (Hill *et al.* 2010). QOL for people with SCI and the factors they identify as contributing to the experience of quality in their lives (Hammell, 2007). According to Hammell (2004) stated that QOL has justifiably become both the ultimate goal of rehabilitation following SCI and a key

outcome in determining the effectiveness of rehabilitation programmes for people with SCI.

In many literature, shows that SCI can affect a person's QOL. It also increases the rate of depression after SCI. Nowadays; In Bangladesh this injury is very common. The researcher worked several times with the patients of SCI during clinical placement. She has seen that after injury persons become depressive about their condition and as a result their QOL also decreased. At that time she thought about the link between depression and QOL. In Bangladesh still there is no study about depression and QOL. Researcher gets an opportunity to conduct a research in her final year to accomplish her course. That is why she is very interested to find out any relationship between depression and QOL after SCI.

1.3 Significance

SCI is a condition which can be limited a person's better QOL. QOL is important issues after SCI. QOL is both the ultimate goal of rehabilitation following SCI and a key outcome to be used in determining the effectiveness of rehabilitation programmes (Hammell, 2007). The self-evident goals of rehabilitation and ongoing care of persons with SCI are to limit the complications of their conditions and to assist them in the process of optimizing function and QOL (Kreuter *et al.* 2005).

Different types of psychological factors affect to achieve better QOL. After SCI depression is very common. Psychological issues such as stress are known to have correlations with the QOL. The heightened stress levels in individuals with SCI further decrease their QOL. The changes in resilience as a result of the SCI are also believed to have correlation with satisfaction of life, onset of depression, and functional independence during inpatient rehabilitation after SCI (Shin *et al.* 2012). Still there is no study in Bangladesh about the relationship in between depression and QOL following SCI. Depression have been found to have a major impact on health, lower performance of activities of daily living after SCI. Study will show the factors which affect the QOL after the injury. If this factor can be consider during the treatment session which can enhance the better QOL. According to Patrick (1994), enhancing quality of life is the goal of all health promotion, treatment and service provision for people with disabilities. Timothy and Paul, (2004) mentioned that, higher levels of depression-as measured by a variety of self-report measures that

assess symptoms often associated with depressive syndromes-have been associated with increased expenditures and longer rehabilitation stays and with decreased quality of life.

By this study Occupational Therapists and other professionals can understand about the effect of depression on QOL after SCI. They will aware about the depression. Qualified Occupational therapist who works with the patients of SCI they can modify the depression for the better QOL.

1.4 Aim of the study

The aim of this study is to find out whether there is any relation in between depression and QOL following SCI.

1.5 Objective of the study

- To evaluate the level of depression of SCI.
- To know about the association in between QOL in people with SCI and depression.
- To know about any association in between depression and socio-demographic information (age, sex, educational status, marital status, monthly income, types of injury, treatment stage).

CHAPTER 2 LITERATURE REVIEW

2.1 Spinal Cord Injury (SCI):

The spinal cord is situated within the spinal column; it extends down from the brain to the L1–L2 vertebral level, ending in the conus medullaris. Continuing from the end of the spinal cord, in the spinal canal, is the cauda equine (or “horse’s tail”). The spinal cord itself has neurological segmental levels that correspond to the nerve roots that exit the spinal column between each of the vertebrae. There are 31 pairs of spinal nerve roots: 8 cervical, 12 thoracic, 5 lumbar, 5 sacral and 1 coccygeal. Owing to the difference in length between the spinal column and the spinal cord, the neurological levels do not necessarily correspond to the vertebral segments (International perspective of spinal cord injury, 2013).

According to Furlan *et al.* (2013) traumatic SCI can result in motor, sensory and autonomic dysfunction, all of which can be devastating for the individual, both socially and economically. Paraplegia affects the lower extremities of the body. It refers to motor and sensory impairment at the thoracic, lumbar, or sacral segments of the cord. Paraplegia results in sparing of arm function and, depending on the level of the lesion, impairment in the trunk, legs, and pelvic organs (Radomski and Latham, 2008). Tetraplegia affects all extremities of the body. It results in functional impairment in the arms, trunks, legs, pelvic organs. The term tetraplegia which has defined as impairment in motor and/ or sensory function in the cervical segments of the spinal cord (Radomski and Latham, 2008). SCI, either traumatic or non-traumatic in origin, and the disabilities that follow are of great concern to the medical world, to the person affected, their family and society as whole (Berg *et al.* 2010). The injury usually results in permanent paralysis of voluntary muscles and loss of sensation below the lesion, which is associated with reduced mobility and functional independence, impairment of social and vocational activities, as well as negative influences on the person's health and well-being (Middleton, Tran and Craig, 2007). Angel, Kirkevold and Pedersen (2009) they found in their study, SCI makes it difficult to get on with life because of the devastating and persistent nature of the physical impairments, the losses and the associated reduced the quality of life.

Traumatic spinal cord injury:

Traumatic SCI is defined as an acute, traumatic lesion of the spinal cord, with varying degrees of motor and/or sensory deficit or paralysis. Traumatic spinal cord injuries are life-changing events. The combination of consequent general physiological impairment, multisystem malfunction, disabilities, a wide range of potential complications, and sensory impairment, together with the non-medical effects, presents challenges to affected persons, carers, and clinicians (Razzak, 2013). Traumatic SCI results from motor vehicle collisions (36.5%), falls (28.5%), violence (14.3%) and sports (9.2%) activities being leading causes. Since (2010), motor vehicle crashes account for 36.5% of reported SCI cases. In a study of Razzak (2013), found that the rate of depression after SCI in Bangladesh because of traumatic injury is 16.9% at CRP. Particularly for rehabilitation of people with traumatic SCI, have been concerned not only with degree of loss of function, but also with quality of life (Geyh *et al.* 2013).

Non-traumatic SCI:

Spinal cord injuries occur in a variety of ways. In adults, damage to the spinal column is usually also involved and the cord is stretched, bruised, impacted or compacted because of an external force or movement (Causes of spinal cord injury, 2015). Non-traumatic caused by Inflammation or swelling, Tumor, Vascular- bleeding in the spinal cord or blocked blood flow, Viruses or bacterial infections such as tuberculosis (Heather Flett, 2010). Non-traumatic SCI appears to represent a significant proportion of individuals with SCI admitted to rehabilitation settings and, as in traumatic SCI. Non-traumatic SCI is less severe injury than the traumatic injury. Non-traumatic SCI almost have incomplete injuries, while traumatic injuries are slightly more likely to have to have incomplete injuries. Incomplete injuries are far better prognosis for neurologic improvement than complete injuries. Persons with traumatic SCI; persons with non-traumatic SCI are significantly more likely to have paraplegia than tetraplegia (Ranvi, 2010). An estimate of the incidence of non-traumatic as well as traumatic SCI is needed for adequate health care planning (Berg *et al.* 2010).

2.2. Epidemiology, incidence and prevalence of the SCI:

The world age-standardized incidence (risk) ranges between 10.4 and 83 per million persons per year, with the risk being much higher for men aged 15–24 years at approximately 40 per million (Wyndaele and Wyndaele, 2006). Incidence and prevalence of SCI is important know because of their high personal, bio-psychological impact and their high socio-economic consequences, short-term as well as long-term. The rate of incidence is reflecting the level of control of SCI and the possible need for improved prevention (Wyndaele and Wyndaele, 2006).

According to Wyndaele and Wyndaele (2006), worldwide prevalence has been estimated to range between 223 and 755 per million people and because of improved survival rates, SCI prevalence is increasing. On the basis of a national data base of 30,822 SCI people in the United States, life expectancy of persons with SCI has been shown to increase over the past 30 years, with mortality rates reducing by approximately 40% in the first 2 years after the injury (Strauss *et al.* 2006). According to NSCISC (2013), it is estimated that the annual incidence of SCI, not including those who die at the scene of the accident, is approximately 40 cases per million population in the U. S. or approximately 12,000 new cases each year. The prevalence SCI according to NSCISC (2013) in the United States who are alive with SCI has been estimated to be approximately 273,000 persons, with a range of 238,000 to 332,000 persons.

In Bangladesh the mean life expectancy of the people with SCI was found in a study 5.36 years. Overall, 56.4% of persons admitted with SCI died within 5 years and 43.6% survived 5 years or more after injury. A study shows in Bangladesh at CRP, the most vulnerable age groups were 20-40 years, covering 55.6% of persons. Frequency of SCI was less in those below 20 and above 50 years of age. In the 158 persons, 86.1% had injuries of traumatic and 13.9% of non-traumatic origin, leading to 79.75% with paraplegia and only 20.25% with tetraplegia (Razzak, 2011). In Bangladesh, 63% of SCI is caused by falling from a height (Hoque, Grangeon and Reed, 1999). Another common cause (18%), in Bangladesh Falling while carrying a heavy load on the head, usually resulting in tetraplegia (Razzak, 2011).

2.3 Expected functional outcomes:

Functional expected outcomes are based on knowledge of the sequential organization of spinal segments and the capability of spared muscle groups to perform specific activities of daily living (ADL). The level of functional outcomes ultimately achieved by an individual will also be influenced by a variety of medical and non-medical factors, such as age, body size and weight, associated injuries, severity of spasticity, motivation, family support, living environment, pre-morbid lifestyle, vocation, educational and financial status (Jongjit *et al.* 2004).

Alexander *et al.* (2009) mentioned that a clinically meaningful change in a functional outcome, a significant change in activities of daily living or an improvement in QOL.

Level	Patterns of weakness	Functional outcomes
C1-C3	Total paralysis of trunk, upper extremities, lower extremities, dependent on ventilator.	<ul style="list-style-type: none"> - Physical dependence for personal care and ADLs - Physical dependence for mobility (hoist transfers) and pressure care - Often require ventilator to breathe due to diaphragm paralysis - Able to operate an electric wheelchair with head/chin control
C4	Paralysis of trunk, upper extremities, lower extremities, endurance and respiratory reserve low secondary to paralysis of intercostal.	<ul style="list-style-type: none"> - Physical dependence for personal care and ADLs - Able to breathe without a ventilator - Able to control aspects of environment through assistive technology.
C5	Absence of elbow extension, pronation, all wrist and hand movement ; total paralysis of trunk and lower extremities	<ul style="list-style-type: none"> - Can assist with personal care and ADLs - Independently able to complete some physical tasks - Can assist with bed mobility and hoist transfers - Able to propel a manual wheelchair on flat surfaces indoors for short

		distances.
C6	Absence of wrist flexion, elbow extension, hand movement; total paralysis of trunk and lower extremities	<ul style="list-style-type: none"> - Potential for physical independence with some personal care and ADLs tasks - Capacity to use a manual wheelchair - Potential to drive with vehicle modifications - Potential to live independently with support/care
C7-8	Paralysis of trunk and lower extremities; limited grasp and dexterity secondary to partial intrinsic muscles of the hand	<ul style="list-style-type: none"> - Ability to be physically independent with personal care and ADLs - Independent with bed mobility - Able to use a manual wheelchair - Potential to live independently with support - Require assistive equipment
T1 T1-6	Lower trunk paralysis; total paralysis of lower extremities Hand Muscles weakness	<ul style="list-style-type: none"> - Full function of upper limbs and hands - Able to lift transfer independently - May require assistive equipment due to lack of trunk stability - Independent with manual wheelchair - Able to live independently
T7- T12	Paralysis of lower extremities	<ul style="list-style-type: none"> - As for T1-T6 with greater preservation of trunk function, improving balance and therefore able to complete more challenging tasks
L2-S5	Partial paralysis of lower extremities, hips, knees, ankle, foot.	<ul style="list-style-type: none"> - Independent for personal care and ADLs - Able to lift transfer independently with potential to stand transfer - Able to live independently

(Functional Outcomes following Spinal Cord Injury, Pendleton and Schultz- Krohn, 2013).

2.4 Factors associated with SCI:

SCI causes significant losses in many areas: physical, functional, social, and financial. Typically each patient was expected to experience shock, denial, depression, anger, dependency, and finally adjustment. After SCI, as after any significant loss, people grieve. A variety of factors influence the manner these includes- personal characteristics such as personality; cognitive styles, values, attitudes, and psychological health prior to the injury; prior loss experiences; and age (Somers, 1992). Some factors influence the outcome of SCI such as family support, adjustment and coping, productivity, self-esteem, financial stability, education, and the physical and social environment (Whiteneck *et al.* 2004). Other factors that affect psychological adjustment, chronic pain, chronic fatigue, medication, isolation, boredom, medical complications and body image, cognitive problems/TBI, family/Friends/Social Supports. Psychological adjustment is influenced by how people are treated during the rehabilitation phase (Dezarnaulds and Ilchef, 2014).

2.5 Appears of depression after SCI:

The word “depression” is used to describe a variety of states- it can refer to a mood state, a symptom of several disorders, or a syndrome or collection of symptoms that frequently occur together or one of several disorders (Kalpakjian *et al.* 2009). The injured person becomes socially isolated and eventually depressed due to stresses caused. Bombardier (2014) mentioned another major cause of depression is medical problem which can change in certain brain chemicals called “neurotransmitters.” This chemical imbalance is linked to depression. It is not being involved in activities that are fun, and being physically inactive are also risk factors.

Depression is a mood disorder accompanied by low self-esteem, feeling of inadequacy, lack of self-sufficiency, and unfavorable self-impression. It is a painful experience that depends either on a violent blow or expectation of coming danger from an unknown source (Pashang, Zare and Alipor, 2012). Depressive symptoms are also associated with lack of social and occupational involvement (Radomski and Latham, 2008). Depressive disorders are the most common psychological problems in SCI patients (Elliot, 1996). The rates of clinically significant symptoms range from approximately 14% to 35%, and major depression have been reported in 10% to 15% of people with SCI. Psychological issues such as stress are known to have correlations with the QOL (Krause, Kemp and Coker, 2000) . A recent review of psychological

morbidity and SCI found that 20% to 43% of people with SCI are at risk of having a depressive disorder during rehabilitation, and 11% to 60% are at risk of having raised depressive symptoms when living in the community (Sakakibara *et al.* 2009). The heightened stress levels in individuals with SCI further decrease their QOL. Faber, (2005) stated that depression does not diagnosed by sadness alone; it can make a change in sleep, appetite hopelessness or guilt. Krueger *et al.* (2013) in their study show that higher level of depression and anxiety which can worse pain, lower self-esteem and lower participation after having SCI.

The severity of depression ranges from minor depression to adjustment disorders and major depressive episodes. Their type, duration, pervasiveness of symptoms, and effect on functions are variable. However, even subclinical levels of depression have been found to have a major impact on health, activities of daily living, and interpersonal relationships with nondisabled people (Judd *et al.* 1996). The changes in resilience as a result of the SCI are also believed to have correlation with satisfaction of life, onset of depression, and functional independence during inpatient rehabilitation after an SCI (Brian, Simon and Ann Marie, 2010). The psychological variables are important parameters that can affect functional independence, making evaluation necessary in early periods of rehabilitation (Kennedy *et al.* 2011). Dryden *et al.* (2005) mentioned that, depression has been shown when the persons with SCI stay for inpatient rehabilitation long time and adversely affect the short and long-term rehabilitation of persons with SCI, higher dependence following discharge; poor compliance with self-care needs, higher medical costs and the rate of suicide is increased.

2.6 Quality Of Life after having SCI:

Skevington, Lotfy and O'Connell, (2004) stated on their study defines QOL, according to WHO as 'individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns'. It is a broad ranging concept incorporating in a complex way the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of the environment (WHOQOL, 1999). This definition reflects the view that QOL refers to a subjective evaluation, which is embedded in a cultural, social and environmental context. As such, QOL cannot be simply equated with the terms "health status", "life

style”, “life satisfaction”, “mental state”, or “well-being” (WHOQOL, 1999). Researchers and Many rehabilitation clinicians have been surprised by the results of QOL studies in persons with SCI. Most studies showed that persons with SCI have, on average much lower scores on the Physical Functioning and Role Limitations Due to Physical Problems scales than the general population (Post and Noreau, 2005). According to Elliott and Kennedy (2004), depression can construct as a secondary complication that severely limits mobility, reduces quality of life and occurs at expense to the person, to the family, and to healthcare delivery systems.

A better QOL is the ultimate goal of rehabilitation (Jang *et al.* 2004). QOL is a key outcome measure following the SCI. QOL is influenced by a variety of factors, including physical, psychological and emotional function, ability to work and to perform leisure activities and relations to other people and society (Kreuter *et al.* 2005). QOL is combined of physical, psychosocial, and psychological predictors and correlates to develop a greater understanding of the nature of QOL after SCI (Tate, Kalpakjian and Forchheimer, 2002). In a study shows the awareness regarding the concept of QOL that a large majority (72%) of British health care professionals associated QOL with happiness. The other most often mentioned descriptions included elements of social (26%), physical (25%), or mental (18%) health or functioning (Post and Noreau, 2005).

SCI is generally a devastating disorder that can have a profound impact on independence and lifestyle, related to loss of motor and sensory function as well as associated problems such as bladder, bowel, and sexual dysfunction, chronic pain, increased risk of mental health problems and drug dependence, increased risk of re-hospitalization, relationship and marital difficulties, and poor vocation prospects (Middleton, Tran and Craig, 2007).

As a construct representing an individual's overall summation of all components of his/her situation, QOL is considered an integral part of the disease-functioning continuum. QOL affects, and is affected by, all the disability dimensions. QOL after SCI appears to be influenced by severity of impairment, age, sex, race, marital status, educational level, medical complications, self-perceived health, mobility, environmental surroundings, work, and participation in various domains (Chang *et al.* 2012). QOL refers to the physical, social, psychological, and existential aspects of

well-being that might be affected by disease, disability, and its treatments (Tate, Kalpakjian and Forchheimer, 2002).

QOL in persons with SCI is consistently related to mental health, mobility, employment, overall participation, accessibility of the external environment, social support and coping (Post and Noreau, 2005). QOL assessment is vital for persons with SCI, as it is a condition where different degrees of physical limitations and related complications (for example: pain, bowel, bladder and sexual problems, and so on.) can cause significant restrictions in daily activities, health and well-being (Tramonti, Gerini and Stampacchia, 2014).

CHAPTER 3 METHODOLOGY

3.1 Study Design:

Quantitative research design focuses on descriptive study. Jack and Norman (2000) suggested that; Quantitative data are obtained when the variable being studied is measured along a scale that indicates how much of the variable is present. Quantitative data are reported in terms of scores. Higher scores indicate that more of the variable (Such as weight, academic ability, self-esteem, or interest in mathematics) is present than do lower scores. Descriptive studies are those data that can describe, organize, and summarize data. They include such things as frequencies, percentages, descriptions of central tendency (mean, median, and mode) and descriptions of relative position (range, standard deviation) (Baiely, 1997).

A cross sectional survey collects information from a sample that has been drawn from a predetermined population (Jack and Norman, 2000). The study was conducted through cross sectional study design that represent the whole population of SCI. Levin (2006) stated that Cross-sectional studies are carried out at one time point or over a short period. Cross-sectional study design used for this study because those people were received treatment from Centre for the Rehabilitation of the paralyzed (CRP) and researcher collected data from them. For this study over a short period of time data was collected of the participants who have depression after the injury. Data also collected on individual characteristics, including exposure to risk factors, information about the outcome. In this way cross sectional studies provided a 'snapshot' of the outcome participants are staying at CRP for 6 month (from April-September, 2014) and the characteristics associated with it, at a specific point in time. The sample used in a large cross-sectional study is often taken from the whole population. In this way this study was provided a snapshot of the characteristics associated with it. By this study it was trying to find out any association between ages, sex, cause of injury, educational status, monthly income, occupation and type of injury.

3.2 Study Settings:

Researcher collected data from those peoples who are receiving treatment in SCI unit in CRP, Savar, Dhaka. The Centre for the Rehabilitation of the Paralyzed (CRP) has developed into an internationally respected organization (CRP- BANGLADESH). Researcher has chosen that setting because the participants were available in SCI unit.

The hospital at CRP-Savar was the only hospital in Bangladesh that specializes in the treatment of spinal cord injuries. The SCI Unit is in-patient only. It consists of 108 beds, with 12 wards (one post-operative ward, one female and ten male wards, this is due to the majority of spinal cord injuries occurring in young males). The major causes of spinal cord injuries are via fall from height or tree, carrying heavy loads on head, diving into shallow water, heavy objects falling on their back, or road traffic accidents. Rehabilitation following a SCI consists of four phases: Acute, active, rehabilitation and community reintegration (CRP BANGLADESH, 2014).

3.3 Population and sample of the study:

Population was selected people with SCI who were in active phase of their treatment session. Sample group of this study was Persons who have the SCI and receiving rehabilitation from CRP.

3.4 Sample size of the study:

This was a study for undergraduate student and the time for data collection was highest 3 months.

The standard sample size was 164. So by considering the context the researcher was collected data from as much highest sample can collect during this time. Researcher collected 102 participants within the time of study by maintain inclusion criteria. Participants those were fulfill their inclusion criteria only they were included on this study.

3.5 Sampling procedure:

Sample was selected conveniently for conducting this study. A convenience sample is a group of individuals who (conveniently) are available for study. It was extremely difficult to select either a random or a systematic nonrandom sample (Frankel and Wallen, 2000).

3.6 Data collection tools:

A questionnaire survey was conducted to all the participants, which comprised questions regarding basic information about the patients, assessment of ‘Depression Scale-DS’ and ‘World Health Organization Quality Of Life Questionnaire-BREF (WHOQOL-BREF)’. Depression Scale- DS was a newly developed Depression Scale in the context of Bangladesh. Depression Scale was easy to administer, it had been taken about ten to fifteen minutes to respond. Scale had five points rating scale

consisting 30 items. Higher scores indicate higher level of depression. Highest score was 150 and lowest are 30 (Uddin and Rahman, 2005). QOL measurement tools was an established tools at SCI-related research; assessing QOL by using the WHOQOL-BREF, which was a 26-item version of the WHOQOL-100 assessment. The WHOQOL-BREF questionnaire was developed in the context of overall rate of QOL and overall rate of health status. Also the four domains defining the QOL: physical, psychological, social, and environmental. The higher the QOL score the higher the life satisfaction. The WHOQOL-BREF contains a total of 26 questions. The WHOQOL-BREF was available in 19 languages. The WHOQOL-BREF should be self-administered if respondents have sufficient reading ability; otherwise, interviewer-assisted or interview-administered forms should be used. Basic information of the patient detailed age, sex, type of SCI (level of injury, completeness of injury), etiology of injury and length of time since sustainment of injury was up to the dated during the survey was conducted.

3.7 Data collection procedure:

The primary data was collected by the researcher. The primary data was collected from the participants directly observing or by asking questions. For this study researcher collected data from the participants by following the instructions given on the 'WHOQOL-BREF' and 'Depression Scale-DS'. This data collection tools were permitted from the authors to use this study. WHOQOL-BREF was a self-administered if participants had sufficient reading ability. Otherwise interviewer-assisted or interview-administered forms can be used. Participants who had the reading ability they administered the questionnaire own-self. Before collecting data the study aims and purpose explained to the participants. The participants or caregivers read (if they can) the information sheet and consent form. Who were unable to read researcher explained the information sheet and consent form. All the participants had the opportunities to ask any study related questions and they showed interest to participate in the study they signed in the consent form willingly. The researcher collected data by structured questionnaire, pen, pencil and paper. If any question that was in the questioner difficult to understand for the participants researcher helped to understand indirectly. Data collection procedure took an average 30 minutes to collect one data from one participant. The researcher collected demographic information from the participants. The CRP also permitted to collect data for this study.

3.8 Data analysis:

The researcher analyzed data for evaluating the level of depression by doing. Researcher also did mean analysis which was the average set of scores, (Hicks, 2000). To find out any relation in between depression and QOL also the association with depression and socio demographic information researcher used Chi-squared (χ^2) analysis for this study. The association designed and analyzed which has been covered only ordinal data (Hicks, 2000). The data of this study focused on ordinal data and association design analysis has been chosen. The data was collected and coded, classified the data and analyzed by using statistical package for social sciences (SPSS) 17.0 version.

3.9 Field test:

A field test was conducted with three participants. Before final data collection, it was necessary to do a field test. This helped the researcher to understand whether the questionnaires were understandable by the participants or not. Before starting the data collection researcher informed the participants about the aim and objectives of the study. From the field test researcher becomes aware of some parts and it helped to structure the questionnaires.

3.10 Inclusion criteria:

- People who were completed their acute stage of treatment session
- Information had been taken form the clients only
- Both male and female patients with SCI (from April-September, 2014)

3.11 Exclusion criteria:

- People who had SCI with psychological disorders
- SCI patients with severe head injury
- SCI with speech problem

3.12 Ethical consideration:

The researcher maintained some ethical considerations:

After getting the permission of doing this study from the academic institute the researcher had been started to do it. The researcher had been taken permission for data collection from the SCI unit of Savar, CRP. The participants would be informed before to invite participation in the study. A written consent form used to take the permission of each participant for the study. The researcher ensured that all

participants were informed about their rights and reserves and about the aim and objectives of the study. Researcher also ensured that the organization (CRP) was not hampered by the study. All kinds of confidentiality highly maintained. The researcher ensured not to leak out any type of confidentialities. The researcher was eligible to do the study after knowing the academic and clinical rules of doing the study about what should be done and what should not. All rights of the participant were reserved and researcher was accountable to the participant to answer any type of study related question.

3.13 Possible constrain:

During the time of study there might be some possible constraints for which the plan may be changed. Some of these are:

- The researcher may get sick at any time.
- Any of the participants may drop out from the study.
- Number of client may decrease due to political turbulence situation or weather.

CHAPTER 04 RESULT

Result presentation:

The result of the study presented in table and bar chart. Such as, the level of depression and descriptive analysis presented in bar chart. The association of level of depression with socio-demographic characteristics was presented in table. Data was collected from 102 participants with SCI and this section provides statistical analysis in a systematic way.

Result at a glance:

Aim	Objectives	Findings
The aim of this study is to find out whether there is any relation in between depression and QOL following SCI.	1. To evaluate the level of depression of SCI.	Level of depression had been found at minimal 82.4%, mild 7.8%, moderate 5.9% and severe 3.9% after having SCI.
	2. To know about the association in between QOL in people with SCI and depression.	Strongly associated (P>.001, $\chi^2=34.571$).
	3. To know about any association in between depression and socio-demographic information (age, sex, educational status, marital status, monthly income, types of injury, treatment stage).	Association was found between depression and Occupation (P>0.027, $\chi^2=27.193$), level of injury (P>.000, $\chi^2=35.352$), phase of treatment (P>.020, $\chi^2=9.860$), age (p>.048, $\chi^2=12.685$).
		No association found between depression and sex (p<.167, $\chi^2=5.068$), Educational status (p<.644, $\chi^2=4.240$), marital status (p<.117, $\chi^2=$), monthly income (p<.689, $\chi^2=5.898$), cause of injury (p<.821, $\chi^2=7.528$).

4.1. Demographic Details:

Of 102 participants, 90.2% (n=92) were male and 9.8% (n=10) were female. Participants of the study ranges from 15 to 75 years of age and the mean age group was 15-30 years 50.0% (n=51). Second most participants of this study were in between 31-45 years of age 36.3% (n=37) and participants above 46 years of age were 13.7% (n=14). Almost more than 50% participants had high school and above level of education 52.9% (n=54), Primary school was 25.5% (n=26) and participants with no education were 21.6% (n=22). Most of the participants were married 65.7% (n=67) and unmarried were 34.5% (n=35). Majority of the participants 35.3% (n=36) earned (6,000-10,000tk.), less than 6,000 were 26.5% (n=27) per month. Participants who had no income were 21.6% (n=22). Some participants 9.8% (n=10) earned (11,000 to 15,000 tk.), 3.9% (n=4) earned (16,000 to 20,000 tk.) and 2.9% (n=3) earned (21,000–above) per month. Participants used to earn money involving themselves with different types of work. Among them 32.4% (n=33) participants had their own job, business related participants were 7.8% (n=8), farmer were 26.5% (n=27), day laborer were 7.8% (n=8) and others related work (such as, carpenter, mason, dockyard worker) were 5.9% (n=6). Some participants 19.6% (n=20) were students but they also did some work (such as, tuition, part time jobs and so on). Most of the injury occurred due to fall from height 43.1% (n=44), road traffic accident 27.5% (n=28), fall while carrying heavy load 16.7% (n=17). Exposure to particular circumstances like gun shoot, stab wound, bull attack etc. are causing 4.9% (n=5) injury. Other causes like fall onto a slippery surface, electrical shock contribute to 7.8% (n=8) of injury. Most of the participants of the study 37.3% (n=38) became complete paraplegia. Participants with incomplete paraplegia were found 31.5% (n=32), complete tetraplegia 30.5% (n=31) and incomplete tetraplegia were 1.0% (n=1). During the conduction of the study most of the participants were receiving treatment at the active phase 94.1% (n=96) and rehabilitation phase 5.9% (n=6). Table: 4.1: summarizes the socio- demographic and SCI related characteristics.

Demographic characteristics of the participants:		Number of participants	Percentage
Sex	Male	92	90.2
	Female	10	9.8
Age levels	15-30 years	51	50.0
	31-45 years	37	36.3
	46-above years	14	13.7
Educational level	Illiterate	22	21.6
	Primary school	26	25.5
	High school and above	54	52.9
Marital Status	Married	67	65.7
	Unmarried	35	34.3
Types of work	Job	33	32.4
	Business	8	7.8
	Student	20	19.6
	Farmer	27	26.5
	Day labor	8	7.8
	Others	6	5.9
Monthly income	0	22	21.6
	1,000-5,000	27	26.5
	6,000-10,000	36	35.3
	11,000-15,000	10	9.8
	16,000-20,000	4	3.9
	21,000-above	3	2.9
Level of injury	Complete paraplegia	38	37.3
	Incomplete paraplegia	32	31.4
	Complete tetraplegia	31	30.4
	Incomplete tetraplegia	1	1.0
Stage of treatment	Active stage	96	94.1
	Rehabilitation stage	6	5.9
Cause of injury	Road accident	28	27.5
	Violence	5	4.9
	Overload on the body	17	16.7
	Fall from height	44	43.1
	Others	8	7.8

Table 4.1: Demographic characteristics of the participants (N=102).

4.2. Depression:

'Depression Scale' had been used to find out the level of depression of the study participants. Most of the participants had minimal 82.4% (n=84) depression after SCI. Others had mild 7.8% (n=8), moderate 5.9% (n=6) and severe 3.9% (n=4). (See bar chart: 4.2).

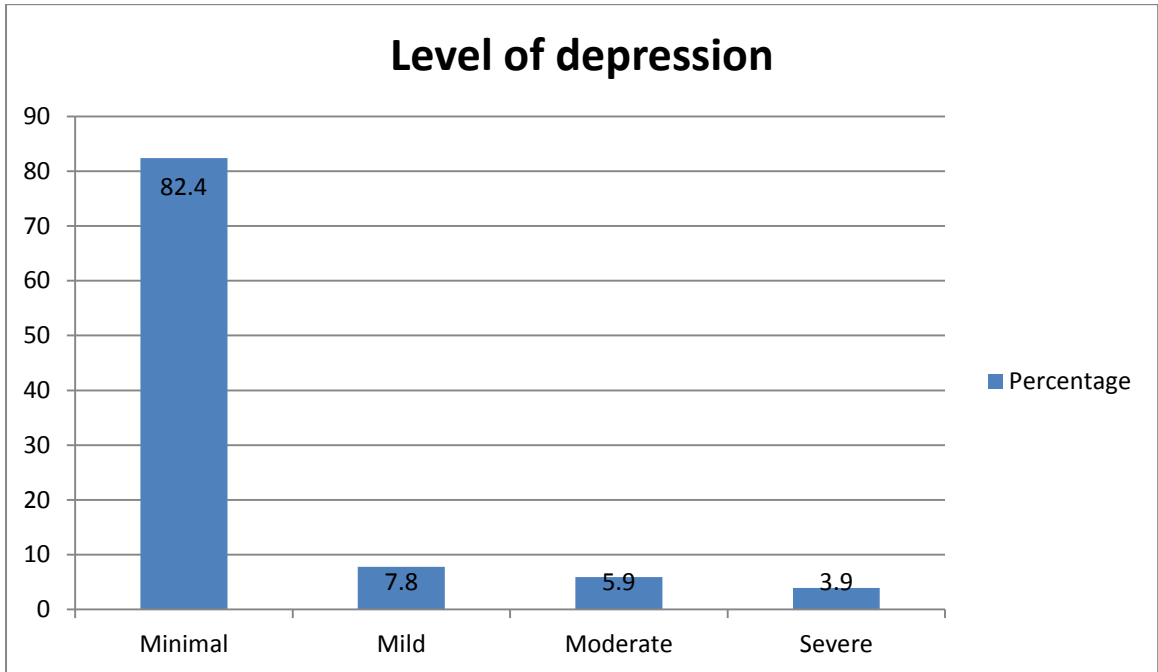


Figure 4.2: Level of depression

4.3. Relationship between depression and quality of life of participants

Depression scale	Quality of life					Chi-square Value (χ^2)	P-value
	Very poor	Poor	Neither poor nor good	Good	Very good		
	8.8%	23.5%	41.2%	25.5%	1.0%		
Depression Level							
minimal	4.8%	19.0%	44.0%	31.0%	1.2%	34.571	.001
mild	12.5%	50.0%	37.5%	0.0%	0.0%		
moderate	16.7%	50.0%	33.3%	0.0%	0.0%		
severe	75.0%	25.0%	0.0%	0.0%	0.0%		

Table 4.3: Association between Depression and Overall quality of life (total N=102).

This study found an association between overall quality of life and depression among 102 participants. Most of the participants (n=42) had neither poor nor good QOL but the minimal, mild, moderate and severe depression level had been found for these group were respectively 44.0% (n=37), 37.5% (n=3), 33.3% (n=2). No severe level of depression had been found in terms of the above mentioned group.

Moreover 1.0% (n=1) participants had very good QOL who had the minimal 1.2% (n=1) depression level. This result shows that there was an association between QOL and depression which also has statistically significance ($P > .001$).

This result signifies that participants in between the state of poor and very poor quality of life following the injury had severe level of depression. On the other hand participants with poor QOL 23.5% (n=24) revealed moderate level 50.0% (n=3) of depression. Participants with poor QOL demonstrated 19% (n=16) minimal level of depression following their injury. Participants with good QOL 25.5% (n=26) had only minimal level of depression 31.0% (n=26) and no others level of depression had been found.

4.4: Association between depression and demographic characteristics:

Variables	Depression				Chi-square Value (χ^2)	P-value
	Minimal	Mild	Moderate	Severe		
Occupation						
Job	84.8%	9.1%	6.1%	0.00%	27.193	.027
Business	87.5%	0.00%	0.00%	12.5%		
Student	90.0%	5.0%	0.00%	5.0%		
Farmer	81.5%	3.7%	11.1%	3.7%		
Day labor	87.5%	0.00%	12.5%	0.00%		
Others	33.3%	50.0%	0.00%	16.7%		

Table: 4.4.1. Association between depression and occupation (χ^2) test.

In terms of occupational status majority of the participants had been involved in job related work (n=33). Among them minimal level of depression was 84.8% (n=28), mild was 9.1% (n=3) and moderate level of depression was 6.1% (n=2). These mentioned participants had no severe level of depression. Severe level of depression for business and study related participants had been found 12.5% (n=1) and 5.0% (n=1) respectively. 87.5% (n=7) level had been found as the minimal level of depression in case of business related participants. On the other hand minimal 90.0% (n=18) and mild 5.0% (n=1) level of depression was found for the study related participants. But no moderate level of depression had been found in case of study related participants. Most of the participants of this study were from job related work but remarkable number of participants (n=27) was farmer. In terms of farmers the level of depression such as minimal, mild, moderate and severe had been found 81.5% (n=22), 3.7% (n=1), 11.1% (n=3) and 3.7% (n=1) separately. Some participants were day laborer (n=8), among them minimal 87.5% (n=7) and moderate 12.5% (n=1) level of depression was found. It was also found that, the others (such as, carpenter, mason, dockyard etc.) work related participants had minimal 33.3% (n=2), mild 50.0% (n=3) and severe 16.7% (n=1) level of depression. Association was found statistically significance ($P>0.027$) between Occupation and depression.

Variables	Depression				Chi-square Value (χ^2)	P- value
	Minimal	Mild	Moderate	Severe		
Level of Injury						
Complete paraplegia	94.7%	2.6%	2.6%	0.00%	35.352	.000
Incomplete paraplegia	90.6%	9.4%	0.00%	0.00%		
Complete tetraplegia	61.3%	12.9%	12.9%	12.9%		
Incomplete tetraplegia	0.00%	0.00%	100.0%	0.00%		

Table: 4.4.2. Association between depression and level of injury (χ^2) test.

Association had been found which was statistically significance ($P>.000$) between level of injury and depression. Most of the participants were complete paraplegia types of injury (n=38). Minimal level of depression 94.7% (n=36) was found at the top in comparison with other types of injury. Mild and moderate level of depression of these participants were found respectively 2.6% (n=1) and 2.6% (n=1). No severe level of depression was found for this mentioned level of injury in the study.

All level of depression had been found for the participants with complete tetraplegia. In terms of 32 incomplete paraplegia minimal and mild level of depression had been found and the percentage of these were 90.6 (n=29) and 9.4 (n=3) respectively. But no moderate and severe level of depression was found for participants with incomplete paraplegia. For participants with incomplete tetraplegia only moderate level of depression 100% (n=1) was found but no other level of depression had been found.

Variables	Depression				Chi-square Value (χ^2)	P-value
	Minimal	Mild	Moderate	Severe		
Phage of treatment						
Active phase	84.4%	7.3%	4.2%	4.2%	9.860	.020
Rehabilitation phase	50.0%	16.7%	33.3%	0.00%		

Table: 4.4.3. Association between depression and phage of treatment (χ^2) test.

Maximum participants (n=96) during the study conduction were receiving treatment at the active stage. All level of depression had been found among them. Minimal, mild, moderate and severe level of depression of these participants had been found 84.4 % (n=81), 7.3 % (n=7), 4.2 % (n=4) and 4.2% (n=4) separately. Minimal, mild and moderate level of depression was found among all participants (n=6) who were receiving treatment at the rehabilitation phase following their injury and the percentage were respectively 50.0 (n=3), 16.7 (n=1) and 33.3 (n=2). No severe level of depression had been found for these participants.

Association found between phase of treatment and the level of depression which was statistically significant (P>.020).

Variables	Depression				Chi-square Value (χ^2)	P-value
	Minimal	Mild	Moderate	Severe		
Age						
15-30 years	88.2%	3.9%	5.9%	2.0%	12.685	.048
31-45 years	78.4%	16.2%	2.7%	2.7%		
46-above years	71.4%	0.00%	14.3%	14.3%		

Table: 4.4.4. Association between depression and age (χ^2) test.

Participants (n=51) with age ranges from 15-30 years mostly participated to this study. Among them all level (minimal, mild, moderate and severe) of depression had been found and the percentages were individually 88.2 (n=45), 3.9 (n=2), 5.9 (n=3) and 1.2 (n=1).

The second most participants (n=37) of this study aged in between 31-45 years. All level of depression had been found among them and minimal, mild, moderate and severe level of depression were respectively 78.4% (n=29), 16.2% (n=6), 2.7% (n=1) and 2.7% (n=1). But mild level of depression of this age group had been found more than other age groups.

Participants above 46 years of age had minimal, moderate and severe level of depression with the percentage of 71.4 (n=10), 14.3 (n=2) and 14.3 (n=2) separately. Severe level of depression was found much higher than other age group of the study.

There was weak association between age and level of depression which was statistically significant ($p>.048$).

Variables	Depression				Chi-square Value (χ^2)	P-value
	Minimal	Mild	Moderate	Severe		
Sex						
Male	82.6%	8.7%	4.3%	4.3%	5.068	.167
Female	80.0%	0.00%	20.0%	0.00%		

Table: 4.4.5. Association between depression and sex (χ^2) test.

Most of the participants of this study were male ($n=92$). All level of depression had been found among them. Percentage of minimal, mild, moderate and severe level of depression of these participants were respectively 82.6 ($n=76$), 8.7 ($n=8$), 4.3 ($n=4$) and 4.3% ($n=4$). 10 female participants were found during the conduction of the study. Minimal and moderate level of depression had been found among them and the percentages were 80.0 ($n=8$) and 20.0 ($n=2$). No mild and severe level of depression had been found for these female participants. No association found between Sex and depression ($p<.167$).

Variables	Depression				Chi-square Value (χ^2)	P-value
	Minimal	Mild	Moderate	Severe		
Educational status						
Illiterate	86.4%	9.1%	0.00%	4.5%	4.240	.644
Primary school	80.8%	7.7%	11.5%	0.0%		
High school and above	81.5%	7.4%	5.6%	5.6%		

Table: 4.4.6. Association between depression and educational status (χ^2) test.

Participants above high school level of education were ($n=54$) and they were found the highest in number of this study. Of them minimal, mild, moderate and severe level of depression was found and the percentage were 81.5 ($n=44$), mild level was 7.4 ($n=4$), moderate and severe level of depression was 5.6 ($n=3$). Participants with primary level of education were found ($n=26$). Of them minimal, mild and moderate level of depression was found and the percentage were respectively 80.8 ($n=21$), 7.7 ($n=2$) and 11.5 ($n=3$).

Some participants (n=22) had no education. Minimal, mild and severe level of depression had been found among them. No moderate level of depression had been observed of them. No association between Educational status and depression had been observed (p<.644).

Variables	Depression				Chi-square Value (χ^2)	P- value
	Minimal	Mild	Moderate	Severe		
Marital Status						
Married	76.1%	10.4%	9.0%	4.5%	5.898	.117
Unmarried	94.3%	2.9%	0.0%	2.9%		

Table: 4.4.7. Association between depression and marital status (χ^2) test.

Married participants were in this study (n=67). Of them level of depression had been found at minimal, mild, moderate and severe and percentage were 76.1 (n=51), 10.4(n=7), 9.0 (n=6) and 4.5 (n=3) separately.

Depression was found of the study participants who were unmarried (n=35). Among them depression level had been observed at minimal, mild and severe. Their percentage were 94.3 (n=33), 2.9 (n=1) and 2.9 (n=1). But no moderate level of depression had been found of these unmarried participants. No association was found between marital status with the level of depression (p<.117).

Variables	Depression				Chi-square Value (χ^2)	P-value
	Minimal	Mild	Moderate	Severe		
Monthly income						
0	86.4%	4.5%	4.5%	4.5%	11.865	.689
1,000-5,000	77.8%	11.1%	7.4%	3.7%		
6,000-10,000	83.3%	5.6%	8.3%	2.8%		
11,000-20,000	90.0%	10.0%	0.0%	0.0%		
16,000-20,000	75.0%	25.0%	0.0%	0.0%		
21,000- above	66.7%	0.00%	0.0%	33.3%		

Table: 4.4.8. Association between depression and monthly income (χ^2) test.

Of 102 participants most of the participants (n=36) earned (6,000-10,000 tk.) per month. Among them level of depression had been found at minimal 83.3% (n=30), mild 5.6% (n=2), moderate 8.3 % (n=3) and severe 2.8% (n=1) respectively. Some of the participants who earned less than 6,000 taka and their level of depression had been found at all level. Minimal level of depression was 77.8% (n=21), mild 11.1 % (n=3), moderate 7.4% (n=2) and severe was 3.7% (n=1). Depression level also found participants who earned (11,000-15,000 tk.) at every month. For them, level of depression had been found at minimal 90.0% (n=9) and mild level 10.0% (n=1). No others level of depression were found for them. Some of the participants earned (16,000-20,000 tk.) but their level of depression was found at minimal level 75.0% (n=3) and mild level 25.0% (n=1). It was also found participants (n=3), who were earned above 21,000 taka per month, among them level of depression had been observed. Minimal level was 66.7% (n=2) and severe level was 33.3% (n=1). No mild and moderate level of depression had been found for these participants. No association had been found between monthly income and the level of depression (p<.689).

Variables	Depression				Chi-square Value (χ^2)	P- value
	Minimal	Mild	Moderate	Severe		
Cause of injury						
Road accident	75.0%	14.3%	7.1%	3.6%	7.528	.821
Violence	100.0%	0.00%	0.00%	0.00%		
Overload on the body	94.1%	5.9%	0.00%	0.00%		
Fall from height	79.5%	6.8%	6.8%	6.8%		
Others	87.5%	0.00%	12.5%	0.00%		

Table: 4.4.9. Association between depression and cause of injury (χ^2) test.

Most of the participants of the study injured due to fall from height (n=44). All level of depression had been found among these participants. Minimal level was 79.5 % (n=35), mild 6.8 % (n=3), moderate 6.8 % (n=3) and severe was 6.8 % (n=3). Another cause of injury had been found due to road traffic accident. Percentage of level of depression had been found minimal 75.0% (n=21), mild 14.3% (n=4), moderate 7.1% (n=2), and severe 3.6% (n=1). Participants who were injured due to violence their level of depression had been found at only minimal level 100% (n=5).

They had no others level of depression. Participants (n=8) also injured due to some other causes like fall onto a slippery surface, electrical shock contribute of injury. Level of depression had been found among them at minimal 87.5% (n=7) and moderate level 12.5% (n=1). There were no association between cause of injury and the level of depression ($p < .821$).

CHAPTER 5 DISCUSSION

This study was found, male participants 90.2% (n=92) were higher than the female participants 9.8% (n=10). Most of the injured participants of the study were male following injury. According to Razzak (2013) found that, among 56 participants 84% were male and 16.0% were female. Anderson et al. (2007) found that among 231 participants male were 63% and female were 37% following SCI.

In present study most of the participant's age group was (15-30 years). Similarly Bombardier *et al.* (2004) in their study found among 849 participants 15% was (25-49 years) age group. Most of the participants of the study were at above high school level of education. Similarly, Scivoletto *et al.* (1997) stated that among 100 participants 37% were at high school level of education.

In present study found most of the participants earned 6,000 to 10,000 taka per month. Another study of Bangladesh similarly found among 56 participants 32.1% (n=18) were earned more than 6,000 taka per month (Razzak, 2013). This study found a remarkable participants 26.5% (n=27) who were farmer. A study of Razzak (2013) also found almost similar participants 48.3% who were involved in farming. This study found the most leading cause of SCI was fall from height 43.1% (n=44). Other studies of Bangladesh also found the most leading cause of SCI was fall from height 50% among 56 participants (Razzak, 2013).

This study found most of the participants 37.3% (n=38) who were injured at the level of complete paraplegia. Lowest number of injured participants had been found at the level of incomplete tetraplegia following injury. Chang *et al.* (2012) similarly mentioned that among 341 participants 42.5% who were complete paraplegia after SCI. Lowest number of participants with incomplete tetraplegia also found at this study 17.9%. This study found most of the participants were in active phase of treatment session.

SCI, which may occur suddenly but its effect can be devastating. Razzak (2013) stated that in the perspective of Bangladesh, people live their lives under conditions that make them vulnerable to SCI. SCI affect persons for long-term, as well as it also impact on persons regular QOL. Similarly, SCI has an impact on quality of life as it

become to a high level of disability for long-term, morbidity and mortality (Razzak, 2011). Arango-Lasprilla *et al.* (2013) found that depression is associated with diminished quality of life. In this study found, there were a significant association between depression with quality of life after SCI ($P < .001$). Similarly, Shin *et al.* (2012) found in their study the severity of depression and level of stress were higher, whereas QOL was lower after SCI ($p < 0.05$). This study also found mild depression in most of the cases. Craig, Tran and Middleton (2009) also found in their study that there is the relation between higher levels of hopelessness/ helplessness and developing depression, which may change over time since injury.

This study found weak association between age with depression ($P < .048$). Similarly Bombardier *et al.* (2004) study found that, a significant association with depression and age of SCI peoples. Shin *et al.* (2012) stated that the high levels of depression may reflect the adjustment process itself. High level of depression patients who lived the longest with SCI may be because of their aging as a secondary condition. Arango-Lasprilla *et al.* (2013) also found association between age and depression at their study.

This study found a significant association between occupation with depression ($p < .027$). Because of lack of literature there were not found another study related with occupation and depression.

This study found association between type of injury with depression ($P < .000$). Shin *et al.* (2012) found that participants with incomplete SCI ($n=18$) were less depressed, had more life satisfaction and lesser stress levels. Dryden *et al.* (2005) found at their study, there were no relationship between level of depression and degree of disability. In this study found severe level of depression at complete tetraplegia injured. Whereas, SCI with incomplete paraplegia/ tetraplegia injured had no severe level of depression.

This study had been found an association between phase of treatment and depression following injury ($p < .020$). Craig, Tran and Middleton (2009) in their study suggested that the risk of depression during rehabilitation phase approximately 30% of people with SCI. Arango-Lasprilla *et al.* (2013) stated that depression has also been correlated with prolonged rehabilitation.

In this study there was not found any association between sex with depression. Arango-Lasprilla *et al.* (2013) in their study provided an understanding relationship between sex and depression. Scivoletto *et al.* (1997) in their study male participants were more anxious and female participants more depressed.

In this study found depression at educational level of participants, but had no association between education and depression. Scivoletto *et al.* (1997) stated that low educational level had greater psychological distress than the others. Putzke *et al.* (2001) in their study more consistent correlation found with education, with higher education being associated with increased life satisfaction.

This study not found any association between marital statuses with depression. But this study found level of depression was high at unmarried participants than married. Tate, Kalpakjian and Forchheimer (2002) found significant factor associated with depressed mood at their study, loss of a spouse for a person with SCI or other physical disability, which becomes more common as persons age. They also found their study that married individuals with SCI were reported lower levels of depression and higher levels of life satisfaction and psychological well-being. Shin *et al.* (2012) found their study; married participants were less satisfied with their lives compared with the unmarried participants.

No statistical significance and association were found between levels of depression among Sex, Age, Educational status, Marital Status, Monthly income and Cause of injury in this study. Similarly; Arango-Lasprilla *et al.* (2013) found at their study there were no significantly association between the level of injury, educational level, and income level with depression. They were also stated that at their study; several studies there were a lack of association between demographic variables with depression. Anderson *et al.* (2007) there were no significant differences in depression based on gender, race, age at injury, age at interview, or duration of injury.

Limitation:

Study had limited sample size that's why study will not be generalized. The literature was not available to find out association between SCI and QOL in the context of Bangladesh after having SCI. The literature of association between socio-demographic information with depression after SCI was not available.

Recommendation:

If other authors want to further related study they are recommended for increasing sample size. They can further analysis by following correlation regression analysis. Authors can also analysis study by exploring all domain of QOL and associate with depression.

Conclusion:

SCI is a condition which can occurs with traumatic or non-traumatic causes. It can hamper a person's full life at any age. Bangladesh is a highly populated country and male are mainly involved in outside occupation rather than female. Males are work at every area without maintaining any safety hazard. For that reason males are more prompt to having SCI. After SCI male persons become depended on their family and their income also become decrease day by day. They become depress which can hamper QOL after having SCI. In the context of Bangladesh SCI, occurs caused by fall from height, road accidents also others. After SCI when it's affect the overall QOL of a person they became depressed about their life. Depression level of SCI patients has been found. It has been significant at study that there has association between depression and overall QOL. It has been also significant there has some association between Occupations, Types of injury, Phage of treatment with depression after SCI.

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Appendix 1
(Permission letter for conducting study)

Approval Letter

Date: 22-07-2014
The Head of the department
Department of Occupational Therapy
Bangladesh Health Professionals Institute (BHPI)
Centre for the Rehabilitation of the paralyzed (CRP)
Chapain, Savar, Dhaka-1343.

Subject: Prayer for seeking permission to conduct the research project.

Madam,

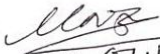
I am Asma Aktar, 4th year student of B.Sc in Occupational Therapy Department at Bangladesh Health Professions Institute, the academic institute of Centre for the Rehabilitation of the Paralyzed (CRP). As I am a student of 4th year, I have to do a dissertation for my academic purpose. My dissertation title is "*Effect of depression on quality of life following spinal cord Injury*". For my dissertation purpose, I need permission from you to continue my research project.

So, I therefore pray and hope that you would be kind enough to give me the permission to continue the research project for my study.

Sincerely yours,

...Asma Aktar.....

Asma Aktar
4th Year, Roll-17, Session :(2010-2011)
B.Sc in Occupational Therapy
Center for the Rehabilitation of the Paralyzed (CRP)
P.O: CRP-Chapain, Saver, Dhaka-1343, Bangladesh.

Approved by	Comments and Signature
<p style="text-align: center;">Research Supervisor Nazmun Nahar Assistant Professor and Head of the department Department of Occupational Therapy BHPI, CRP, Chapain, Savar, Dhaka-1343</p>	<p style="text-align: center;">It may allow her to conduct this study. All the best wishes for her.</p> <p style="text-align: center;"> 23.07.14</p>

Appendix 2

(Permission letter for data collection)



বাংলাদেশ হেল্থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)

(The Academic Institute of CRP)

CRP-Chapain, Savar, Dhaka, Tel: 7745464-5, 7741404, Fax: 7745069

BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206. Tel: 8020178,8053662-3, Fax: 8053661

তারিখ : ২৫.১০.২০১৪

প্রতি
বিভাগীয় প্রধান
অকুপেশনাল থেরাপি বিভাগ
সিআরপি, সাভার, ঢাকা।

বিষয় : রিসার্চ প্রজেক্ট (dissertation) প্রসঙ্গে।

জনাব,

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন অকুপেশনাল থেরাপি কোর্সের ছাত্রী আসমা আক্তারকে তার রিসার্চ সংক্রান্ত কাজের জন্য আগামী ২৬.১০.২০১৪ তারিখ থেকে ৩০.১১.২০১৪ তারিখ পর্যন্ত সময়ে আপনার নিকট প্রেরণ করা হলো।

তাই তাকে সার্বিক সহযোগীতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

নাজমুল নাহার
সহকারী অধ্যাপক ও বিভাগীয় প্রধান
অকুপেশনাল থেরাপি বিভাগ
বিএইচপিআই।



Received and Permitted
Md. Jutker Nayah
29.10.14
Assist. Professor & Head of OT
Occupational Therapy Department
CRP, Savar, Dhaka-1343

Appendix 3(A)

Permission letter for WHOQOL-BREF Questionnaire

User Agreement for "WHOQOL-100" and/or WHOQOL-BREF
and related materials

This agreement is between the World Health Organization ("WHO") and Asma Aktar. WHO hereby grants the User a nonexclusive, royalty-free license to use the World Health Organization Quality of Life Questionnaire and/or related materials (hereafter referred to as "WHOQOL-100" or "WHOQOL-BREF") in User's study outlined below. The term of this User Agreement shall be for a period of 1 year, commencing on (date) 07/09/2014.

The approved study for this User Agreement is:

Study Title	<u>Effect of depression on Quality of Life Following Spinal Cord Injury</u>
Principal Investigator	<u>Asma Aktar</u>
Sample characteristics	<u>Spinal cord injured patients.</u>
Sample size	<u>150</u>
Treatment Intervention	<u>Not applicable</u>
Total number of assessments	<u>1 time</u>
Assessment time points	<u>15 minute</u>
"WHOQOL-100" or WHOQOL-BREF version – Please specify language version(s) you would like to receive.	<u>Bangla</u>
Other measures	<u>Not applicable</u>

This User Agreement is based upon the following conditions:

1. User shall not modify, abridge, condense, translate, adapt, recast or transform the WHOQOL-100 or BREF in any manner or form, including but not limited to any minor or significant change in wording or organization, or administration procedures, of the WHOQOL-100 or BREF. If User thinks that changes are necessary for its work, or if translation is necessary, User must obtain written approval from WHO in advance of making such changes.
2. User shall not reproduce WHOQOL-100 or BREF, except for the limited purpose of generating sufficient copies for its own uses and shall in no event distribute copies of the WHOQOL-100 or BREF to third parties by sale, rental, lease, lending, or any other means. In addition, User agrees that it will not use the WHOQOL-100 or BREF for any purpose other than conducting studies as specified above, unless agreed in writing by WHO. In any event, the WHOQOL-100 or BREF should not be used for research or clinical purposes without prior written authorization from WHO.

10/17/13
1 of 3

3. User agrees to provide WHO with an annual update regarding activities related to the WHOQOL-100 or BREF.

4. User agrees to provide WHO with a complete copy of User's raw data and data code books, including the WHOQOL-100 or BREF and any other instruments used in the study. This data set must be forwarded to WHO upon the conclusion of User's work. While User remains the owner of the data collected in User's studies, these data may be used in WHO analyses for further examining the psychometric properties of the WHOQOL-100 or BREF. WHO asserts the right to present and publish these results, with due credit to the User as the primary investigator, as part of the overall WHOQOL-100 or BREF development strategy.

5. WHO shall be responsible for preparing and publishing the overall WHOQOL-100 or BREF results under WHO copyright, including:

- a. the overall strategy, administrative set-up and design of the study including the instruments employed;
- b. common methods used by two or more Users;
- c. the data reported from two or more Users ;
- d. the comparisons made between the data reported from the Users;
- e. the overall findings and conclusions.

6. User shall be responsible for publications concerning information developed exclusively by User and methods employed only by User. Publications describing results obtained by User will be published in User's name and shall include an acknowledgement of WHO. User agrees to send to WHO a copy of each such paper prior to its submission for publication.

7. WHO may terminate this User Agreement at any time, in any event. Should WHO terminate this User Agreement, User shall immediately cease all use of the WHOQOL100 or BREF and destroy or return all copies of the WHOQOL-100 or BREF. In the event of such termination, all other collateral materials shall be destroyed and no copy thereof shall be retained by User. Notwithstanding the return or destruction of the WHOQOL-100 or BREF and its collateral materials, User will continue to be bound by the terms of this User Agreement.

8. It is understood that this User Agreement does not create any employer/employee relationship. User and its affiliates are not entitled to describe themselves as staff members of WHO. User shall be solely responsible for the manner in which work on the project is carried out and accordingly shall assume full liability for any damage arising therefrom. No liability shall attach to WHO, its advisers, agents or employees.

Please confirm your agreement with the foregoing by signing and returning one copy of this letter to WHO, whereupon this letter agreement shall become a binding agreement between User and WHO.

WHO:



Dr. Somnath Chatterji
Health Statistics and Health Information Systems (HSI)
World Health Organization
Avenue Appia
Geneva 27
CH 1211 Switzerland

Date:

USER:

By: Asma Akter
Title: 4th year, occupational therapy student
Institution: Bangladesh Health Professions Institute (BHPI)
Address: CRP-Chapain, Savar,
Dhaka - 1343
Date: 07/09/2014

Appendix 3(B)

Permission letter for Depression-scale

Respected sir,

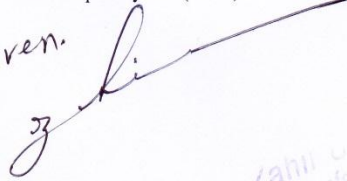
I am Asma Aktar, 4th year student of B.Sc in Occupational Therapy department at Bangladesh Health Professions Institute (BHPI). As I am a student of 4th year student I need to do a dissertation for my academic purpose. My dissertation title is 'Effect of depression on quality of life following spinal cord injury'. For my study I want to use your 'Depression Scale' to find out the level of depression following injury.

So, I therefore pray and hope that you would be kind enough to give me the permission to use this scale.

Sincerely Yours,

Asma Aktar
4th year, B.Sc in Occupational Therapy
Centre for the Rehabilitation of the paralysed (CRP)

Permission given.



Md Zahid
Assistant Professor
Psychotherapy Department
National Institute of Mental Health

Appendix 4(A)

তথ্যপত্র

আমার নাম আছমা আক্তার। আমি বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউটের বি এস সি.ইন অকুপেশনাল থেরাপি বিভাগের অধ্যয়নরত একজন ছাত্রী। এই কোর্সের অংশ হিসাবে চতুর্থ বর্ষের আবশ্যিকভাবে একটি গবেষণা কর্ম সম্পন্ন করতে হয়। আমি আপনাকে এই গবেষণায় অংশগ্রহণ করার জন্য আমন্ত্রণ করছি। আমার গবেষণার বিষয় "মেরুর জ্বুতে আঘাতের পর দৈনন্দিন জীবনে বিষন্নতার প্রভাব,,। এই গবেষণার উদ্দেশ্য হলো "মেরুর জ্বুতে আঘাতের পর দৈনন্দিন জীবনের সাথে বিষন্নতার প্রভাবের সম্পর্ক খুঁজে বের করা,,।

আপনি যেকোন সময় আপনার অংশগ্রহণ থেকে চলে যেতে পারেন। এই তথ্যগুলো সংগ্রহ করতে আধঘন্টা সময় লাগতে পারে। এই তথ্যগুলো শুধুমাত্র আলোচনার সময় প্রকাশিত হবে, এছাড়া তথ্যগুলো সম্পূর্ণ গোপনীয় থাকবে। তথ্যগুলো অন্য কোন গবেষণায় ব্যবহার করা হবে না।।

এই তথ্যগুলো খুবই মূল্যবান এবং এগুলো একটি ভাল চিকিৎসার নকশা তৈরী করতে সাহায্য করতে পারে।

আমি আশা করছি আপনি অংশগ্রহণ করবেন এবং এই গবেষণাকে সাফল্যতা দানে সাহায্য করবেন। যদি আপনার কোন প্রশ্ন থাকে আপনি আমাকে যেকোন সময়ে করতে পারেন। আমি আপনাকে উৎসাহ প্রদান করবো যদি আপনি যতটুকু সম্ভব ততটুকু সত্য এবং সঠিক উত্তর প্রদান করেন। ধন্যবাদ!

আছমা আক্তার

.....

বি এস সি.ইন অকুপেশনাল থেরাপি
অকুপেশনাল থেরাপি বিভাগ
বিএইচপিআই, সিআরপি, সাভার, ঢাকা-১৩৪৩।

Appendix 4(B)

অনুমতি পত্র

আমি..... এই গবেষণার একজন অংশগ্রহনকারী এবং এই গবেষণার উদ্দেশ্য সম্পর্কে তথ্য পত্রের মাধ্যমে অবহিত আছি। এই গবেষণা থেকে যে কোন অবস্থায়, যে কোন সময়ে নাম প্রত্যাহার করতে পারব। এই জন্য আমি কারো কাছে কোন প্রকার কারণ দর্শানো ছাড়া জবাবদিহী করতে বাধ্য থাকবো না। আমি আরও অবগত আছি যে সাক্ষাৎকার এর মাধ্যমে এই গবেষণার জন্য সংগৃহীত তথ্যের নিরাপত্তা ও গোপনীয়তা রক্ষা করা হবে। শুধু গবেষক প্রকাশনার ক্ষেত্রে এই তথ্য ব্যবহার করতে পারবে। আমার নাম ও ঠিকানা এই গবেষণার কোথাও প্রকাশিত হবে না। আমি এই গবেষণায় অংশগ্রহণ করলে আমার চিকিৎসা অথবা কোন ধরনের ব্যাঘাত ঘটবে না। এই গবেষণা সম্পর্কিত যেকোন তথ্য জানার অধিকার আমার আছে।

আমি উপরিউক্ত তথ্য সম্পর্কে অবগত এবং আমি সজ্ঞানে এই গবেষণায় একজন অংশগ্রহনকারী হিসেবে থাকতে ইচ্ছুক।

অংশগ্রহনকারীর নাম/ টিপসই: _____ তারিখ: _____

গবেষকের নাম: _____ তারিখ: _____

Appendix 4(C)

বিষয়তা পরিমাপক

	বিবৃতিসমূহ	একেবারেই প্রযোজ্য নয়	প্রযোজ্য নয়	মাঝামাঝি	কিছুটা প্রযোজ্য	পুরোপুরি প্রযোজ্য
০১	আমার অশান্তি লাগে	১	২	৩	৪	৫
০২	ইদানিং আমি মন মরা হয়ে থাকি	১	২	৩	৪	৫
০৩	আমার ভবিষ্যৎ অন্ধকার	১	২	৩	৪	৫
০৪	ভবিষ্যতে আমার অবস্থা দিন দিন খারাপ হবে	১	২	৩	৪	৫
০৫	আমার সব শেষ হয়ে গেছে	১	২	৩	৪	৫
০৬	আমি মনে করি যে, জীবনটা খুব বেশী কষ্টকর	১	২	৩	৪	৫
০৭	বর্তমানে আমি অনুভব করি যে মানুষ হিসেবে আমি সম্পূর্ণ ব্যর্থ	১	২	৩	৪	৫
০৮	আমি কোথাও আনন্দ- স্মৃতি পাই না	১	২	৩	৪	৫
০৯	নিজেকে খুব ছোট মনে হয়	১	২	৩	৪	৫
১০	সব কিছুতে আমার আত্মবিশ্বাস কমে গেছে	১	২	৩	৪	৫
১১	আমার মনে হয় মানুষ আমাকে করুণা করে	১	২	৩	৪	৫
১২	জীবনটা অর্থহীন	১	২	৩	৪	৫
১৩	প্রায়ই আমার কান্না পায়	১	২	৩	৪	৫
১৪	আমি প্রায়ই বিরক্ত বোধ করি	১	২	৩	৪	৫
১৫	আমি কোন কিছুতে আগ্রহ পাই না	১	২	৩	৪	৫
১৬	আমি ইদানিং চিন্তা করতে ও সিদ্ধান্ত নিতে পারি না	১	২	৩	৪	৫
১৭	আমি আজকাল অনেক কিছুতে মনোযোগ নিতে পারি না	১	২	৩	৪	৫
১৮	আমি আগের মত মনে রাখতে পারি না	১	২	৩	৪	৫
১৯	আমি দুর্বলবোধ করি এবং অল্পতেই ক্লান্ত হয়ে পড়ি	১	২	৩	৪	৫
২০	আমি এখন কম ঘুমাই	১	২	৩	৪	৫
২১	আমি এখন বেশী ঘুমাই	১	২	৩	৪	৫
২২	আমার মেজাজ খিটখিটে হয়ে গেছে	১	২	৩	৪	৫
২৩	আমার ক্ষিদে কমে গেছে	১	২	৩	৪	৫

২৪	আমার ক্ষিদে বেড়ে গেছে	১	২	৩	৪	৫
২৫	আমার ওজন কমে গেছে (ইচ্ছাকৃতভাবে ওজন নিয়ন্ত্রণের চেষ্টা করার ফলে না)	১	২	৩	৪	৫
২৬	আমার মনে হয় যে আমার কাজ কর্মের গতি কমে গেছে	১	২	৩	৪	৫
২৭	হাঁসির কোন ঘটনা ঘটলেও আমি আর হাসতে পারি না	১	২	৩	৪	৫
২৮	যৌন বিষয়ে আমার আগ্রহ কমে গেছে	১	২	৩	৪	৫
২৯	সামাজিক কাজকর্মে আগের মত অংশ গ্রহন করতে পারি না	১	২	৩	৪	৫
৩০	শিক্ষা বা পেশাগত কাজকর্মে আগের মত অংশ গ্রহন করতে পারি না	১	২	৩	৪	৫
	মোট=					

Appendix 4(D)

WHOQOL-BREF

এ অংশের মূল্যায়ন, আপনি আপনার জীবন, স্বাস্থ্য ও জীবনের অন্যান্য দিক সম্পর্কে কি ভাবেন, সে সম্পর্কে দয়া করে সবগুলো প্রশ্নের উত্তর দিন। যদি কোন প্রশ্নের উত্তর কি হবে না বুঝেন তবে যেটিকে সবচেয়ে সঠিক মনে হবে সেই উত্তরটি দিন। এটি প্রায়ই প্রথম উত্তর হতে পারে।

আপনার মান, আশা, আনন্দ ও বিবেচ্য সমূহ স্মরণ রাখুন। আমরা আপনার জীবনের গত দুসপ্তাহের কথা স্মরণ করতে বলবো।

সবগুলো প্রশ্ন পড়ুন, আপনার অনুভূতি যাচাই করুন এবং পাশের ছকে যে উত্তরটি সবচেয়ে সঠিক মনে হবে সে নম্বরটি বুঝে তৈরী করুন।

		খুব খারাপ	খারাপ	ভালও নয় খারাপও নয়	ভাল	খুব ভাল
1.(G1)	আপনার জীবন যাওয়ার মান কেমন?	1	2	3	4	5

		খুব অসন্তুষ্ট	অসন্তুষ্ট	সন্তুষ্ট নয় অসন্তুষ্ট নয়	সন্তুষ্ট	খুব সন্তুষ্ট
2.(G4)	আপনার স্বাস্থ্য নিয়ে কি আপনি সন্তুষ্ট?	1	2	3	4	5

নিচের প্রশ্নগুলো গত দুসপ্তাহে নিম্নবর্ণিত অভিজ্ঞতাগুলো কি পরিমাণে হয়েছে সে সম্পর্কে।

		একদম না	কম	মোটামুটি	বেশী	খুব বেশী
3.(F1.4)	শারীরিক ব্যাথার জন্য আপনি কি পরিমাণে প্রয়োজনীয় কাজ থেকে বিরত ছিলেন?	1	2	3	4	5
4.(F11.3)	আপনার দৈনন্দিন কার্যক্রম ঠিক রাখতে চিকিৎসা কতটুকু প্রয়োজন?	1	2	3	4	5
5.(F4.1)	আপনি জীবনকে কতটুকু উপভোগ করেন?	1	2	3	4	5
6.(F24.2)	জীবনকে আপনার কতটুকু অর্থপূর্ণ মনে হয়?	1	2	3	4	5

		একদম না	কম	মোটামুটি	বেশী	খুব বেশী
7.(F5.3)	আপনি কাজে কতটুকু মনোসংযোগ করতে পারেন?	1	2	3	4	5
8.(16.1)	আপনি দৈনন্দিন জীবনে কতটুকু নিরাপত্তা অনুভব করেন?	1	2	3	4	5
9.(F22.1)	আপনার ভীত পরিবেশ কতটুকু স্বাস্থ্যকর?	1	2	3	4	5

নিচের প্রশ্নগুলোতে জানতে চাওয়া হয়েছে- গত দুসপ্তাহে আপনি কতটুকু সম্পূর্ণভাবে কোন কাজ করতে বা অভিজ্ঞতা লাভ করতে পেরেছেন।

		একদম না	কম	মোটামুটি	অধিকাংশ	পরিপূর্ণ ভাবে
10.(F2.1)	আপনার কি প্রতিদিন কাজ	1	2	3	4	5

	করার মত শক্তি আছে?					
11.(F7.1)	আপনি কি আপনার শরীরের গড়ন নিয়ে সন্তুষ্ট?	1	2	3	4	5
12.(F18.1)	আপনার কি প্রয়োজন মেটাতে যথেষ্ট টাকা আছে?	1	2	3	4	5
13.(F20.1)	আপনি কি দৈনন্দিন জীবন-যাপনের জন্য প্রয়োজনীয় তথ্য পান?	1	2	3	4	5
14.(F21.1)	অবসর কাটানোর/ বিনোদনের সুযোগ আপনার কতটুকু আছে?	1	2	3	4	5

		খুব খারাপ	খারাপ	ভালও না মন্দও না	ভাল	খুব ভাল
15.(F9.1)	আপনি কতটা ভালভাবে চলাফেরা করতে পারেন?	1	2	3	4	5

নিচের প্রশ্নতে জানতে চাওয়া হয়েছে- গত দুসপ্তাহে আপনার জীবনের বিভিন্ন দিক নিয়ে আপনি কতটুকু সন্তুষ্ট?

		খুব অসন্তুষ্ট	অসন্তুষ্ট	সন্তুষ্ট নয় অসন্তুষ্ট নয়	সন্তুষ্ট	খুব সন্তুষ্ট
16.(F3.3)	আপনার ঘুম নিয়ে আপনি কতখানি সন্তুষ্ট?	1	2	3	4	5
17.(F10.3)	দৈনন্দিন কাজ করার ক্ষমতা নিয়ে আপনি কতটুকু সন্তুষ্ট?	1	2	3	4	5
18.(F12.4)	আপনার কাজ করার ক্ষমতা /দক্ষতা (ক্যাপাসিটি) নিয়ে আপনি কতটুকু সন্তুষ্ট?	1	2	3	4	5
19.(F6.3)	নিজেকে নিয়ে আপনি কতটুকু সন্তুষ্ট?	1	2	3	4	5
20.(F13.3)	অন্যদের সাথে আপনার ব্যক্তিগত সম্পর্কসমূহ নিয়ে আপনি কতটুকু সন্তুষ্ট?	1	2	3	4	5
21.(F15.3)	আপনার যৌন জীবন নিয়ে আপনি কতটুকু সন্তুষ্ট?	1	2	3	4	5
22.(F14.4)	বন্ধুদের কাছ থেকে পাওয়া সাহায্যে আপনি কতটুকু সন্তুষ্ট?	1	2	3	4	5
23.(F17.3)	আপনি আপনার বাসস্থানের অবস্থা নিয়ে কতটুকু সন্তুষ্ট?	1	2	3	4	5
24.(F19.3)	আপনি যে স্বাস্থ্যসেবা পান তাতে কি সন্তুষ্ট?	1	2	3	4	5
25.(F23.3)	আপনি যাতায়াত ব্যবস্থা নিয়ে কতটুকু সন্তুষ্ট?	1	2	3	4	5

নিচের প্রশ্নগুলোতে জানতে চাওয়া হয়েছে- গত দুসপ্তাহে ঐ নির্দিষ্ট বিষয়সমূহ আপনি কতবেশী/ ঘনঘন অনুভব করেছেন?

		কখনো না	কখনো কখনো	মাঝে মাঝে	প্রায়শঃই	সব সময়
26.(F8.1)	আপনার হতাশা, উদ্বেগ, অবসন্নতা এই সব নেতিবাচক অনুভূতি কত ঘন ঘন হয়?	1	2	3	4	5

Appendix 5 (A)
Information Sheet

My name is Asma Aktar. I am a student of Bs.c.in Occupational Therapy of Bangladesh Health Professions Institute (BHPI). In regards to fulfillment of B.Sc. Degree, it is mandatory to conduct an academic research in 4th year. I would like to invite you to take part in my research study, and title “Impact of depression on achieving Quality Of Life (QOL) following Spinal cord injury”. The aim of this study is to find out whether there is any relation in depression and quality of life following Spinal Cord Injury (SCI).

You are free to stop participation at any time. To collect this research information will take half an hour. This information that will be revealed during the discussion will be kept confidential. This information will not be used for any other purpose other than this study.

This information you provide is valuable and may help to better design of treatment plan.

I hope that you will participate and make this research a success. If you have any questions you may ask me at any time. I will appreciate it if you can explain as much as possible and be as truthful as possible in your answers. Thank you!

Asma Aktar

.....

B Sc.in Occupational Therapy
Department of Occupational Therapy
BHPI, CRP-Chapain, Savar, Dhaka-1343.

Appendix 5(B)

Consent form

I am..... a participant of the study and I am clearly informed about the aim of the study .I will have the right to refuse to take part any time at any stage of the study. For this I will not be bounded to answer to anyone. I am also inform that, all the information collected through interview for the study would be kept safely and maintained confidentiality. Only the researcher will be eligible to access in the information for his publication of the research result. My name & address will not be published anywhere of this study.

By participating in this study it will not hamper in my continuing treatment session. I have the right to know any question related to this research.

I am informed about the above-mentioned information & I am willing to participate in the study with right consent.

Signature of participant/thumb-stump

Date.....

Signature of Researcher.....

Date.....

Appendix 5(C)
WHOQOL-BREF questionnaires

This questionnaire asks how you feel about your quality of life, health and other areas of your life. Please answer all the questions. If you are unsure about which response to give to a question, please choose the ONE that appears most appropriate. This can often be your first response.

Think about your life in the last two weeks.

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5

		Very Dissatisfied	Dissatisfied	Neither Satisfied Nor Dissatisfied	Satisfied	Very Satisfied
2	How satisfied are you with your health?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	An extreme amount
3	How much do you feel that pain prevents you from doing what you need to do?	1	2	3	4	5
4	How much do you need medical treatment to function in your daily life?	1	2	3	4	5
5	How much do you enjoy life?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
6	To what extent do you feel life to be meaningful?	1	2	3	4	5
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

		Not at all	A little	Moderately	Mostly	Completely
10	Do you have enough energy for everyday life?	1	2	3	4	5
11	Are you able to accept your	1	2	3	4	5

	bodily appearance?					
12	To what extent do you have enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15	How well are you able to get around?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16	How satisfied are you with your sleep?	1	2	3	4	5
17	How satisfied are you with your ability to perform daily living activities?	1	2	3	4	5
18	How satisfied are you with your capacity for work?	1	2	3	4	5
19	How satisfied are you with yourself?	1	2	3	4	5
20	How satisfied are you with your personal relationships?	1	2	3	4	5
21	How satisfied are you with your sex life?	1	2	3	4	5
22	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24	How satisfied are you with your access to health services?	1	2	3	4	5
25	How satisfied are	1	2	3	4	5

	you with your transport?					
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		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings, such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Appendix 5(D)

Depression-Scale

S. N.	Items	Not at all Applicable	Not Applicable	Moderately Applicable	Somewhat Applicable	Fully Applicable
01	I feel lack of peace in my mind	1	2	3	4	5
02	Now a days I experience low mood	1	2	3	4	5
03	My future is dark	1	2	3	4	5
04	My condition will be worse in future	1	2	3	4	5
05	I am finished	1	2	3	4	5
06	Currently I feel that my life as very painful	1	2	3	4	5
07	Currently I feel that I am a complete failure	1	2	3	4	5
08	I find no pleasure any where	1	2	3	4	5
09	I feel myself very inferior	1	2	3	4	5
10	My self-esteem has reduced in every respect	1	2	3	4	5
11	I think that I am an object of pity to the people	1	2	3	4	5
12	Life is meaningless	1	2	3	4	5
13	I often feel like crying	1	2	3	4	5
14	Often I feel	1	2	3	4	5

	irritated					
15	I feel no interest in anything	1	2	3	4	5
16	Now a days i cannot think and cannot take decisions	1	2	3	4	5
17	Now a days cannot concentrate in many things	1	2	3	4	5
18	I cannot remember as before	1	2	3	4	5
19	I feel weak and came exhausted easily	1	2	3	4	5
20	Currently I sleep less	1	2	3	4	5
21	Currently I sleep more	1	2	3	4	5
22	My temper has turned irritable	1	2	3	4	5
23	My appetitive has reduced	1	2	3	4	5
24	My appetitive has increased	1	2	3	4	5
25	My weight has reduced (Not due to intentional attempt to control weight)	1	2	3	4	5
26	I think speed of my work has reduced	1	2	3	4	5
27	I cannot laugh even when there is a funny	1	2	3	4	5

	event					
28	My desire in sex has reduced	1	2	3	4	5
29	I cannot participate in social activities as I used to	1	2	3	4	5
30	I cannot do academic or professional activities as I used to	1	2	3	4	5