

PREVALENCE OF LOW BACK PAIN AMONG CAREGIVERS OF  
STROKE SURVIVORS AND ITS IMPACT ON THEIR ACTIVITIES  
OF DAILY LIVING



By

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## **Statement of Authorship**

Except where is made in the text of the thesis, this thesis contains no materials published elsewhere or extracted in whole or in part form a thesis presented by me for any other degree or diploma or seminar.

No others person's work has been used without due acknowledgement in the main text of the thesis.

This thesis has not been submitted for the aware of any other degree or diploma in any other tertiary instruction.

The ethical issues of the study has been strictly considered and protected. In case of dissemination the finding of this project for future publication, research supervisor will highly concern and it will be duly acknowledged as undergraduate thesis.

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## Abstract

**Background:** Stroke is a major cause of disability which may make dependent on others. The caregiver is primarily involved in helping the stroke survivors to live independently. Care givers may face many musculoskeletal complaints and low back pain is most common all of them. Low back pain is the leading cause of activity limitation and work absence throughout much of the world. Low back pain is one of the most common global health problems which create a large personal, community and financial burden. Additionally, caregivers have high prevalence rates of low back pain (LBP) to take care the patients. This study was focused to identify the prevalence of low back pain among caregiver of stroke survivors and its impact on their activities of daily living.

**Aim:** To identify the prevalence of low back pain among caregiver of stroke survivors and its impact on their activities of daily living.

**Objectives:** The objectives of this study are to find out the prevalence of low back pain of the last 12 months among caregivers of stroke survivors, to find out the association between low back pain of the last 12 months and demographic variables and to find out the levels of physical disability due to low back pain of caregivers to manage their activities of daily living.

**Methodology:** Cross sectional design was selected to conduct this research. In this study, one question was used to find out the prevalence of low back pain of the last 12 months among caregivers of stroke survivors, some demographic variables had been chosen to show association with LBP of the last 12 months and the Oswestry Disability Index (ODI) version 2.1a was used to determine the levels of physical disability of the female caregivers to manage in everyday life due to LBP. Study sample was selected in comprehensive way.

**Result and discussion:** In this study, the prevalence of LBP was very high among caregivers especially more common in female caregivers. Married caregivers are more vulnerable rather than unmarried. Most of the female caregivers had moderate disability; one third of them had severe disability and least them experiencing minimal disability due to LBP.

**Conclusion:** Low Back Pain is one of the most frequent musculoskeletal disorders in daily practice and also very frequent problem in Bangladesh. LBP is more numerous in caregivers of stroke survivors than in the normal population. Care givers are the part and parcel of intervention program. They need to care for their own health through Occupational Health and Safety and Ergonomics concerns from occupational therapists regarding caring for their patients and managing their everyday life. Thus, the stroke survivors as well as the caregivers may get their fruitful intervention.

**Key words:** *Low back pain, Stroke, Caregiver*

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## **List of Acronyms**

- BHPI**---- Bangladesh Health Professions Institute
- BOTA**---- Bangladesh Occupational Therapy Association
- CRP**---- Central for the rehabilitation of the paralyzed
- CP**---- Cerebral Palsy
- HSC**---- Higher School Certificate
- LBP**---- Low Back Pain
- MD**---- Muscular Dystrophy
- NGO**---- Non-government Organization
- ODI**---- Oswestry Disability Index
- OT**---- Occupational Therapy
- SCI**---- Spinal Cord Injury
- SPSS**---- Statistical Package for the Social Sciences
- SSC**---- Secondary School Certificate
- UK**---- United Kingdom
- US**---- United States
- USA**---- United States of America
- WHO**---- World Health Organization

# CHAPTER 1 INTRODUCTION

## 1.1. Introduction:

Stroke is a major cause of disability all over the world (Jongbloed, 1986). It is a chronic condition that may have serious consequences for physical, cognitive, and behavioral functioning. Many patients need support in activities of daily living; some of them need complete personal care (Yalcinkaya et al. 2010). Caregiver takes part in caring of stroke survivors. The caregiver is primarily involved in helping the stroke survivors to live independently at home (Hassan, 20). Caregivers have to cope with the devastating effects of stroke. Consequently, caregivers may experience unacceptably high levels of burden, leading to isolation and exhaustion (Jönsson et al. 2005). Caregivers may face many musculoskeletal complaints due to handle their patient. Caregivers of persons who have had a stroke have any major disability like low back pain (Yalcinkaya et al. 2010).

Nowadays, LBP is a major problem all over the world (Biglarian et al. 2012). It was largely thought of as a problem confined to Western countries (Freburger et al. 2009). However, since that time an increasing amount of research has demonstrated that LBP is also a major problem in low and middle income countries (Khan et al. 2014). LBP is the leading cause of activity limitation and work absence throughout much of the world (Dionne, Dunn and Croft, 2006). And it causes a great economic burden on individuals, communities and governments. Back pain has a high prevalence and a severe impact on both society and individual (Hoy et al. 2012). It affects one in five people at any one time and by the age of 30 years half of the population will have experienced at least one episode of back pain (Docking et al. 2011). Globally, low back pain is one of the most common health problems which create a large personal, community and financial burden (Hoy et al. 2012). LBP causes a massive financial burden on individuals, families, communities, industry and governments including the costs of medical care, compensation payment, productivity loss employee retraining, administrative expenses and litigation (Thelin, Holmberg and Thelin, 2008).

LBP is also very frequently occurring phenomenon in Bangladesh (Nujhat, 2013). Bangladesh is a poor country with huge population and with very limited resources and poor management. For various reasons, a huge number of disable patients with

LBP cannot be managed. LBP is very common in people of different occupations (Shakoor et al. 2007). Shakoor et al. argued in their study that most of the patients were housewives 58.8%, then government service holders (19.6%), businessmen (10.8%), laborers (6.9%), private service holders (2.9%) and retired serviceman (1%). From that study, in comparison based on gender it was found that female persons suffer from LBP earlier than male. The incidence of LBP varies from country to country but is uniformly high in industrialized countries (Shakoor et al. 2007).

## **1.2 Background of the study:**

LBP is a common medical problem and it is a significant cause of disability (Nahar, Ahsan and Khan, 2012). It is a major health problem in USA because more than 34 million (17%) adults reported LBP only and 19 million (19%) reported LBP and neck pain in a 3 months duration (Strine and Hootman, 2007). One study in Canada estimated that 84% of adults have had LBP during their lifetime. Average prevalences were 59% in UK, 70% in Denmark, and 75% in Finland. In the general population, the prevalence of low back pain in 1-month and annual duration ranges from 30% to 40% and 25% to 60 % (Biglarian et al. 2012).

The most recent global review of the prevalence of LBP in the adult general population was published in 2000 and showed point prevalence of 12-33% and 1 year prevalence of 22-65%. 2 additional global reviews have been conducted, one of which focused on the elderly and the other on adolescents (Hoy et al. 2012). An estimated 149 million days of work per year are lost because of LBP. More than 80% of the population will experience an episode of LBP at some time during their lives (Freburger, et al. 2009).

LBP is a more common between the ages of 25 and 64 years. It can occur in all age ranges but the most common ages are between 35 and 55 (Strine and Hootman, 2007). Strine and Hootman reported from National Health Interview Survey in 2002 that the prevalence of LBP increase with aging and the total prevalence of LBP only was 17.0% and the prevalence of both neck and LBP was 9.3% of US adults aged 18 years and over. In the United Kingdom (UK), the prevalence of back pain was 10.0% with the prevalence increasing with aging and the highest prevalence was shown in the aged 56-64 years from the survey of Calderdale population aged 16 years and older. Ihlebaek et al. reported the prevalence of LBP in Norway and Sweden. They showed

the point and the prevalence of LBP were 9.9% and 62.4% in men and 16.8% and 59.1% in women in Norway, and 14.6% and 68.9% in men and 20.4% and 69.9% in women in Sweden (Ihlebaek et al. 2006).

According to Horvath et al. 2010, European review the article that the prevalence of back pain in ranged between 14% and 42%, where as lifetime prevalence was between 51% and 84% and the higher prevalence are found between the ages of 50 and 64. In Africa the average prevalence of LBP in one year among adolescents was 33% and among adults was 50%. The average lifetime prevalence of LBP among the adolescents was 36% and among adults was 62% (Louw, Morris, and Grimmer-Somers, 2007). According to the United Nations (UN), the proportion of older people (i.e. aged 60 and over) will triple over the next 40 years and will account for more than 20% of the world's population by year 2050. LBP is more common in female than male (Strine and Hootman, 2007).

Most common conditions give rise to long-term disability. Those are cerebrovascular accident (CV), cerebral palsy (CP), spinal cord injury (SCI), traumatic brain injury (TBI), dementia, Parkinson's disease, rheumatoid arthritis and chronic obstructive pulmonary disease (Narekuli, Raja, and Kumaran, 2011). In the rural Indian cultural context, the majority of persons with disabilities live at home with their families, rather than in institutions (Ferri et al. 2011). It was found that there are few studies on LBP in domestic setting mainly in care giving. Additionally, caregiver burden has been shown to be a major problem and relationship to stress, depression and social isolation which increases physical and psychological burden on the family (Family Care giver Alliance, 2009).

There is a relation between the caregiver's health condition and patient's condition (Béthoux et al. 1996). There is evidence; more than 1/3 of caregivers suffer poor health condition that provides continuous care to others (Choi-Kwon et al. 2005). Family members who provide care to the individuals are at risk with chronic or disabling conditions. Physical, mental, emotional health problems arise from caregivers' complex care giving situation (Bakas and Burgener, 2002). Caregiving will involve variable amounts of physical work such as physical work may be required to assist with mobility, positioning or transfers, bathing, dressing, eating, toileting etc (Geere et al. 2011). Physical health has been defined as that pertaining

mainly to physical functioning, physical capacity for activities or roles and bodily pain (Finch et al. 2002). Evidence from high-income countries has shown that the physical work and demands of care giving can affect the physical health of carers (Murphy et al. 2007). For example, carers of children with physical disabilities who need assistance with transfers, have been found to have higher prevalence of back pain and decreased physical functioning compared with carers of children with chronic medical conditions who do not require such assistance (Tong et al. 2007).

Stroke causes disability and dependence on others in one of every three patients (Hankey, 1999). After stroke, patients may become dependent on others to do their activities in daily life and some may need long-term care. Generally, this care of patients is provided by their families (Aşiret, and Kapucu, 2013). 70-80% of stroke patients live in their own home after discharge although they need the help of their families (Béthoux et al. 1996). 76% of patients live in their own home, and 71% of these patients continue life with disability (Greveson et al. 1991). Others have found that (Ferri et al. 2011) 97.6% of stroke patients need care, 53.7% of stroke patients in rural China need special care, 72.7% of the stroke patients in India also need additional care. Another study in Turkey determined that 94.7% of stroke patients need help with personal hygiene tasks (Aşiret, and Kapucu, 2013).

The majority of the caregivers were female (82.5%). The prevalence of LBP in caregivers of stroke patients (82.8%) with the prevalence of LBP in the general population (44.151%), the prevalence is higher in caregivers. The prevalence of LBP in informal caregivers of stroke patients is higher (Yalcinkaya et al. 2010).

It is noted that there is a relationship between care giving and back pain and, also female caregivers are more vulnerable in back pain (Yalcinkaya et al. 2010). There is no study specifically to evaluate the prevalence of LBP among caregiver of stroke survivors and its impact on their activities of daily living. Therefore, it generates the necessity to conduct this study to address the prevalence of LBP among caregiver of stroke survivors and its impact on their activities of daily living.

## **1.2. Significance of the study**

There are few studies regarding LBP among caregivers of stroke patient and factors associated with LBP but there is no study in Bangladesh. The study is an initiative to find out the prevalence of LBP among care giver of stroke patient, to find out the association between demographic factors and LBP and the levels of physical disability due to low back pain of caregivers to manage their activities of daily living.

LBP among caregivers not only impairs their day to day life, but also negatively impairs on caregivers' ability to care for their patient who may depend on assistance to perform daily activities.

Caregivers have an important role in rehabilitation process of stroke patient. Therefore, it is very important to conduct this regarding caregivers as their health impacts on the health of their patients. This study is a resource for evidence.

## **1.3 Aim of the study**

The aim of the study is to identify the prevalence of low back pain among caregiver of stroke survivors and its impact on their activities of daily living.

## **1.4 Objectives of the study**

1. To identify the prevalence of low back pain of the last 12 months among caregivers of stroke survivors.
2. To find out the association between demographic factors and low back pain.
3. To find out the levels of physical disability due to low back pain of caregivers to manage their activities of daily living.

## CHAPTER 2

### LITERATURE REVIEW

Stroke is the third leading cause of death (Kotila et al. 1998). The high incidence and high prevalence of stroke have a major impact on society (Stineman et al. 1997). After stroke rehabilitation, 80% of stroke survivors rely on their family members' for daily living when they return to the community (Anderson, Linto and Stewart-Wynne, 1995). Family members take part in caregiving to patient. The caregivers have to balance a dual responsibility of looking after a disabled stroke survivor as well as making adjustments in his or her lifestyle (Morimoto, Schreiner and Asano, 2003). The needs of a stroke survivor vary from physical (walking, transfer from bed to chair, chair to toilet), communication (verbal and nonverbal with family members, friends), nursing (feeding, changing clothes, personal toilet), emotional and psychological changes to adapt to the consequences of stroke and financial (loss of employment, medical bills). Stroke caregivers have to deal with not only stroke patients' difficulties in mobility, self-care, and communication but also their cognitive impairment, depression, and personality changes (Han and Haley, 1990).

LBP is a vital public health problem in all industrialized nations. It is a condition with high prevalence (Harreby et al. 1995). In addition, the pain and associated disability lasts for months in most people where only a small proportion remains severely disabled (Koes, Tulder and Thomas, 2006). LBP is common in various occupations, its presence being related to activities requiring repetitive lifting and repeated activities for which anomalous postures tend to be adopted (Josephson and Vingard, 1998). Additionally, caregivers have high prevalence rates of LBP to take care the patients (Fujimura, Yasuda, and Ohara, 1995). Families of a person with disabilities tend to be poor leading to poor health (Pinquart and Sørensen, 2007). Caregiving in low income countries requires more physical work and manual handling than in high-income countries and thus is associated with greater risk of injuries or physical health disorders (Geere, et al. 2011). This suggests that the need for Occupational Therapy (OT) wellness programs through educational programs focusing on preventing musculoskeletal discomfort (Sanders and Morse, 2005). Desiron et al. discussed Reed and Sanderson's work in their research that OT interventions are a part of the therapeutic plan which is designed to facilitate performance of everyday tasks and

adaptation of settings where the person works, lives and socializes. In addition, such interventions are directed towards developing, improving and restoring daily living skills.

## **2.1 Low back pain:**

Back pain is a common complaint. Most people in the United States will experience low back pain at least once during their lives (Medicine net.com, 2014). LBP is a symptom of a pain which can be localised between the twelfth rib and the inferior gluteal folds (low back), with or without leg pain from various causes (Minematsu, 2012). Pain in the low back can be a result of conditions affecting the bony lumbar spine, discs between the vertebrae, ligaments around the spine and discs, spinal cord and nerves, muscles of the low back, internal organs of the pelvis and abdomen, and the skin covering the lumbar area (Medicine net.com, 2014). Besides, LBP is an important cause of disability and it occurs in similar proportions in all cultures and is the most common reason for medical consultations (Norasteh, 2012).

## **2.2 Types of low back pain:**

### **2.2.1 Acute pain:**

One common type of pain is acute pain, currently defined as pain lasting less than 3 to 6 months, or pain that is directly related to tissue damage. This is the kind of pain that is experienced from a paper cut or needle prick (Mayo clinic, 2012). In addition, the pain is usually localized and there may be muscle spasms or soreness during touching the area, but the patient usually feels better, while resting (Mayo clinic, 2012).

### **2.2.2 Chronic pain:**

There are at least two different types of chronic pain problems - chronic pain due to an identifiable pain generator (e.g. an injury), and chronic pain with no identifiable pain generator (e.g. the injury has healed).

- Chronic pain due to an identifiable pain generator: This type of chronic pain is due to a clearly identifiable cause. Certain structural spine conditions can cause ongoing pain until successfully treated. These conditions are due to a diagnosable anatomical problem.



- Chronic pain with no identifiable pain generator: this type of pain continues beyond the point of tissue healing and there is no clearly identifiable pain generator that explains the pain. It is often termed “chronic benign pain”. In chronic pain the nervous system may be sending a pain signal even though there is no ongoing tissue damage. The nervous system itself misfires and creates the pain. In such cases, the pain is the disease rather than a symptom of an injury. The term “chronic pain” is generally used to describe pain that lasts more than three to six months (Mayo clinic, 2012).

## **2.3 Demographic factors:**

### **2.3.1 Age:**

Age is a period of human life that measured by years from birth is usually marked by a certain stage or degree of mental and physical and involving legal and responsibility and capacity (Dictionary.com, LLC, 2012).

### **2.3.2 Sex:**

Sex refers to the biological and physiological characteristics that define men and women. It is also categorized as male and female (World Health Organization (WHO), 2012)

### **2.3.3 Weight:**

Weight is the amount or quantity of heaviness or mass or measurement of a person or thing. (Macmillan Publishers Limited, 2012)

### **2.3.4 Area of residence:**

Residence is the place especially the house, in which a person lives and it is a dwelling place. (Dictionary.com, LLC, 2012)

### **2.3.5 Marital status:**

Marital status is a condition of being married. (Farlex, Inc., 2012)

### **2.3.6 Educational status:**

Education status is the level of education and skill obtained within a discipline or profession, usually referred to as a generalist or specialist in a discipline. (Farlex, Inc., 2012)

### **2.3.7 Occupation:**

Occupation is a person's usual or principal work or business, especially as a means of earning a living. It is called a job or profession. (Oxford University Press, 2012)

### **2.3.8 Income level:**

Income level is the amount of money or its equivalent received during a period of time in exchange for labor or services from the sale of goods or property or as profit from financial investments. (Farlex, Inc., 2012)

### **2.3.9 Household activities:**

Household work is traditionally a labour performed specifically by women. It is belonging to the house and family; domestic as for household furniture, cooking, cleaning, or laundering (Definitions.net, 2012).

## **2.4. Relation between Demographic factors and Low Back Pain:**

LBP is a common health problem across all age groups, and its high prevalence rate has provoked concern worldwide (Muto et al. 2006). Demographic factors have been associated with LBP in many studies. Age and gender, as well as certain work-related physical and psychosocial factors, influenced the prevalence of LBP (Ghaffari et al. 2006). LBP has been shown to be more common among women than men for occupational groups such as white-collar workers, industrial workers, hospital staff, therapist etc. In general, women are more sensitive than men to a variety of noxious stimuli. The sex differences in gender role expectation for pain are complex and may be affected by culture. That social and economic disadvantage associated with generally poorer physical health has been recognized for centuries. Marital status, education, occupation, and income level also specifically influence LBP. Overweight and obesity are increasingly prevalent in many countries, especially in middle-aged.

Greater weight increase pressure on the spine, the discs and other back structures to cause LBP (Chou et al. 2013).

## **2.5. Stroke:**

A stroke is a condition in which the brain cells suddenly die because of a lack of oxygen. A stroke can be caused by an obstruction in the blood flow, or the rupture of an artery that feeds the brain. The patient may suddenly lose the ability to speak, there may be memory problems, or one side of the body can become paralyzed (MNT Knowledge center, 2014). A stroke happens when arteries supplying blood to the brain either gets blocked (thrombosis) or burst (causing bleeding or haemorrhaging). Blockage cuts off the blood supply to part of the brain, and, without the oxygen and nutrients carried by the blood, brain cells stop working. If brain cells lose their blood supply for more than four to eight minutes, they die and cease working permanently. If a stroke is caused by a burst blood vessel, blood goes into the brain tissue, causing damage to brain cells (Coyne and Mares, 1995).

## **2.6. Functional limitation of stroke patient and care giver dependency after stroke:**

Stroke is a chronic condition that may have serious consequences for a patient's motor, sensory, visual, affect, cognitive, and language systems. Of people who have survived a stroke in the long term, 50% demonstrate hemiparesis, 19% demonstrate aphasia, and 35% demonstrate clinical depression. Stroke-related deficits are further manifested in functional limitations. Approximately 22% of people who have survived a stroke are unable to walk without assistance, and 26% are dependent in activities of daily living. The residual impairments and functional limitations in people who have survived a stroke in the long term represent a major cause of disability in the population (LeBrasseur et al. 2006). The effect of stroke is significant on physical functioning and can lead to changes in lifestyle and inability to manage self care, work or leisure. Stroke survivors are often left with such impairments that influences activities of daily living (ADLs) (Dalvandi et al. 2013). For their impairments, functional limitations, and disability in people who have survived a stroke they become dependent on their caregiver (Jongbloed, 1986). Survivors need assistance to do daily activities and for movement as well. They are dependent and frequently perceived as a burden, since they need endless care giving as many of them

have limitations in self-care functions such as feeding, dressing, bathing and mobility etc (Chou et al. 2013).

### **2.7. Rehabilitation after stroke:**

Stroke is a condition with high incidence and mortality rates, leaving a large proportion of survivors with significant residual physical, cognitive, and psychological impairments. The rehabilitation process involves six major areas of focus: preventing, recognizing, and managing comorbid illness and medical complications; training for maximum independence; facilitating maximum psychosocial coping and adaptation by patient and family; preventing secondary disability by promoting community reintegration, including resumption of home, family, recreational, and vocational activities; enhancing quality of life in view of residual disability; and preventing recurrent stroke and other vascular conditions such as myocardial infarction that occur with increased frequency in patients with stroke. To attain these goals, rehabilitation interventions should assist the patient in achieving and preserving maximum functional independence (Panel et al. 1997). Stroke rehabilitation is a restorative learning process which seeks to hasten and maximize recovery from a stroke by treating the disabilities caused by stroke and to prepare the stroke survivor to reintegrate as fully as possible into community life (Hassan, 2009).

### **2.8. Importance of caregiver in rehabilitation:**

Family acceptance and support can help a patient deal with issues related to self-esteem and self- image following disability. Positive attitudes and reinforcement from loved ones often help the individual work towards recovery. Family participation, flexibility, and open communication can overcome many barriers associated with disability. Families who inspire hope can help the individual to adjust and become more confident in his or her own abilities (Health Library, 2013).

### **2.9. Caregiver:**

Caregiver is the person who provides assistance to another person who is ill, disabled or needs help with daily activities (Bhattacharjee, Vairale, and Dalal, 2012). It often requires attention to the physical, mental, social and psychological needs and well-being of both the caregivers and the elderly person requiring care (Utah coalition for caregiver support, 2004). A caregiver is a person responsible for providing care to

another person. Caregiving is a “reality” confronting many people in our communities today (Utah coalition for caregiver support, 2004). In terms of characteristics caregivers vary with regards to age gender, experience, physical health and strength and emotional endurance, the relationship to the patient, frequency of contact with the patient, coping mechanisms, personality, living arrangements with respect to the patient, and the quality of the interpersonal relationship with the patient. More than 22.4 million persons are informal caregivers – providing unpaid help to older persons who live in the community (Hassan, 2009). One in four Americans is in a caregiving situation. These caregivers include spouses, adult children (most often the eldest daughter) and other relatives and friends. Despite changes in family size, geographic mobility, workforce participation of women and other such factors family caregivers still provide 80-90% of all personal and medical-related care to elderly relatives (Utah coalition for caregiver support, 2004).

## **2.10. Types of care giver:**

### **2.10.1 Informal caregiver:**

Informal caregivers play a crucial role in maintaining the health of well being, functional independence and quality of life of people who lose their independence. Informal caregiver also called ‘unpaid’ caregiver (Bhattacharjee, Vairale, and Dalal, 2012). Informal caregivers’ are those persons who provide ongoing care and assistance without any payment such as family members, friends, and relatives. It has been argued that most care and support comes from informal caregivers, particularly those living with the patient. Bugge, Alexander and Hagen refer to informal caregivers as the “backbone of the service provided to stroke patients”. Many studies have shown that family members are affected by the patients’ illness from the outset. However, informal caregivers are most frequently members of the immediate family and usually women who must often balance the role of caregiver with other responsibilities both in and outside the home services (Dewey et al. 2002).

### **2.10.2 Formal caregivers:**

Formal caregivers are those who perform care giving as their occupation, and they are paid to give care; for example, a nurse is a formal caregiver (Hilton, 2011).

### **2.11. Impact of low back pain on everyday life:**

LBP has a major impact on patients' quality of life. People who have chronic LBP experience much poorer quality of life than general people (Ribeiro, Córdia and Almeida, 2012). People with LBP struggle in their everyday activities. Because of two-third of suffers report that they are less able or unable to sleep, half of suffers reported that they face difficulty with their household chores and one-fifth report that pain affects their relationships with family and friends and one-sixth feel their pain is sometimes so bad they want to die (Siengsukon, Emmanuel and Sharma, 2013). Persons with LBP experience more restrictions and they are in bad health conditions, while performing all their physical activities including self-cleaning and dressing comparing to those without LBP (Kaya et al. 2010).

### **2.12. Low back pain and occupational therapy:**

Experiencing chronic pain is very common. Pain can occur anywhere at any age and be caused by a variety of health conditions. It can affect all aspects of life – how to move, think, sleep, feel, and carry out everyday activities. It is a very personal experiences and how a person experience pain affects, how he deals with it and the impact it has on him.

The primary goal of Occupational Therapy (OT) is to enable people to participate in the activities of everyday life (Desiron et al. 2011). Mullersdore, Christiansen and Baum, Törnquist's discussed that OT is described in terms of being health-oriented and the focus is on the effects of a disease or an injury on everyday living. Occupational Therapists focus on persons' participation restrictions or activity limitations (Sanders and Morse, 2005). OT intervention for pain management including initial assessments and planning (e.g. assessment task of performance/activity analysis, attitudes assessment, and goal setting), occupational performance (e.g. work hardening, energy conservation, ergonomics), external adaptation (e.g. assistive devices, splinting) or education (e.g. pain education, back school), activities with a behavioral perspective (e.g. ergonomics, activity tolerance) or as a tool (e.g. arts and crafts, purposeful activities) (Mullersdore, 2011).

As well, occupational therapists can advise on planning, pacing, prioritizing activities by developing a daily routine and overcoming pain-causing hazards at work (Sanders

and Morse, 2005); providing advice on caring for muscles and joints and how to incorporate exercise and relaxation into daily life; recommending assistive technology, if needed and alternative ways of working; providing advice and training in undertaking daily activities such as bathing, dressing, eating and participating in a favorite hobby; helping people to re-prioritize tasks to improve work-life balance and to remain in or return to work (Mullersdore, 2011).

## **CHAPTER THREE METHODOLOGY**

### **3.1 Study design:**

To conduct this study the researcher used the cross sectional survey methods to carry out the research aims and objectives. Quantitative methods are appropriate for this study as the issue is known about, relatively simple and clear-cut. The researcher selected cross-sectional survey research design to generalize the information on the prevalence of low back pain among care giver of stroke survivors and its impact on their activities of daily living because when the data is collected from a large population; it increases the external validity of the study (Hicks, 2000).

### **3.2 Study settings:**

The study setting was selected conveniently. This study was conducted at the out-patient unit of occupational therapy department at the Centre for the Rehabilitation of the Paralyzed (CRP). CRP has developed into an internationally respected organization. CRP focuses on a holistic approach to rehabilitation, recognizing that all aspects of the rehabilitation process are vital for its success (CRP-Bangladesh, 2015). CRP was founded in 1979 and Headquarter of CRP is in Savar. It is approximately 25km from Dhaka and is situated in around 13 acres of land. CRP is a large non-government organization (NGO) that serves children and adults with disabilities, especially physical and neurological impairments (International Center for Disability Resources, 2012). There is Occupational Therapy has an out-patient service for patients with neurological impairments including stroke. An outpatient OT service is provided at CRP that includes evaluation, treatment and education to enable an individual to carry out their activities of daily living, which include those performed at work, home, school and the community, as independently as possible after an accident, illness or injury. There is also Stroke Rehabilitation Unit at CRP where occupational therapist and physiotherapist work with together (Centre for the Rehabilitation of the Paralysed, 2012).



### **3.3 Population:**

Study populations were the caregivers of stroke survivors who came to receive rehabilitation treatment at CRP within the data collection period and also who met the inclusion and exclusion criteria.

### **3.4 Sample selection:**

Study sample was selected in convenient sampling. 62 participants were selected as study sample for the study.

### **3.5 Sampling Procedure:**

The sample was chosen from the caregivers who came with the purpose of receive rehabilitation for their stroke survivors at the Out-patient Unit and Stroke Rehabilitation Unit at CRP within the data collection period and also who met the inclusion and exclusion criteria. After completing survey, 62 caregivers fulfilled the inclusion and exclusion criteria and they were interested to participate in the study.

### **3.6 Inclusion criteria:**

- Male and female both was included.
- Formal and informal caregiver both was included.
- Both uni- lateral and bi-lateral stroke survivor's caregiver was included.
- Caregivers' age was between 18-60 years old.
- Caregiver provided care for five months.

### **3.7 Exclusion criteria:**

- Caregivers who had any back fracture and surgery.
- Caregivers who had any history of low back pain.
- People with psychiatric disorder were excluded.

### **3.8 Data collection tool:**

#### **3.8.1 Screening form:**

A Bengali screening form was developed based on inclusion and exclusion criteria. It is necessary to get the study sample according to comprehensive way.

### **3.8.2 Information sheet and consent form:**

Researcher used information sheet and consent form to maintain ethical consideration.

### **3.8.3 Questionnaire:**

The researcher used a self-reported Bengali questionnaire because Bengali was comfortable and understandable for the study subjects. The survey questionnaire contains three parts including a code number, demographic information (Section A), One question was used to identify the prevalence of LBP among caregivers of stroke survivors (Section B) and the Oswestry Disability Index version 2.1a (Section C).

### **3.8.4 Demographic information:**

Demographic information includes age, area of residence (rural/urban), marital status, educational status, occupation, relationship with the patient, family's monthly income level in Bangladeshi Taka (BDT), daily engagement in patient care tasks (in hour), percent of time while others assist in patient care, daily engagement in household (in hour) and age, sex, weight in kilogram, types of stroke in case of stroke patients. Definitions demographic variables are mentioned in Table-1 which used are in this study:

Table 1: Definitions demographic variables are mentioned in which used is this study:

Demographic variables		Definitions
Age	Indicating how old the caregivers or patient is	
Area of residence	Rural	Indicating as village area
	Urban	Indicating city or town
Marital status	Married	Indicating who has husband or wife
	Unmarried	Indicating who is not married
Educational status	Illiterate	Indicating who is unable to read and write
	Primary level	Indicating that who has completed primary education and has the certificate
	Secondary level	Indicating that who has completed secondary education and has the certificate
	Higher secondary level	Indicating that who has completed higher secondary education and has the certificate
	Hon's	Indicating that who has completed college or university education and has the certificate
	Masters	Indicating that who has completed advanced college or university and has the certificate
Occupation	Student	Indicating who is learning at a school or college or university
	Housewife	Indicating that whose work is inside the home, doing household activities and who usually does not have any other job
	Government service holder	Indicating that who works in the government organization

	Nongovernment service holder	Indicating that who works in the non-government organization
	Own business	Indicating that who does not work for an employer, but having her own business
	Retired officer	Indicating that who has withdrawn from job or business
Relationship with patient	Father	Indicating the male parent
	Mother	Indicating the female parent
	Brother	Indicating the boy or male who has the same parents
	Sister	Indicating the girl or woman who has the same parents
	Wife	Indicating who has a married relation with male
	Husband	Indicating who has married relation with female
Family income level	Indicating the amount of family income in Bangladeshi taka per month	
Daily engagement in patient care (hour)		Indicating the duration of engagement in patient care tasks counting in hours per day
Percent of time while others assist	Never ever (0%)	Indicating while others do not assist with patient care at any time
	Sometimes (1-24%)	Indicating while others assist with patient care at 1-24%
	Often (25-49%)	Indicating while others assist with patient care at 25-49%
	Every time (more than 50%)	Indicating while others assist with patient care at 50% or more
Daily engagement in household activities (hour)	Indicating the duration of engagement in household counting in hours per day	

Sex of the stroke patient	Male	Indicating a boy
	Female	Indicating a girl
Weight of the stroke patient	Indicating the amount that the patient weights	
Types of stroke patients according to tone	Type of stroke was taken from the patients' record file (Assessment form)	

### **3.9 Identify the prevalence of low back pain:**

One question was used concerning “Have you had trouble (such as ache, pain, discomfort, numbness) in lower back at any time during the last 12 months” to estimate the prevalence of LBP among caregivers of stroke survivors. The question was used to define LBP based on subjective (Caregivers’) judgment. In Section B, if the answer is “Yes”, then the study subjects had gone through to fill up the Section C.

### **3.10 The Oswestry Disability Index:**

The Oswestry Disability Index (also known as the Oswestry Low Back Pain Disability Questionnaire) is an extremely important tool that researchers and disability evaluators use to measure a patient's permanent functional disability. This questionnaire has been designed to give us information as how back or leg pain is affecting the ability to manage in everyday life (Fairbank, and Pynsent, 1976). ODI version 2.1a consists of 10 sections including Pain intensity, Personal care, Lifting, Walking, Sitting, Standing, Sleeping, Sex life (if applicable), Social life and Travelling. It is a 6-point scale (Fairbank, and Pynsent, 1976). The ODI was translated into Bengali by following the Linguistic Validation of a Patient Reported Outcomes Measure, provided by (MAPI Research Trust Mapi Research Institute; 2005).

According to the Information Booklet, the scoring procedure of ODI version 2.1a was done which was provided by MAPI Research Trust. In the ODI version 2.1a are scored on a 0 to 5 scale. For each items the maximum score is 5. There is 0 indicating no limitation of function and 5 indicating major functional disability due to back pain. If the first statement is marked, the score is 0, if the last statement is marked, the score

is 5 and intervening statements are scored according to rank 1, 2, 3, and 4. If all 10 items are completed, the index is calculated by dividing the summed score by the total possible score, which is then multiplied by 100 and expressed as a percentage. If more than one box is marked for any item, the highest scoring statement is recorded as a true indication of the patient's disability and the score is calculated in the same way. The index score is calculated by dividing total score of each item answered by total possible score (5 X number of items answered). Then, it is multiplied by 100 and expressed as a percentage. If a section is not completed as, it is not applicable and the score is calculated in the same way. If one or more items are missed, the index score is calculated by dividing total score of each item answered by total possible score (4 X number of items answered). In addition, range of scores for the index score is 0 to 100% (Mapi Research Trust; 2011).

The interpretation of high and low scores of ODI version 2.1a was done according to the Information Booklet, provided by MAPI Research Trust. In the ODI version 2.1a, the interpretation of scores includes five levels. These are minimal disability (0-20%), moderate disability (21-40%), severe disability (41-60%), crippled (61-80%) and bed-bound patients (81-100%) (Mapi Research Trust; 2011). The people who have minimal disability can cope with most living activities. Usually no treatment is indicated apart from advice on lifting sitting and exercise. The people who have moderate disability experiences more pain and difficulty with sitting, lifting and standing. Travel and social life are more difficult and they may be disabled from work. Personal care, sexual activity and sleeping are not grossly affected and the patient can usually be managed by conservative means. The people who have severe disability, pain remain the main problem in this group but activities of daily living are affected. The people who need to cripple require a detailed investigation. Back pain impinges on all aspects of the patient's life. Positive intervention is required. Bed bound people are either bed-bound or exaggerate their symptoms (Fairbank, and Pynsent, 1976).

### **3.11 Data collection procedure:**

The researcher collected data from the study sample at the study setting. First of all, the researcher introduced herself, then conducted screening, explained the information sheet and consent form clearly to build up trust and completed the procedure before

data collection. The data was collected by using a self-reported Bangla survey questionnaire.

### **3.12 Data Analysis:**

The data analysis was done by statistical software named Statistical Package for Social Science (SPSS) version 17. Each subject was defined by a code number and every question was counted as a variable. The code number and variables were labeled in a list in the variable view and the data input was performed in the data view of SPSS. The researcher checked every questionnaire and also data view for any unclear or missing or incorrect information. Then the dataset was ready to analysis. Descriptive statistics was used to estimate the prevalence of low back pain (LBP) over the last 12 months of the study subjects (caregivers), and also used to find out the frequency and percentage of demographic variables and the levels of physical disability. Chi-square test was used to find out the association between demographic variables and LBP over the last 12 months of caregivers of stroke survivors, whether statistically significant or not. This chi-square test was done by using 2x2 table (Crosstab) with P-value less than 5% ( $P < 0.05$ ) for statistical significance.

### **3.13 Ethical consideration:**

Ethical consideration is very essential to conduct a study. The researcher was concerned about the following ethical issues:

- Taking permission from Department of Occupational Therapy, Bangladesh Health Professions Institute (BHPI), and the academic institute of Centre for the Rehabilitation of the Paralyzed (CRP) before conducting the study.
- Taking permission from Head of the Department of Occupational Therapy Clinical Department of CRP-Savar before data collection.
- Taking permission from MAPI Research Trust in collaboration with the author named Jeremy Fairbank for the ODI and fulfilling the user and translation agreement and linguistic validation procedures to validate the ODI in Bangladeshi aspect and finally using the ODI in this study to accomplish this academic research.
- The researcher was concerned about the effect of biasness, as the study sample was selected based on inclusion and exclusion criteria.

- An informed consent had been taken from all study subjects mentioning the aim of the study and the subjects had full right to withdraw themselves from the study at any time without any hesitation.
- The study subjects had the opportunity to disregard the section 8 (sex life) of ODI version 2.1a without any hesitation.
- Out-patient and Stroke rehabilitation unit, and study subject were not disadvantaged by the study.
- Confidentiality was maintained during the whole process of the study.
- A code number had been used for each study subject that anyone could not identify the study subject.

### **3.14 Validity and reliability of the Oswestry Disability Index:**

The Oswestry Disability Index (ODI) version 2.1a by Jeremy Fairbanks is a valid questionnaire to find out the levels of physical disability to manage in everyday life due to low back pain. The ODI version 2.1a was translated into Bengali according to the Linguistic Validation of a Patient Reported Outcomes Measure of the ODI to adapt it culturally.



## CHAPTER FOUR

### RESULT

#### 4.1 Demographic variables

In this study, 32.3% caregivers age range were between (40-49), 29% care givers age range were between (19-20), 24.2% caregivers age range were between (30-39), and 14.5% caregivers age range were between (50-60). Most of the caregivers (74.2%) were female caregiver. 56.5% caregivers were from rural area and 43.5% were from urban area. Almost all of the caregivers (82.3%) were married. 33.9% completed their education up to secondary level and 22.6% was illiterate. 62.9% caregivers were housewives all of them. Among all respondents, 41.9% caregivers relation with the survivors were wives. The revealed that 46.8% care givers family income was less than 15000 thousand.

More than half of the caregivers (51.6%) engaged in patient's care for less than 15 hours per day. In patient care, 30.6% caregivers never need assistance (0%), 33.9% sometimes had assistance (1-24%), 16.1% often need assistance (25-49%), 19.4% every time need assistance (more than 50%). In this study, 83.9 % engaged in household activities also for less than 5 hours per day.

In this study, more than one-third of the stroke patients (48.4%) were less than 64 years old and all of them, more than half of the patients (59.7%) were male. More than one-third of the stroke patients' weights (43.5%) were within 64 kilogram. Most of the stroke patients (74.2%) were spastic hemiplegic.

Table 2: Demographic factors of caregivers

Demographic factors		Frequency	Percent (%)
Age of caregivers	19-29yrs	18	29.0
	30-39yrs	15	24.2
	40-49yrs	20	32.3
	50-60yrs	9	14.5
Care givers sex	Male	16	25.8
	Female	46	74.2
Area of residence	Rural	35	56.5
	Urban	27	43.5
Marital status	Married	51	82.3
	Unmarried	11	17.7
Educational status	Illiterate	14	22.6
	Primary level	6	9.7
	Secondary level	21	33.9
	Higher secondary level	8	12.9
	Hon's	9	14.5
	Masters	4	6.5
Occupation	Student	7	11.3
	Housewife	39	62.9
	Government service holder	3	4.8
	Nongovernment service holder	1	1.6
	Own business	7	11.3
	Retired officer	1	1.6
	Others	4	6.5
Relationship the patient	Mother	3	4.8
	Brother	1	1.6
	Sister	3	4.8
	Wife	26	41.9

	Husband	2	3.2
	Paid carer	5	8.1
	Others	22	35.5
Family income level	5000-15000Tk	29	46.8
	16000-25000TK	20	32.3
	26000-35000TK	8	12.9
	36000- Above TK	5	8
Daily engagement in patient care (hour)	1-5	3	4.8
	6-10	20	32.3
	11-15	32	51.6
	16-20	7	11.3
Percent of time while others assist	Never ever (0%)	19	30.6
	Sometimes (1-24%)	21	33.9
	Often (25-49%)	10	16.1
	Every time (more than 50%)	12	19.4
Daily engagement in household activities (hour)	1-5	52	83.9
	5-10	10	16.1

Table 3: Demographic factors of stroke survivors

Demographic factors		Frequency	Percent (%)
Age of the stroke patient	14-30	2	3.2
	31-47	19	30.6
	48-64	30	48.4
	65-80	11	17.7
Sex of the stroke patient	Male	37	59.7
	Female	25	40.3
Weight of the stroke patient	35-50	21	33.9
	51-65	27	43.5
	66-80	9	14.5

	81-96	5	8.1
Types of the stroke patients according to tone	Spastic	46	74.2
	Flaccid	7	11.3
	Mixed	9	14.5

#### 4.2 Prevalence of low back pain:

In this study, the prevalence of low back pain (LBP) of the caregivers of the stroke survivors of last 12 months is 71% which is mentioned in Table 3.1

Table 4: Prevalence of LBP of the last 12 months of caregivers (n=62)

Time outline	Frequency		Percent (%)	
	Yes	No	Yes	No
12 months prevalence at lower back	44	18	71	29

#### 4.3 Association between LBP and Demographic variables:

There is a statistically significant association between low back pain (LBP) of last 12 months and marital status of caregivers' of the stroke survivors. The P-value of this association is .002. In this study, it is found that there is no association of low back pain with the age of caregiver, area of residence, educational status, occupation, relationship with the patient, family's monthly income level, daily engagement in patient care tasks, percent of time while others assist in patient care, daily engagement in household activities and age, sex, weight in kilogram, types of stroke of stroke patients.

Table 5: Association between LBP of the last 12 months and demographic variables of caregivers (study subjects, n=62)

Demographic variables		Frequency	Percent of LBP of last 12 months (%)		Chi-square test	P-value (P<0.05)
			Yes	No		
Age of caregivers	19-29yrs	18	13	5	5.862	.439
	30-39yrs	15	8	7		
	40-49yrs	20	16	4		
	50-60yrs	9	7	2		
Care givers sex	Male	16	10	6	1.515	.469
	Female	46	34	12		
Area of residence	Rural	35	23	12	.309	.857
	Urban	27	21	6		
Marital status	Married	51	38	13	12.850	.002
	Unmarried	11	6	5		
Care giver educational status	Illiterate	14	8	6	12.494	.253
	Primary level	6	4	2		
	Secondary level	21	18	3		
	Higher secondary level	8	5	3		
	Hon's	9	7	2		
	Masters	4	2	2		
Occupation	Student	7	4	3	12.335	.263
	Housewife	39	28	11		
	Government service holder	3	3	0		
	Nongovernment service holder	1	1	0		
	Own business	7	6	1		
	Retired officer	1	0	1		
	Others	4	2	2		
Relationship	Mother	3	3	0	5.864	.827

the patient	Brother	1	0	1		
	Sister	3	1	2		
	Wife	26	19	7		
	Husband	2	2	0		
	Paid carer	5	4	1		
	Others	22	15	7		
Family income level	5000-15000TK	29	20	9	8.108	.423
	16000-25000 TK	20	15	5		
	26000-35000 TK	8	6	2		
	36000- Above TK	5	3	2		
Daily engagement in patient care (hour)	1-5	3	3	0	7.216	.301
	6-10	20	14	6		
	11-15	32	23	9		
	16-20	7	4	3		
Percent of time while others assist	Never ever (0%)	19	16	3	4.502	.609
	Sometimes (1-24%)	21	14	7		
	Often (25-49%)	10	6	4		
	Every time (more than 50%)	12	8	4		
Daily engagement in Household activities (hour)	1-5	52	36	16	.971	.616
	5-10	10	8	2		

#### 4.4 Level of disability:

Due to LBP, 27.4% caregivers had moderate disability (21%-40%). 25.8% caregivers had severe disability (41%-50%) and then least of them (17.7%) had minimal disability (0%-20%) which is mentioned in table. Besides, none of them was crippled (61-80%) or bed-bound patients (81-100%).

Table 6: Levels of physical disability among caregivers (study subjects, n= 62) to manage in everyday life due to LBP

Level of disability	Frequency	Percent (%)
Minimal disability (0%-20%)	11	17.7
Moderate disability (21%-40%)	17	27.4
Severe disability (41%-50%)	16	25.8
Crippled (61%-80%)	--	--
Bed-bound patients (81%-100%)	--	--

## CHAPTER FIVE

### DISCUSSION

The first objective of this study was to identify the prevalence of low back pain (LBP) of the last 12 months among the caregivers of stroke survivors. This study showed that the prevalence of LBP of the last 12 months among the caregivers of stroke survivors is 71%. This is the first study that focuses on evaluating the prevalence of LBP among the caregivers of stroke survivors in Bangladesh. Yalcinkaya et al. 2010 showed that the prevalence of LBP among the caregivers of stroke survivors was 82.8%. In a study of Tong et al. 2003 investigated LBP among female caregivers of children with physical disabilities compared them with caregivers of children with endocrinological problems. In that study, the prevalence of LBP was higher among the caregivers of children with physical disabilities (71.1%) compared with caregivers of children with endocrinological problems (43.5%). In the study of Bardak, Erhan, and Gündüz, the one-year prevalence of LBP was significantly higher among caregivers of spinal cord injury (SCI) (58%). As argued elsewhere (Khanam, 2013) that the prevalence of LBP of the last 12 months among female caregivers of children with cerebral palsy (CP) was 66.70%. There are many studies about depression, quality of life, and interventions but prevalence of LBP are very few.

The second objective of this study was to find out the association between LBP of the last 12 months among the caregivers of stroke survivors and demographic factors. There is a statistically significant association between LBP of last 12 months and marital status of caregivers' of the stroke survivors. Yalcinkaya et al. 2010 worked on their study and showed that there was a significantly higher LBP presence in females than males in the study (46 female caregivers vs 7 male caregivers). A significantly higher proportion of female caregivers reported depressive symptoms and pain than male caregivers in that literature. The majority of the caregivers were the children of patients in that study. Spouses were the highest ratio in literature. In the study of Bardak, Erhan, and Gündüz 2012, the prevalence of LBP was also higher among caregivers of SCI patients with long duration of injury; that was LBP was associated with caregiving duration. This was attributed to activities that cause LBP having been carried out for a long time. In a study of Khanam, 2013 showed that there was statistically significant association of LBP of last 12 months with the relationship of female caregivers with the children with CP. The association is present in case of



mother of the children with CP. That study also showed a statistically significant association between LBP of last 12 months with family's monthly income level. The association is significantly higher in case of those whose family income is less than 10000tk per month.

On the other hand, the study of Tong et al. discussed which is relevant to this association. As mothers usually provide care to their disabled children due to social and cultural structures, dependency of children on their mothers in case of activities of daily living is equivalent with mothers' back pain severity. Finkelstein 1995 quoted Kelsey and Golden, Riihimaki's work in his research that age is associated with the occurrence of LBP and the likelihood of having LBP increases with age. Sanders and Morse 2005 quoted Hall and Gordon'- work in their research that married women with part time jobs are more expected to experience role overload in fulfilling the tasks of both a mother and worker than women who are employed full-time. There is an association between employment and the numbers of hours of housework, while full-time housewives spent significantly longer hours doing housework and working long hours is also linked with musculoskeletal pain among housewives. In the study of Sanders and Morse, less than half of all spouses got assistance >50% of the time with child care. Sanders and Morse quoted that the primary caregivers above all the mothers account multitasking for taking care of children during performing daily household tasks. There is an association between housework and LBP. In the study of Habib and Zein 2012, the number of housework hours is significantly associated with musculoskeletal pain in women.

This study found that there is no association of with LBP the age of caregiver, area of residence, educational status, occupation, relationship with the patient, family's monthly income level, daily engagement in patient care tasks, percent of time while others assist in patient care, daily engagement in household activities and age, sex, weight in kilogram, types of stroke according to tone of stroke patients.

The third objective of this study is to find out the levels of physical disability due to low back pain of caregivers to manage their activities of daily living. Most of the female caregivers had moderate disability; one third of them had severe disability and least them experiencing minimal disability due to LBP. Furthermore, none of them was crippled and bed-bound patients due to LBP.

According to researcher's knowledge, there is no published article to discuss specifically the levels of physical disability. In a pilot study of Yalcinkaya et al. 2010 showed the comparison between 2 groups; caregivers with LBP and caregivers without LBP of stroke patient according to age, body weight, and care duration, there was not any significant difference. FIM scores of the patients were significantly lower in group 1 than group 2. The group 1 was classified as moderate disability according to ODI score.

Tonga and D'uger discussed about the correlation of WeeFIM locomotion-mobility in case of children with CP and muscular dystrophy (MD) with ODI scores in case of their mothers. Unalan and colleagues found that SF-36 scores were significantly lower in primary caregivers of SCI survivors compared to age-matched healthy population based controls.

A study revealed that LBP is a leading cause of disability and chronic back pain is more disability. Smith et al. discussed and Bergner et al. (1981) work in their research that chronic pain is associated with difficulty in performing everyday activities. On the other side, Yip discussed OSLEN et al. 2002 showed that about 30-50% of self-reported LBP implicated daily activity limitations, sleeping interruption and walking interference. Furthermore, patients with LBP experience more restrictions when performing all their physical activities including self-cleaning and dressing as compared to those without LBP.

## **CHAPTER SIX**

### **LIMITATION OF THE STUDY**

In this study, the limited sample was taken from conveniently selected study setting and sample was selected by following non-probability sampling strategy, which does not represent the whole population. Therefore, the result of the study cannot be generalized. This cross sectional study represents the association between LBP of the last 12 months and demographic variables. But, it does not show any causal relationship.

There were no available studies on the same issue and it is a new study of Bangladesh. So that there was found limited evidence based information.

Researcher excluded the participants who have previous back pain history before caregiving of their stroke survivors. But there was no question in screening form to find out, so that verbal way needed to complete that section.

## **CHAPTER SEVEN**

### **RECOMMENDATION**

There are a lot of articles in the whole world regarding on LBP, but still there is no study in Bangladesh regarding on the prevalence of LBP among caregiver of stroke survivors and its impact on their activities of daily living. In this study, there were limited amount of data which arouses the necessity of conducting a study at a large scale in Bangladesh.

The authority of government and non-government organizations must come forward to sort out the necessity and take effective measures. Both the government and non-government organizations like hospitals, clinics, rehabilitation centers, research institutes, organizations working on disability, etc. have to take initiatives to conduct further studies at a large scale regarding LBP among caregiver of stroke survivors.

This study showed the association of LBP only with demographic factors. Further studies should consider physical, psychosocial, environmental factors having association or not with LBP. In addition, it will be better to find out the relationship between LBP and different factors (demographic, physical, psychosocial and environmental). Prevention, intervention and outcome regarding LBP shall be considered for future studies.

Bangladesh Occupational Therapy Association (BOTA) is the one and only representative association of OT in Bangladesh. BOTA can raise awareness to the appropriate authority and general people about the impact of LBP on taking care of their stroke survivors and in managing their everyday life by liaising with the proper channels, arranging workshop, seminar, etc. to prevent and receive proper ergonomic intervention.

Occupational Therapy supports those who are restricted in their everyday life and offers them counseling, techniques to conserve energy; assistive technology, if needed; alternative ways of functioning; advice and training in undertaking daily activities such as bathing, dressing, eating, participating in a favorite hobby; strategies to reprioritize tasks to improve life on the basis of Occupational Health and Safety and Ergonomics concerns.

## **CHAPTER EIGHT**

### **CONCLUSION**

Low back pain (LBP) is an extremely common health problem in the whole world. It is one of the most frequent musculoskeletal disorders in daily practice. As a developing country, it is a very frequent problem in Bangladesh. LBP has great impact causing severe long term physical disability and give rise to huge costs for the society.

LBP is more frequent in caregivers of stroke survivors in the normal population. In this study, the prevalence of LBP was very high among caregivers especially more common in female caregivers who are married. According to, Bangladeshi social and cultural basis female need to maintain family and also need to take care of their patient. At that reason, they face more problems. In this study, more than one third of people had moderate disability due to LBP. It is showed that there is a problem due to LBP, which claims to conduct further studies at a larger scale in Bangladesh.

Females have to care for their patients and they are the part and parcel of intervention program. Therefore, they need to care for their own health to remain fit. For that reason, they need to take consultancy through Occupational Health and Safety and Ergonomics concerns from occupational therapists regarding caring for their patients and managing their everyday life to build-up an effective family-centered practice. Thus, the stroke survivors as well as the caregivers may get their fruitful intervention.

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## Appendix- 1

27 August, 2014

The Head of the Department  
Department of Occupational Therapy  
Bangladesh Health Professions Institute (BHPI)  
Center for the Rehabilitation of the Paralyzed (CRP)

Subject: Prayer for the approval of Undergraduate Academic Research Project.

Sir,

With due respect, I beg most respectfully to state that, I am a student of 4<sup>th</sup> year, Department of Occupational Therapy, BHPI, the academic institute of CRP. As a partial fulfillment of my Bachelor Science Degree of Occupational therapy course under the medical faculty of Dhaka University, I will have to conduct a research project in this academic year which is a part of my academic curriculum. I have chosen my study titled as "Prevalence of low back pain among caregiver of stroke survivors and its impact on their activities of daily living". The aim of the study is to identify the prevalence of low back pain among caregiver of stroke survivors and its impact on their activities of daily living. I can make sure that the study will never harm to the participants. The detail proposal of the study is attached with the application.

I therefore, pray and hope that you would be kind enough to grant my appeal by giving the permission to conduct the study which will help me to complete a successful study as a part of my course and oblige thereby.

Sincerely yours,

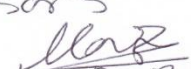
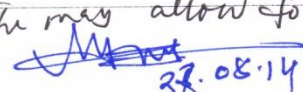
Humaira Umme Salma,

4<sup>th</sup> year, B. Sc. in Occupational Therapy

Bangladesh Health Professions Institute

The academic institute of Centre for the Rehabilitation the Paralyzed (CRP)

Savar, Dhaka-1343, Bangladesh.

Approved by	Comment & Signature
<b>Head of the Department</b> Nazmunnahar Assistant professor & Head of the Department Department of Occupational Therapy, BHPI, CRP, Chapain. Savar, Dhaka- 1343	It may allow her as per supervisor's comment.  27.08.14
<b>Supervisor</b> Md. Julker Nayan Assistant Professor, Department of Occupational Therapy CRP-Chapain. Savar, Dhaka- 1343	She may allow to conduct the Study  27.08.14

## Appendix-2(a)

### Screening form in Bengali

গবেষণার শিরোনামঃ স্ট্রোক রোগীর যত্নকারীদের পিঠের নিচের অংশের ব্যথার প্রাদুর্ভাব এবং প্রতিদিনের কাজে এর প্রভাব।

স্ক্রিনিং এর তারিখঃ

অংশগ্রহণকারীর নামঃ

১। আপনার বয়স কত \_\_\_\_\_ ?

২। আপনার পিঠে কি সার্জারি ? অপারেশন হয়েছিল /

না (২)            হ্যাঁ (১)

৩। আপনার কি কখন ও ভেঙ্গেছিল ?

না (২)            হ্যাঁ (১)

৪। আপনি প্রতিদিন কত সময় ধরে রোগীর দেখাশুনার কাজ করেন \_\_\_\_\_ ?

## Appendix-2(b)

### Screening form in English

Title: Prevalence of low back pain among caregiver of stroke survivors and its impact on their activities of daily living.

Date of screening:

Participant's name:

1. How old are you? \_\_\_\_\_
2. Did you have any back surgery? \_\_\_\_\_  
(1)Yes            (2) NO
3. Did you have any back fracture? \_\_\_\_\_  
(1)Yes            (2) No
4. For how long do you engage in household daily (in hour)? \_\_\_\_\_

## Appendix-3(a)

### Information sheet in Bengali

আমি হুমায়রা উম্মে সালমা, বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট ( বি এইচ পি আই ), পক্ষাঘাতগ্রস্থদের পুনর্বাসন কেন্দ্র ( সি আর পি) র শিক্ষা প্রতিষ্ঠান, সাভার, ঢাকা -১৩৪৩, বাংলাদেশ- এর অকুপেশনাল থেরাপিতে স্নাতক শ্রেণী একজন ছাত্রী। আমি এখন আমার ৪ বছরের কোর্সের চূড়ান্ত বছরে আছি। আমার পাঠ্যক্রম অনুযায়ী, স্নাতক ডিগ্রীর পূর্ণতার প্রয়োজনে আমার একটি গবেষণার কার্য- পরিচালনা করা বাধ্যতামূলক। আমি আপনাকে আমার গবেষণা অংশগ্রহণের জন্য আমন্ত্রণ জানাই। আমার গবেষণার শিরোনামটি হল “ স্ট্রোক রোগীর যত্নকারীদের পিঠের নিচের অংশের ব্যথার প্রাদুর্ভাব এবং প্রতিদিনের কাজে এর প্রভাব” এবং আমার গবেষণাটির লক্ষ্য হল স্ট্রোক রোগীর যত্নকারীদের পিঠের নিচের অংশের ব্যথার প্রাদুর্ভাব এবং প্রতিদিনের কাজে এর প্রভাব জানতে পারা।

এই গবেষণা আপনার অংশগ্রহণ ঐচ্ছিক। যদি আপনি এই গবেষণা থেকে নিজেকে প্রত্যাহার করতে চান আপনি যে কোন সময় কোন দ্বিধা ছাড়াই তা করতে পারেন। এই গবেষণার দ্বারা আপনি কোন ক্ষতিগ্রস্ত বা অসুবিধাপ্রাপ্ত হবেন না।

একমাত্র আপনি এবং আপনার রোগীর ব্যক্তিগত বিবরণ ( আপনার এবং আপনার রোগীর পরিচয়-পত্র যুক্ত করা হবে না যেমন, নাম) এবং প্রশ্নপত্রের উত্তরসমূহের দলিল রাখা এবং এগুলো ব্যবহার করা হবে গবেষণার উদ্দেশ্যে। আপনার অংশগ্রহণের জন্য আপনাকে কোন আর্থিক সুবিধা প্রদান করা হবে না।

গবেষক গবেষণা চলাকালীন প্রতিটি ধাপে গোপনীয়তা বজায় রাখবেন। আপনার অনুমতি ছাড়া আপনার আপনি যে তথ্যাবলী দিয়েছেন তা কখনই ব্যবহার করা হবে না।

## Consent form in Bengali

পরিপূর্ণ করা হবে যাদের দ্বারাঃ

ক) অংশগ্রহণকারী (অংশগ্রহণকারী যদি শিক্ষিত হয়)/ সাক্ষী (অংশগ্রহণকারী যদি অশিক্ষিত হয়)

- আপনি কি তথ্য পত্র পড়েছেন? হ্যাঁ / না
- এই গবেষণার আলোচনা এবং কোন প্রশ্ন করার সুযোগ হয়েছে কি আপনার? হ্যাঁ / না
- আপনি কি আপনার সকল প্রশ্নের সন্তুষ্টিমূলক উত্তর পেয়েছেন? হ্যাঁ / না
- আপনি কি গবেষণা বিষয়ক পর্যাপ্ত তথ্য গ্রহণ করতে সক্ষম হয়েছেন? হ্যাঁ / না
- গবেষণাটি কি আপনার কাছে বর্ণনা করা হয়েছে? হ্যাঁ / না
- আপনি কি এটা বুঝতে পেরেছেন যে কোন কারণ ছাড়াই যে কোন সময় আপনি গবেষণা থেকে প্রত্যাহার হতে পারবেন?  
হ্যাঁ / না
- আপনার সকল ব্যক্তিগত তথ্যের সর্বোচ্চ গোপনীয়তা রক্ষা করা হবে। আপনি কি এই গবেষণায় অংশগ্রহণ করতে সম্মত?  
হ্যাঁ / না
- আপনি কি আপনার সিদ্ধান্তে আসতে পর্যাপ্ত সময় পেয়েছেন? হ্যাঁ / না

অংশগ্রহণকারীর স্বাক্ষর / টিপসইঃ \_\_\_\_\_ তারিখঃ \_\_\_\_\_

সাক্ষীর স্বাক্ষর / টিপসইঃ \_\_\_\_\_ তারিখঃ \_\_\_\_\_

গবেষকঃ

আমি গবেষণাটি যথাযথভাবে ব্যাখ্যা করেছি এবং তারা এই গবেষণায় অংশগ্রহণ করার ইচ্ছা পোষণ করেছেন।

গবেষকের স্বাক্ষরঃ \_\_\_\_\_ তারিখঃ \_\_\_\_\_

## **Appendix-3(b)**

### **Information sheet in English**

I beg most respectfully to state that I am Humaira Umme Salma working as a student of B. Sc. in Occupational Therapy (4<sup>th</sup> year) in Bangladesh Health Professions Institute, the academic institute of Centre for the Rehabilitation the Paralyzed (CRP), Savar, Dhaka-1343, Bangladesh. Now, I am in final year of my 4<sup>th</sup> year course. As my course curriculum, research work is mandatory to fulfill the requirements of the Bachelor Degree. I would like to invite you to take part in my study. My research title is “Prevalence of low back pain among caregiver of stroke survivors and its impact on their activities of daily living” and aim of my study is to identify the prevalence of low back pain among care giver of stroke patient and its impact on their activities of daily living.

Your participation in this study is voluntary. If you want to withdraw from the study, you can do it at any time without any hesitation. You will not be harmed or disadvantaged by the research.

Only you and your patient’s personal details (not including your and your patient’s identity such as name) and answers of the questionnaire will be documented and used for the study purpose. You will not be paid for your participation.

Researcher will maintain confidentiality of all procedures. Your data will never be used without your permission.

## Consent form in English

To be completed by the:

A. Participant (If the participant is literate)/ Witness (If participant is illiterate)

- Have you read the information sheet?  
Yes/ No
- Have you had an opportunity to discuss this study and ask any question?  
Yes/ No
- Have you had satisfactory answers to all of your questions?  
Yes/ No
- Have you received enough information about the study?  
Yes/ No
- Was the study explained to you?  
Yes/ No
- Do you understand that you can withdraw from the study at any time without to give any reason?  
Yes/ No
- All of your personal details will be maintained as highly confidential. Do you agree to take part in this study?  
Yes/ No
- Have you had sufficient time to come to your decision?  
Yes/ No

Participant's signature/ thumb-mark: \_\_\_\_\_ Date: \_\_\_\_\_

Witness's signature/ thumb-mark: \_\_\_\_\_ Date: \_\_\_\_\_

B. Researcher

I have explained the study to the participant and they have indicated their willingness to take part in the study.

Researcher's signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Appendix-4



Ms Humaira Umme Salma  
Bangladesh Health Professional Institute / CRP  
Savar  
Dhaka 1343  
BANGLADESH

Lyon, September 10, 2014

**Re: Letter to certify Ms Humaira Umme Salma's rights to use the Oswestry Disability Index**

This letter is to certify that Ms Humaira Umme Salma, Bangladesh, has signed a User Agreement with MAPI Research Trust, dated September 8, 2014 and due to terminate in February 2015, in order to gain access to use the ODI. The author and copyright owner, Dr Jeremy Fairbank has granted MAPI Research Trust the official exclusive right to distribute the ODI Questionnaire, acting on his behalf.

A handwritten signature in black ink, appearing to be "Christelle Berne", written over a horizontal line.

Christelle Berne  
Team Manager  
PRO Information Support  
MAPI Research Trust

The logo for Mapi Research Trust, identical to the one at the top of the page, featuring the word "Mapi" with a globe icon and "Research Trust" below it.

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## Appendix-5

### Scoring procedure of the Oswestry Disability Index version 2.1a

Item scaling	<ul style="list-style-type: none"> <li>- 6-point Likert Scale</li> <li>- Items are scored on a 0 to 5 scale with 0 indicating no limitation of function due to pain and 5 indicating major functional disability due to back pain</li> </ul>
Weighting of items	<ul style="list-style-type: none"> <li>- No</li> <li>- All items given equal weight</li> </ul>
Range of scores	<ul style="list-style-type: none"> <li>- Range of scores for each item: 0 to 5</li> <li>- Range of scores for the index score: 0 to 100%</li> </ul>
Scoring Procedure	<ul style="list-style-type: none"> <li>- For each items the maximum score is 5 [if the first statement is marked, the score = 0; if the last statement is marked the score = 5; intervening statements are scored according to rank(1, 2, 3 or 4)]</li> <li>- If all 10 items are completed, the index is calculated by dividing the summed score by the total possible score, which is then multiplied by 100 and expressed as a percentage</li> </ul> <p style="margin-left: 20px;">Total score / Total possible score x 100</p> <p style="margin-left: 20px;">with:</p> <p style="margin-left: 20px;">Total score = sum of the score obtained for each 10 items</p> <p style="margin-left: 20px;">Total possible score = 50</p>
Interpretation and Analysis of missing data	<ul style="list-style-type: none"> <li>- If one or more item is missed, the index score is calculated as follows:</li> </ul> <p style="margin-left: 20px;">Total score / Total possible score x 100</p> <p style="margin-left: 20px;">with:</p> <p style="margin-left: 20px;">Total score = sum of the score of each item answer</p> <p style="margin-left: 20px;">Total possible score = 5 x number of items answered</p>
Interpretation of multiple answers for one item	<ul style="list-style-type: none"> <li>- If more than one box is marked for any item, the highest scoring statement is recorded as a true indication of the patient's disability.</li> <li>- The total score is then calculated as above</li> </ul>
Interpretation and Analysis of 'non-concerned' answers	<ul style="list-style-type: none"> <li>- If a section is not completed because it is not applicable, the score is calculated as described in "Interpretation and Analysis of missing data"</li> </ul>

## Appendix-6

### Interpretation of high and low scores of the Oswestry Disability Index version 2.1a

0% to 20%: minimal disability	The patients can cope with most living activities. Usually no treatment is indicated apart from advice on lifting, sitting posture, physical fitness and diet. In this group some patients have particular difficulty with sitting, and this may be important if their occupation is sedentary.
21% to 40%: moderate disability	The patients experience more pain and difficulty with sitting, lifting and standing. Travel and social life are more difficult and they may be disabled from work. Personal care, sexual activity and sleeping are not grossly affected and the back condition can usually be managed by conservative means.
41% to 60%: severe disability	Pain remains the main problem in this group of patients but activities of daily living (i.e., travel, personal care, social life, sexual activity and sleep) are also affected. These patients require a detailed investigation.
61% to 80%: crippled	Back pain impinges on all aspects of the patient's life both at home and at work. Positive intervention is required.
81% to 100%: Bed-bound patients	These patients are either bed-bound or exaggerating their symptoms. This can be evaluated by careful observation of the patient during the medical examination.

## Appendix-7

### Oswestry Disability Index

This questionnaire has been designed to give us information as to how your back or leg pain is affecting your ability to manage in everyday life. Please answer by checking ONE box in each section for the statement which best applies to you. We realize you may consider that two or more statements in any one section apply but please just shade out the spot that indicates the statement which most clearly describes your problem.

#### Section 1- Pain intensity

- I have no pain at the moment.
- The pain is very mild at the moment.
- The pain is moderate at the moment.
- The pain is fairly severe at the moment.
- The pain is very severe at the moment.
- The pain is the worst imaginable at the moment.

#### Section 2-Personal care (washing, dressing etc.)

- I can look after myself normally without causing extra pain.
- I can look after myself normally but it is very painful.
- It is painful to look after myself and I am slow and careful.
- I need some help but manage most of my personal care.
- I need help every day in most aspects of self care.
- I do not get dressed, wash with difficulty and stay in bed.

#### Section 3-Lifting

- I can lift heavy weights without extra pain.
- I can lift heavy weights but it gives extra pain.
- Pain prevents me from lifting heavy weights off the floor but I can manage if they are conveniently positioned, e.g. on a table.
- Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned.
- I can lift only very light weights.
- I cannot lift or carry anything at all.

#### Section 4-Walking

- Pain does not prevent me walking any distance.

- Pain prevents me walking more than one mile.
- Pain prevents me walking more than a quarter of a mile.
- Pain prevents me walking more than 100 yards.
- I can only walk using a stick or crutches.
- I am in bed most of the time and have to crawl to the toilet.

#### Section 5-Sitting

- I can sit in any chair as long as I like
- I can sit in my favorite chair as long as I like
- Pain prevents me from sitting for more than 1 hour
- Pain prevents me from sitting for more than half an hour
- Pain prevents me from sitting for more than 10 minutes.
- Pain prevents me from sitting at all.

#### Section 6-Standing

- I can stand as long as I want without extra pain.
- I can stand as long as I want but it gives me extra pain.
- Pain prevents me from standing for more than 1 hour.
- Pain prevents me from standing for more than half an hour.
- Pain prevents me from standing for more than 10 minutes.
- Pain prevents me from standing at all.

#### Section 7- Sleeping

- My sleep is never disturbed by pain.
- My sleep is occasionally disturbed by pain.
- Because of pain I have less than 6 hours sleep.
- Because of pain I have less than 4 hours sleep.
- Because of pain I have less than 2 hours sleep.
- Pain prevents me from sleeping at all

#### Section 8-Sex life (if applicable)

- My sex life is normal and causes no extra pain.
- My sex life is normal but causes some extra pain.
- My sex life is nearly normal but is very painful.
- My sex life is severely restricted by pain.
- My sex life is nearly absent because of pain
- Pain prevents any sex life at all

#### Section 9-Social life

- My social life is normal and causes me no extra pain.
- My social life is normal but increases the degree of pain.

- Pain has no significant effect on my social life apart from limiting my more energetic interests, e.g. sport, etc.
- Pain has restricted my social life and I do not go out as often.
- Pain has restricted social life to my home.
- I have no social life because of pain.

Section 10- Traveling

- I can travel anywhere without pain.
- I can travel anywhere but it gives extra pain.
- Pain is bad but I manage journeys over two hours.
- Pain restricts me to journeys of less than one hour.
- Pain restricts me to short necessary journeys under 30 minutes.
- Pain prevents me from travelling except to receive treatment

Result:

Your Oswestry Disability index =  %

## Appendix-8

### Survey Questionnaire in Bengali

অংশগ্রহণকারীর নামঃ

কোড নম্বরঃ

রোগীর নামঃ

পর্ব কঃ জনসংখ্যাতাত্ত্বিক তথ্য (টিক চিহ্ন দিন)
১। যত্নকারীর বয়সঃ _____
২। আপনার বসবাসের এলাকাঃ (১) গ্রাম _____ শহর (২) _____
৩। যত্নকারীর বৈবাহিক অবস্থাঃ অবিবাহিত (২) _____ বিবাহিত (১) _____
৪। যত্নকারীর শিক্ষাগত যোগ্যতাঃ মাধ্যমিক (৪) _____ প্রাথমিক বিদ্যালয় (৩) _____ অসমাপ্ত প্রাথমিক বিদ্যালয় (২) _____ অশিক্ষিত (১) _____ বিদ্যালয় অন্যান্য(৮) _____ মাস্টার্স (৭) _____ স্নাতক (৬) _____ উচ্চ মাধ্যমিক বিদ্যালয় (৫) _____
৫। যত্নকারীর পেশাঃ বেসরকারি (৪) _____ সরকারি চাকুরীজীবী (৩) _____ গৃহিণী (২) _____ ছাত্রী (১) _____ চাকুরীজীবী _____ অন্যান্য (৭) _____ চাকুরী থেকে অবসর প্রাপ্ত (৬) _____ কর্মসংস্থান -আত্ম (৫) _____
৬। রোগীর সাথে যত্নকারীর সম্পর্কঃ নানা/দাদা (৫) _____ বোন (৪) _____ ভাই (৩) _____ মা (২) _____ বাবা (১) _____ নানি /দাদি (৬) _____ _____ অন্যান্য (৯) _____ ফুফা /খালু/চাচা/মামা (৮) _____ ফুফু/খালা/চাচি/মামি (৭) _____
৭। পরিবারের মাসিক আয় _____ ঃ(বাংলাদেশি টাকায়)
৮। আপনি দৈনিক কত সময় ধরে রোগীর যত্ন নেয়ার কাজ করে থাকেন (ঘন্টায়)? _____
৯। যত্ন নেয়ার ক্ষেত্রে অন্যান্যরা যখন সাহায্য করেন তার সময়ের হারঃ [%৪৯-২৫] প্রায়ই (৩) _____ [%২৪-১] মাঝে মাঝে (২) _____ [%০] কখনই না (১) _____ [বা তারও বেশি %৫০] সবসময় (৪) _____
১০। আপনি দৈনিক কত সময় ধরে আপনার গৃহস্থালির কাজ করেন (ঘন্টায়)? _____
১১। রোগীর বয়স _____ ঃ (বছরে)
১২। রোগীর লিঙ্গঃ মহিলা (২) _____ পুরুষ (১) _____
১৩। রোগীর শারিরিক ওজন _____ ঃ(কেজিতে)
১৪। আপনার রোগীর শরীরে কোন ধরনের টোন রয়েছে ? মিশ্র (৩) _____ ফ্লাসিড (২) _____ স্পাস্টিক (১) _____

পর্ব খঃ পিঠের নিচের অংশের বেদনার প্রাদুর্ভাব নির্ণয় অনুগ্রহপূর্বক টিক দেয়ার মাধ্যমে উত্তর করুন।
গত ১২ মাসের মধ্যে যে কোন সময় আপনি কি নিম্নোক্ত ক্ষেত্রে বিড়ম্বনা অসাড়াতা, অস্বাচ্ছন্দ্য, বেদনা, অবিরত যন্ত্রণা, যেমন ) ?ছিল ( ) পিঠের নিচের অংশঃ না (২)                      হ্যাঁ (১)

পর্ব খএর উত্তর দিন-তে উত্তর যদি হ্যাঁ হয় তাহলে অনুগ্রহ পূর্বক পর্ব গ -

পর্ব গঃ অস্‌ওয়েস্টি প্রতিবন্ধিতা সূচক বিবৃতি)২.১ এ( ) আপনার পিঠেরপায়ের বিড়ম্বনা কিভাবে প্রতিদিনের জীবন পরিচালনা করত/ে আপনার সামর্থ্যকে প্রভাবিত করে তা জানার জন্য এই প্রশ্নপত্রটি পরিকল্পনা করা হয়। অনুগ্রহপূর্বক সবগুলো প্রশ্নের উত্তর দিন। প্রতিটি অংশে শুধুমাত্র একটি বাক্সউত্তর চিহ্নিত করুন যা আজ আপনার অবস্থাকে / সর্বাপেক্ষা কাছাকাছি বর্ণনা করে।
<p><b>অংশ ১ – ব্যথার তীব্রতা</b></p> <ul style="list-style-type: none"> <li>● <input type="radio"/> এ মুহূর্তে আমার কোন ব্যথা নেই।</li> <li>● <input type="radio"/> এ মুহূর্তে ব্যথা অত্যন্ত কম।</li> <li>● <input type="radio"/> এ মুহূর্তে ব্যথা মোটামুটি।</li> <li>● <input type="radio"/> এ মুহূর্তে ব্যথা যথেষ্ট পরিমাণে তীব্র।</li> <li>● <input type="radio"/> এ মুহূর্তে ব্যথা অত্যন্ত তীব্র।</li> <li>● <input type="radio"/> এ মুহূর্তে ব্যথা এমন যে তা কল্পনার সর্বোচ্চ খারাপ।</li> </ul> <p><b>অংশ ২- ব্যক্তিগত যত্ন (ধৌতকরণ, পোশাক পরিধান ইত্যাদি)</b></p> <ul style="list-style-type: none"> <li>● <input type="radio"/> কোন ধরণের ব্যথা ছাড়াই আমি আমার নিজের স্বাভাবিক যত্ন নিতে পারি।</li> <li>● <input type="radio"/> আমি আমার নিজের স্বাভাবিক যত্ন নিতে পারি, কিন্তু এটি অত্যন্ত ব্যথাদায়ক।</li> <li>● <input type="radio"/> আমার নিজের যত্ন নেওয়া ব্যথাদায়ক এবং এ জন্যে আমি ধীর ও সতর্কতা অবলম্বন করি।</li> <li>● <input type="radio"/> আমার কিছু সাহায্যের দরকার হয়, কিন্তু আমি আমার অধিকাংশ ব্যক্তিগত কাজ নিজেই সম্পাদন করি।</li> <li>● <input type="radio"/> প্রতিদিন আমার নিজের অধিকাংশ কাজের জন্যে অন্যের সাহায্য প্রয়োজন হয়।</li> <li>● <input type="radio"/> আমি আমার পোশাক-পরিচ্ছদ পরিধান করতে পারি না, ধৌতকরণ করা যথেষ্ট কষ্টদায়ক এবং আমি বিছানাতেই থাকি।</li> </ul> <p><b>অংশ ৩- উত্তোলন</b></p> <ul style="list-style-type: none"> <li>● <input type="radio"/> আমি কোন বাড়তি ব্যথা ছাড়াই ভারী ওজন উত্তোলন করতে পারি।</li> <li>● <input type="radio"/> আমি ভারী ওজন উত্তোলন করতে পারি, কিন্তু এটা বাড়তি ব্যথা সৃষ্টি করে।</li> <li>● <input type="radio"/> ব্যথার কারণে আমি মেঝে থেকে ভারী ওজন উত্তোলনে বাঁধার সম্মুখীন হই, কিন্তু যদি এগুলো সুবিধাজনক অবস্থানে যেমন, টেবিলে রাখা হয়, তাহলে আমি তা উত্তোলন করতে পারি।</li> <li>● <input type="radio"/> ব্যথা আমাকে ভারী ওজন উত্তোলনে বাঁধা সৃষ্টি করে, কিন্তু যদি এগুলো সুবিধাজনক অবস্থানে রাখা হয়, তাহলে আমি হালকা থেকে মাঝারি ধরণের ওজন উত্তোলন করতে পারি।</li> <li>● <input type="radio"/> আমি কেবল অত্যন্ত হালকা ওজন উত্তোলন করতে পারি।</li> </ul>

- ○ আমি একেবারেই কোনকিছু উত্তোলন বা বহন করতে পারি না।

#### অংশ ৪- হাঁটা-চলা

- ○ ব্যথার কারণে আমার যে কোন দূরত্বে হাঁটতে সমস্যা হয় না।
- ○ ব্যথার কারণে আমি ১ মাইলের অধিক হাঁটতে পারি না।
- ○ ব্যথার কারণে আমি ১ মাইলের চার ভাগের এক ভাগের অধিক হাঁটতে পারি না।
- ○ ব্যথার কারণে আমি ১০০ গজের অধিক হাঁটতে পারি না।
- ○ আমি কেবল লাঠি বা ক্রাচ ব্যবহার করে হাঁটতে পারি।
- ○ অধিকাংশ সময়েই আমি বিছানায় থাকি এবং আমাকে হামাগুড়ি দিয়ে টয়লেটে যেতে হয়।

#### অংশ ৫- বসে থাকা

- ○ আমি যে কোন চেয়ারে যতক্ষণ খুশি ততক্ষণ বসে থাকতে পারি।
- ○ আমি আমার পছন্দের চেয়ারে যতক্ষণ খুশি ততক্ষণ বসে থাকতে পারি।
- ○ ব্যথার জন্য আমি ১ ঘন্টার বেশি বসে থাকতে পারি না।
- ○ ব্যথার জন্য আমি ১/২ ঘন্টার বেশি বসে থাকতে পারি না।
- ○ ব্যথার জন্য আমি ১০ মিনিটের বেশি বসে থাকতে পারি না।
- ○ ব্যথার কারণে আমি মোটেই বসতে পারি না।

#### অংশ ৬- দাঁড়ানো

- ○ আমি কোন বাড়তি ব্যথা ছাড়াই যতক্ষণ খুশি দাঁড়িয়ে থাকতে পারি।
- ○ আমি যতক্ষণ খুশি দাঁড়িয়ে থাকতে পারি, কিন্তু এটি আমার বাড়তি ব্যথার সৃষ্টি করে।
- ○ ব্যথার জন্য আমি ১ ঘন্টার বেশি দাঁড়িয়ে থাকতে পারি না।
- ○ ব্যথার জন্য আমি ১/২ ঘন্টার বেশি দাঁড়িয়ে থাকতে পারি না।
- ○ ব্যথার জন্য আমি ১০ মিনিটের বেশি দাঁড়িয়ে থাকতে পারি না।
- ○ ব্যথার জন্য আমি একেবারেই দাঁড়িয়ে থাকতে পারি না।

#### অংশ ৭- ঘুমানো

- ○ ব্যথার কারণে আমার ঘুম কখনোই ব্যাহত হয় না।
- ○ ব্যথার কারণে আমার ঘুম মাঝে মাঝে ব্যাহত হয়।
- ○ ব্যথার কারণে আমার ঘুম ৬ ঘন্টারও কম হয়।
- ○ ব্যথার কারণে আমার ঘুম ৪ ঘন্টারও কম হয়।
- ○ ব্যথার কারণে আমার ঘুম ২ ঘন্টারও কম হয়।
- ○ ব্যথার কারণে আমি মোটেই ঘুমাতে পারি না।

#### অংশ ৮- যৌন জীবন (যদি প্রযোজ্য হয়)

- ○ আমার যৌন জীবন স্বাভাবিক এবং কোন অতিরিক্ত ব্যথার সৃষ্টি করে না।
- ○ আমার যৌন জীবন স্বাভাবিক, কিন্তু এতে কিছুটা অতিরিক্ত ব্যথার সৃষ্টি হয়।
- ○ আমার যৌন জীবন প্রায় স্বাভাবিক, কিন্তু তা অত্যন্ত ব্যথাদায়ক।
- ○ আমার যৌন জীবন ব্যথার কারণে তীব্রভাবে সীমাবদ্ধ।
- ○ আমার যৌন জীবন ব্যথার কারণে প্রায়ই অনুপস্থিত।
- ○ ব্যথার কারণে আমি আদৌ কোন যৌন জীবন যাপন করতে পারি না।



### অংশ ৯- সামাজিক জীবন

- আমার সামাজিক জীবন স্বাভাবিক এবং তা কোন অতিরিক্ত ব্যথার সৃষ্টি করে না।
- আমার সামাজিক জীবন স্বাভাবিক, কিন্তু ব্যথার পরিমাণ বাড়াই।
- আমার অধিক শক্তি প্রয়োজনীয় আগ্রহসমূহকে (যেমন, খেলাধুলা) সীমাবদ্ধ করা ছাড়া আমার সামাজিক জীবনে ব্যথার তেমন কোন তাৎপর্যপূর্ণ প্রভাব নেই।
- ব্যথা আমার সামাজিক জীবনকে সীমাবদ্ধ করেছে এবং আমি প্রায়শই বাইরে যাই না।
- ব্যথা আমার সামাজিক জীবনকে গৃহে সীমাবদ্ধ করেছে।
- ব্যথার কারণে আমার কোন সামাজিক জীবন নেই।

### অংশ ১০- ভ্রমণ/ঘুরে বেড়ানো

- কোন ধরনের ব্যথা ছড়াই আমি যে কোন স্থানে ভ্রমণ করতে পারি।
- আমি যে কোন স্থানে ভ্রমণ করতে পারি, কিন্তু এটা অতিরিক্ত ব্যথার সৃষ্টি করে।
- ব্যথার অবস্থা খারাপ থাকে, কিন্তু আমি ২ ঘন্টা পর্যন্ত ভ্রমণ করতে পারি।
- ব্যথা আমার ভ্রমণকে ১ ঘন্টার কম সময়ের মধ্যে সীমাবদ্ধ করে।
- ব্যথা আমাকে ৩০ মিনিটের নিচের অল্প প্রয়োজনীয় ভ্রমণসমূহে সীমাবদ্ধ করে।
- ব্যথা আমাকে চিকিৎসা গ্রহণ ব্যতীত যে কোন ধরনের ভ্রমণ প্রতিরোধ করে।

ফলঃ

আপনার অসুওয়েস্ট্রি প্রতিবন্ধিতা সূচক =  %

জরিপে অংশগ্রহণের জন্য আপনাকে ধন্যবাদ।

## Appendix- 9

### Survey Questionnaire in English

Participant's name:

Code no.:

Patient's name:

<b>Section A: Demographic information</b> (Put the tick mark)
1. Caregiver's age (in year): _____
2. Your area of residence: (1) Rural                      (2) Urban
3. Caregiver's marital status: (1) Married                      (2) Unmarried
4. Caregiver's educational status: (1) Illiterate (2) Primary school (3) Secondary school (4) Higher secondary school (5) Hon's (6) Masters (7) Others _____
5. Caregiver's occupation: (1) Student (2) Housewife (3) Government employee (4) Non-government employee (5) Self-employee (6) Retired (7) Others _____
6. Caregiver's relationship with the patient: (1) Baba (2) Ma (3) Brother (4) Sister (5) Grandfather (6) Grandmother (7) Aunty (8) Uncle (9) Others _____
7. Family income level in BDT (monthly): _____
8. For how long do you engage in patient care tasks daily (in hour)? _____
9. Percent of time, while others assist with patient care: (1) Never (0%) (2) Sometimes (1–24%) (3) Often (24–49%) (4) Every time (more than 50%)
10. For how long do you engage in household daily (in hour)? _____
11. Patient age in years: _____
12. Patient sex: (1) Male                      (2) Female
13. Patient weight (in kilogram): _____

**Section B: Identifying the prevalence of low back pain**

Please answer by using a tick on the box

Have you at any time during the last 12 months had trouble (such as ache, pain, discomfort, numbness) in lower back?

(1) Yes                      (2) No

**In Section B, if your answer is “Yes” from the above, then please answer the Section C.**

**Section C: The Oswestry Disability Index version 2.1a**

This questionnaire is designed to give us information as to how your low back trouble affects your ability to manage in everyday life.

Please answer every section. Mark one box only in each section that most closely describes you today.

Section 1- Pain intensity

- I have no pain at the moment.
- The pain is very mild at the moment.
- The pain is moderate at the moment.
- The pain is fairly severe at the moment.
- The pain is very severe at the moment.
- The pain is the worst imaginable at the moment.

Section 2-Personal care (washing, dressing etc.)

- I can look after myself normally without causing extra pain.
- I can look after myself normally but it is very painful.
- It is painful to look after myself and I am slow and careful.
- I need some help but manage most of my personal care.
- I need help every day in most aspects of self care.

- I do not get dressed, wash with difficulty and stay in bed.

### Section 3-Lifting

- I can lift heavy weights without extra pain.
- I can lift heavy weights but it gives extra pain.
- Pain prevents me from lifting heavy weights off the floor but I can manage if they are conveniently positioned, e.g. on a table.
- Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned.
- I can lift only very light weights.
- I cannot lift or carry anything at all.

### Section 4-Walking

- Pain does not prevent me walking any distance.
- Pain prevents me walking more than one mile.
- Pain prevents me walking more than a quarter of a mile.
- Pain prevents me walking more than 100 yards.
- I can only walk using a stick or crutches.
- I am in bed most of the time and have to crawl to the toilet.

### Section 5-Sitting

- I can sit in any chair as long as I like
- I can sit in my favorite chair as long as I like
- Pain prevents me from sitting for more than 1 hour
- Pain prevents me from sitting for more than half an hour
- Pain prevents me from sitting for more than 10 minutes.
- Pain prevents me from sitting at all.

### Section 6-Standing

- I can stand as long as I want without extra pain.
- I can stand as long as I want but it gives me extra pain.

- Pain prevents me from standing for more than 1 hour.
- Pain prevents me from standing for more than half an hour.
- Pain prevents me from standing for more than 10 minutes.
- Pain prevents me from standing at all.

#### Section 7- Sleeping

- My sleep is never disturbed by pain.
- My sleep is occasionally disturbed by pain.
- Because of pain I have less than 6 hours sleep.
- Because of pain I have less than 4 hours sleep.
- Because of pain I have less than 2 hours sleep.
- Pain prevents me from sleeping at all

#### Section 8-Sex life (if applicable)

- My sex life is normal and causes no extra pain.
- My sex life is normal but causes some extra pain.
- My sex life is nearly normal but is very painful.
- My sex life is severely restricted by pain.
- My sex life is nearly absent because of pain
- Pain prevents any sex life at all

#### Section 9-Social life

- My social life is normal and causes me no extra pain.
- My social life is normal but increases the degree of pain.
- Pain has no significant effect on my social life apart from limiting my more energetic interests, e.g. sport, etc.
- Pain has restricted my social life and I do not go out as often.
- Pain has restricted social life to my home.
- I have no social life because of pain.

Section 10- Traveling

- I can travel anywhere without pain.
- I can travel anywhere but it gives extra pain.
- Pain is bad but I manage journeys over two hours.
- Pain restricts me to journeys of less than one hour.
- Pain restricts me to short necessary journeys under 30 minutes.
- Pain prevents me from travelling except to receive treatment

Result:

Your Oswestry Disability index =  %

**Thanks to you for participating in this survey**