

**PREVALENCE OF LOW BACK PAIN AND ITS AFFECT ON  
EVERYDAY LIFE AMONG FEMALE CAREGIVERS OF  
CHILDREN WITH CEREBRAL PALSY**

**By**

**Fatema Khanam**

This thesis is submitted in total fulfillment of the requirements for the subject  
RESEARCH 2 & 3 and partial fulfillment of the requirements for degree:

Bachelor of Science in Occupational Therapy  
Bangladesh Health Professions Institute (BHPI)  
Faculty of Medicine, University of Dhaka

March, 2013

Study completed by:

**Fatema Khanam**

4<sup>th</sup> year, B.Sc. in Occupational Therapy  
Department of Occupational Therapy  
BHPI, CRP, Savar, Dhaka-1343.

Signature and date

-----

Study Supervisor's name and signature:

**Md. Monjurul Habib**

Lecturer in Occupational Therapy  
Department of Occupational Therapy  
BHPI, CRP, Savar, Dhaka-1343.

Signature and date

-----

Head of department's name and signature:

**Nazmun Nahar**

Assistant Professor  
Head of the department  
Department of Occupational Therapy  
BHPI, CRP, Savar, Dhaka-1343.

Signature and date

-----

## **Statement of Authorship**

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

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

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

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

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**(Fatema Khanam)**

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

## **Dedication**

*The most honorable, influential and beloved persons in the way of my life*

**My Parents, Grandparents, Husband**

**&**

**Teachers**

## Acknowledgement

First of all, the author would like to pay high gratitude to the almighty Allah for giving the opportunity to accomplish the thesis. The author is highly grateful to her family for supporting mentally and financially until the ending of the thesis. The author conveys thanks to Mohammad Mosayed Ullah, Assistant Professor and Course Coordinator, Department of Occupational Therapy, BHPI, CRP, Savar, Dhaka-1343 to accept the Research Proposal and permit to carry on the study by referring to her supervisor. The author is intensely grateful to her respectable supervisor Md. Monjurul Habib, Lecturer in Occupational Therapy, Department of Occupational Therapy, BHPI, CRP, Savar, Dhaka-1343 for sharing his valuable time during appointment and providing proper directions that facilitated me to fulfill the requirements of the thesis and feedback in time. The author acknowledges Dr. Jeremy Fairbank, owner of ODI, Nuffield Orthopaedic Centre, Oxford, United Kingdom and Iliana PETKOVA, PRO Information Support, MAPI Research Trust, Lyon, France for giving me the permission to use the ODI for academic purpose. The author concedes to her Research Coordinator Mohammad Mosayed Ullah for coordinating in Linguistic Validation of a Patient Reported Outcomes Measure of the Oswestry Disability Index (ODI). The author also conveys thanks to her honorable teachers Nazmun Nahar, Assistant Professor in Occupational Therapy, Department of Occupational Therapy, Julker Nayan, Assistant Professor in Occupational Therapy, Department of Occupational Therapy and Md. Mizanur Rahman, Lecturer and Volunteers Coordinator, Department of Speech and Language Therapy, BHPI, CRP, Savar, Dhaka-1343 for aiding in Linguistic Validation of a Patient Reported Outcomes Measure of the ODI. The author is grateful to the female caregivers of children with cerebral palsy who put support in field test of ODI translated into Bengali and in data collection. The author sincerely acknowledges Ashley Willock, Lecturer and Volunteer, Department of Occupational Therapy, BHPI, CRP, Savar, Dhaka-1343 for English correction of information sheet, consent form and this thesis as a whole. The author also acknowledges Salim Rahman, Clinical Occupational Therapist, Outpatient Unit, Department of Occupational Therapy, CRP for Bengali correction of information sheet and consent form. The author conveys thanks to Hosneara Perveen, In-charge, Paediatric Unit to grant permission for data collection. The author also conveys thanks to S.K Moniruzzaman, Suma Begum, Md. Mustafa Kamal Rahat Khan who are the Clinical Occupational Therapists of Paediatric Unit for helping in any query. The author is grateful to Md. Moniruzzaman, Senior Research Fellow and Lecturer at Bangladesh Institute of Health Sciences (BIHS) for giving me enormous support to data analysis of this study. The author is thankful to the senior sisters and brothers, friends and classmates for providing me support with their valuable information and making her cheerful during whole period of thesis. The author expresses acknowledgement to those who indirectly helped in fulfilling this thesis.

Thanks to all.

## Table of Content

<b>Topics</b>	<b>Page no.</b>
Title page	I
Approval page	II
Statement of authorship	III
Dedication	IV
Acknowledgement	V
Table of content	VI-VII
List of tables	VIII
List of annex	IX
List of acronyms	X
Abstract	XI
<b>CHAPTER ONE: INTRODUCTION</b>	<b>1-6</b>
1.1 Introduction	1-2
1.2 Background of the study	2-5
1.3 Significance of the study	5
1.4 Aim of the study	5
1.5 Objectives of the study	6
<b>CHAPTER TWO: LITERATURE REVIEW</b>	<b>7-15</b>
2.1 Low back pain	7
2.2 Types of low back pain	8
2.2.1 Acute low back pain	8
2.2.2 Chronic low back pain	8
2.3 Demographic factors	8-9
2.3.1 Age	8
2.3.2 Sex	8
2.3.3 Weight	9
2.3.4 Area of residence	9
2.3.5 Marital status	9
2.3.6 Educational status	9
2.3.7 Occupation	9
2.3.8 Income level	9
2.3.9 Child care tasks	9
2.3.10 Household	9
2.4 Cerebral palsy	10
2.5 Type of cerebral palsy	10-13
2.4.11.1 According to the parts of the body affected	10-11
2.4.11.1.1 Monoplegia	10
2.4.11.1.2 Diplegia	10
2.4.11.1.3 Hemiplegia	11
2.4.11.1.4 Paraplegia	11
2.4.11.1.5 Triplegia	11
2.4.11.1.6 Quadriplegia	11
2.4.11.2 According to the quality of child's postural tone	11-13
2.4.11.2.1 Spastic	11-12
2.4.11.2.2 Flaccid	12

2.4.11.2.3 Mixed	12
2.4.11.2.4 Athetoid	12
2.4.11.2.5 Ataxic	12-13
2.6 Caring for children with cerebral palsy	13
2.7 Caregiver	13
2.8 Types of caregiver	13-14
2.8.1 Primary caregiver	13
2.8.2 Secondary caregiver	14
2.9 Impact of low back pain in everyday life	14
2.10 Role of Occupational Therapy on low back pain	14-15
<b>CHAPTER THREE: METHODOLOGY</b>	<b>16-25</b>
3.1 Study design	16
3.2 Study setting	16
3.3 Study population	16-17
3.4 Sample selection procedure and study sample	17
3.5 Inclusion criteria	17
3.6 Exclusion criteria	17
3.7 Study period	17
3.8 Data collection tool	17-23
3.8.1 Screening form	17
3.8.2 Information sheet and consent form	17
3.8.3 Questionnaire	18-23
3.8.3.1 Demographic information	18-20
3.8.3.2 Estimating the prevalence of low back pain	20
3.8.3.3 The Oswestry Disability Index	21-23
3.8.3.3.1 Validity of the Oswestry Disability Index	22
3.8.3.3.2 Reliability of the Oswestry Disability Index	23
3.9 Data collection procedure	23
3.10 Data analysis process	23-24
3.11 Ethical consideration	24-25
<b>CHAPTER FOUR: RESULT</b>	<b>26-30</b>
4.1 Demographic variables	26-27
4.2 Prevalence of low back pain	28
4.3 Association between low back pain and demographic variables	28-30
4.4 Levels of physical disability to manage in everyday life due to low back pain	30
<b>CHAPTER FIVE: DISCUSSION</b>	<b>31-33</b>
<b>CHAPTER SIX: LIMITATION OF THE STUDY</b>	<b>34</b>
<b>CHAPTER SEVEN: RECOMMENDATION</b>	<b>35</b>
<b>CHAPTER EIGHT: CONCLUSION</b>	<b>36</b>
<b>REFERENCE LIST</b>	<b>37-43</b>
<b>ANNEX</b>	<b>i-xxii</b>

## List of Tables

<b>Serial no.</b>	<b>Title of the table</b>	<b>Page no.</b>
1	Table-1: Definitions of demographic variables used in this study	18-20
2	Table-2: Demographic information of female caregivers and children with cerebral palsy	27
3	Table-3.1: Prevalence of LBP of the last 12 months of female caregivers	28
4	Table-3.2: Prevalence of LBP of the last 12 months of female caregivers with confidence interval	28
5	Table-4: Association between LBP of the last 12 months and demographic variables of female caregivers	29-30
6	Table-5: Levels of physical disability among female caregivers to manage in everyday life due to LBP	30



## List of Annex

<b>Serial no.</b>	<b>Title of the annex</b>	<b>Page no.</b>
1	Annex A: Permission from BHPI	i
2	Annex B: Permission from Paediatric Unit	ii
3	Annex C (a): Screening Form in Bengali	iii
4	Annex C (b): Screening Form in English	iv
5	Annex D (a): Information Sheet and Consent Form in Bengali	v-vi
6	Annex D (b): Information Sheet and Consent Form in English	vii-viii
7	Annex E: Permission of using the Oswestry Disability Index version 2.1a	ix
8	Annex F: Scoring procedure of the Oswestry Disability Index version 2.1a	x
9	Annex G: Interpretation of high and low scores of the Oswestry Disability Index version 2.1a	xi
10	Annex H: Guidelines to fill up the Oswestry Disability Index (ODI) version 2.1a and the ODI version 2.1a	xii-xiv
11	Annex I (a): Survey Questionnaire in Bengali	xv-xviii
12	Annex I (b): Survey Questionnaire in English	xix-xxii

## List of acronyms

- BDT** ---- Bangladesh Taka (ISO currency code)
- BHPI** ---- Bangladesh Health Professions Institute
- BIHS** ---- Bangladesh Institute of Health Sciences
- BOTA** ---- Bangladesh Occupational Therapy Association
- CP** ---- Cerebral palsy
- CRP** ---- Centre for the Rehabilitation of the Paralyzed
- HSC** ---- Higher School Certificate
- LBP** ---- Low Back Pain
- MD** ---- Muscular Dystrophy
- NGO** ---- Non-government Organization
- ODI** ---- Oswestry Disability Index
- OT** ---- Occupational Therapy
- 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

## Abstract

**Research title:** Prevalence of low back pain and its affect on everyday life among female caregivers of children with cerebral palsy.

**Aim:** To find out the prevalence of low back pain among female caregivers of children with cerebral palsy and how it affects the ability of female caregivers to manage in everyday life.

**Objectives:** The objectives of the study are to estimate the prevalence of low back pain of the last 12 months among female caregivers of children with cerebral palsy, 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 of the female caregivers to manage in everyday life due to low back pain.

**Methods:** Cross sectional design was selected to conduct this research. In this study, one question was used to estimate the prevalence of low back pain (LBP) among female caregivers of children with cerebral palsy, 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.

**Key words:** Low back pain, Demographic factors, Caregiver, Children with cerebral palsy, Impact of low back pain in everyday life of caregivers, Occupational Therapy and low back pain.

## Chapter One: Introduction

Low back pain (LBP) is well recognized to be an enormous general health problem [1] and is the leading cause of activity limitation throughout much of the world [2]. LBP is a major problem all over the world [3], especially in low and middle income countries [4]. 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 [5].

In a report of the World Health Organization (WHO) in 2003, it was found that about 80% of people have LBP at some time in their life [6]. In a study, it was found 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%) [7]. In another study, it was found that the most common occurrence of LBP was present among garment workers in comparison with teachers [8]. In comparison based on gender, LBP is most prevalent among females [3] and they suffer from LBP earlier than males [7]. Beside this, another study discussed that parenthood of a child with a disability is a proven risk factor for back problems in cases of both males and females [9]. As well, the prevalence of LBP is higher in adult female primary caregivers of children with physical disabilities than adult female primary caregivers of children who have non-physically disabling medical illnesses [10].

Mobarak et al. quoted Beresford and McConachie's work in their research [11] that disability in a child affects both the child's and family's lives. Women have to manage both household work and child care according to cultural demands [12]. This household work includes routine and compulsory maintenance tasks (cleaning, cooking, purchasing etc.) which require considerable physical labour [13] and care for a child with physical disability presents risk in relation to providing physical assistance to the child [14]. As well, LBP is the most common musculoskeletal disorder related to caring for children [15].

LBP is an integral part of most human lives which causes different degrees of suffering and disability [8]. Chronic LBP is the second cause of disability [16] and disability affects about one quarter of adults in any 1 year period [17]. Smeets et al. quoted van Tulder et al. and Meerding et al.'s work in their research [18] that chronic LBP and the resulting functional limitations have turned into an epidemic health and socioeconomic problem. Alongside, persons with LBP often report impaired ability to perform daily activities as an impact of pain that can be expressed as a persons' level of disability and they are less physically active [19].

## **1.1 Background of the study**

Back pain has shown to be an significant cause of disability [20]. Back disorders have been known as a major cause of sickness, absence from work and disability among many occupational populations for several decades [21]. Tong et al. discussed Anderson's work in their research [10] that approximately 1% (2.4 million) of the population is chronically disabled and another 1% is temporarily disabled by low back pain (LBP) in the US. In a study, it was found that there are few studies on LBP in domestic setting mainly in caregiving setting of motherhood [22]. In addition, caregiver burden has been shown to be a significant problem and its relationship to stress, depression and social isolation has shown in many studies as well as evaluating the physical aspect of caregiver burden has shown in few studies.

The prevalence of back pain among health professionals and nurses has been extensively studied in their occupational setting [23]. Tong et al. discussed Anderson's work in their research [10] that the lifetime prevalence of LBP exceeds 70% and the 1 year prevalence rate is 25%-45% [24]. In comparison with gender, it is noticed that women have a higher prevalence of low back disorders than men [25]. In the Swedish working population, the prevalence figure for LBP is 16.4% in women and 12% in men [26]. In a study, it was found that the prevalence of LBP with parenthood has been evaluated in two studies that the first study shows the results of a higher prevalence of LBP when the civil servant had a greater number of children [27] and the second study primarily looked for occupational-related risk factors of LBP in aircraft assemblers which shows the results of self-reported work impairment [28]. In another study, it was found that the prevalence of LBP in mothers who are caregivers to their own disabled children has been evaluated in few studies [29]. Similarly, Tong

et al. found that the prevalence of having LBP (71.1%) in adult female primary caregivers of children with physical disabilities who need assistance with transfers as for example moving from a bed to a wheelchair is higher than the prevalence (43.5%) in adult female primary caregivers of children with non-disabling medical illnesses [10].

LBP is a common cause of disability and financial loss [21]. The estimation of direct health care expenditure for back pain was \$90.7 billion in the USA [30], the estimation of direct and indirect expenditure for LBP was £11 billion in the UK [31] and \$9.17 billion in Australia [32].

Tong et al. discussed Snook's work in their research [10] that the risk factors for LBP have been extensively studied in the occupational setting as in nursing [33] and industry [34]. Muto et al. discussed Taoda's work in their research [35] about considering demographic and ergonomic factors [36] which are associated with LBP. Both physical factors and psychological factors are associated with LBP in adult female caregivers [10]. The physical factors including forward bending, rotating, lifting and techniques used during lifting, carrying, the intensity of the load on the spine and related muscles during dynamic and static postures, pulling and pushing during bathroom activities, dressing, transferring, feeding; while caring for children with disabilities are all which increase stress on the musculoskeletal structures of the back [29]. In addition, the psychosocial factors including stress, sex and personality are all important factors that affect LBP. In Bangladesh, it is found that a high proportion of mothers of children with cerebral palsy (CP) suffer from stress [11]. Besides, it has been found that the number of housework hours, the number of children in the household, housework related fatigue and stress, repetitive movements and awkward positions during housework were all significantly associated with musculoskeletal pain [37]. Along with, a greater number of children was associated with increased LBP in both women and men [38].

Sanders acknowledged Primeau (1992), Esdaile and Olson, Hochschild and Pirie, Herman's work in his research [15] that parents acting as a primary caregivers, mainly mothers, have to do routine multitasking to take care of children while performing daily household tasks. Along with this, mothers caring for a disabled child experience more adverse physical and mental outcomes than those caring for a child without

disability [39]. As children with CP have shown evidence of impaired motor function, sensory and intellectual impairments and limitations in self-care functions such as feeding, dressing, bathing and mobility, this long term dependency can place strain on the caregivers [40]. As well, the physical overloading of the mothers during repeated activities including lifting, transferring, carrying, pushing for self-care activities increases with the increased functional dependencies of disabled children [29]. Effects in caregivers can be assessed in terms of burden or well-being [41, 42]. The caregivers' general well-being may be affected such as having interruption of daily activities, social isolation and adverse financial consequences [43]. In a study, it is found that caring for those with neurological disorders requires tireless effort, energy, empathy which definitely and greatly impacts the daily lives of caregivers [44]. In addition, while caregivers struggle to balance work, family and care giving, there are physical, social, emotional and financial impacts of care giving. As well, disability adversely affects not only the child, but the entire family and the distress caused to the parents may result in an adverse effect on their routine activities and interpersonal relationship [45]. In relation to this, caregivers' emotional and physical health is important not only for their own, but also that of the person cared for [44]. Moreover, parental distress and disruption of family functioning hampers child's cognitive, behavioral and social development [46].

Mobarak et al. discussed Khan and Durkin's work in their research [11] that most of the children with disabilities are in developing countries. In addition, the prevalence of disability in case of children whose age is 2-9 years was estimated to be 70 per 1000 for all grades of severity and 22 per 1000 for serious disability of both urban and rural populations in Bangladesh. In a study, it is found that the prevalence of CP is 6 per 1000 children in Bangladesh and the prevalence of CP is high in the communities of Bangladesh [47]. In addition, the prevalence of spastic quadriplegia is more (2.2 per 1000 children) in comparison with other types of CP in Bangladesh. Due to the social and cultural structures particularly in Turkey, mothers usually provide the care to disabled children and also they do not get assistant to care their children because of their poor economic status [48]. Although there is no research, it is assumed that mothers are primarily responsible for taking care their child in Bangladesh. Women are more prone to develop musculoskeletal symptoms due to gender-linked biological factors like hormones or physiology due to work and family demands [49]. In a study,

it is noted that there is a relationship between care giving and back pain [10]. However, there is no study in Bangladesh regarding this. According to the discussion of literature, it is noticed that female caregivers are more vulnerable in relation with back pain. A search of the literatures reveals no study specifically evaluating the prevalence of chronic LBP in female caregivers of children with CP and its affect on their everyday life in Bangladesh. Therefore, there is the gap and it generates the necessity to conduct this study to address the prevalence of LBP among female caregivers and its affect on their everyday life.

## **1.2 Significance of the study**

There are very few studies regarding low back pain (LBP) among female caregivers of children with disability and factors associated with LBP. Regarding this, there is no study in Bangladesh. Therefore, the study is an initiative to estimate the prevalence of LBP among female caregivers of children with cerebral palsy (CP), to find out demographic factors associated with LBP and to identify the levels of physical disability of the female caregivers to manage in everyday life due to LBP.

LBP among parents or caregivers not only impairs their day to day life, but also negatively impairs on parents and caregivers' ability to care for their disabled children who may depend on parental assistance to perform daily activities [14]. Moreover, parents assume a very important role in the child's rehabilitation process [50]. Therefore, it is very important to conduct this study regarding female caregivers as their health impacts on the health of their children with CP.

This study is a resource for evidence and an initiative in order to perform a larger scale study at national level.

## **1.3 Aim of the study**

To find out the prevalence of low back pain among female caregivers of children with cerebral palsy and how it affects the ability of female caregivers to manage in everyday life.



## **1.4 Objectives of the study**

1. To estimate the prevalence of low back pain of the last 12 months among female caregivers of children with cerebral palsy.
2. To find out the association between low back pain of the last 12 months and demographic variables.
3. To find out the levels of physical disability of the female caregivers to manage in everyday life due to low back pain.

## Chapter Two: Literature Review

Low back pain (LBP) is a vital public health problem in all industrialized nations [51]. It is a condition with a relatively high prevalence [52]. In addition, the pain and associated disability lasts for months in most people where only a small proportion remains severely disabled.

The effect of chronic LBP on relationships with children has been reported as having physical impact [53]. As well, parents with LBP may be incapable to assist with children's development through play and activities [54]. Moreover, caring for a child with a disability needs extra time from the caregiver [55] and medical care costs have been estimated to be 2.5 to 20 times the average costs of caring for children [56].

Preserving parents' good health and well-being is a precondition for an optimal care of the child [57]. Besides, organized support for family caregivers benefits not only the patient, but also the caregiver and health care team [58]. Therefore, appropriate treatment and support should be provided before the health of parents becomes seriously compromised [59]. This suggests that the need for Occupational Therapy (OT) wellness programs through educational programs focusing on preventing musculoskeletal discomfort and providing support for the parental role [15]. Désiron et al. discussed Reed and Sanderson's work in their research [60] that OT interventions are a part of the therapeutic plan which are 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

Low back pain (LBP) is not a specific disease, but a symptom which is typically described as discomfort in the lumbosacral region of the back that may or may not radiate to the legs, hips and buttocks [61]. 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 [62].

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

### **2.2.1 Acute low back pain**

Acute back pain is the most common presentation and is generally self-limiting, lasting less than three months regardless of treatment [62]. Acute pain in the lower back is most commonly caused by a sprain or muscle tear and usually occurs within 24 hours of heavy lifting or overuse of the back muscles [63]. 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. Moreover, the acute low back pain presents for 4 weeks or less [64].

### **2.2.2 Chronic low back pain**

Chronic low back pain (LBP) is a more difficult problem [62] which is considered to be chronic, if it has been present for longer than three months [65] or  $\geq 12$  weeks [64]. Chronic LBP may originate from an injury, disease or stresses on different structures of the body including bones, muscles, ligaments, joints, nerves or the spinal cord [65]. In addition, the sensation of pain may vary such as aching, burning, stabbing or tingling, sharp or dull and well-defined or vague as well as the intensity of pain may range from mild to severe.

## **2.3 Demographic factors**

### **2.3.1 Age**

Age is a period of human life that is measured by years from birth is usually marked by a certain stage or degree of mental or physical development and involving legal responsibility and capacity [66].

### **2.3.2 Sex**

Sex refers to the biological and physiological characteristics that define men and women. Beside this, categories of sex are male and female [67].

### **2.3.3 Weight**

Weight is the amount or quantity of heaviness or mass [68] or a measurement of how heavy a person or thing [69].

### **2.3.4 Area of residence**

Area of residence is the place, especially the house, in which a person lives or it is a dwelling place [70].

### **2.3.5 Marital status**

Marital status is the condition of being married or unmarried [71].

### **2.3.6 Educational status**

Educational 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 [72].

### **2.3.7 Occupation**

Occupation is a person's usual or principal work or business, especially as a means of earning a living [73]. It is called by a job or profession [74].

### **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 [75].

### **2.3.9 Child care tasks**

Child care tasks refer to the activities including babysitting, feeding, cleaning, mentoring, exercising etc. to make sure children are supervised at all times and to provide nourishment for them [76].

### **2.3.10 Household**

Household work is traditionally a labour performed by women traditionally [37]. It is belonging to the house and family; domestic as for household furniture, cooking, cleaning, or laundering [77].

## **2.4 Cerebral palsy**

Cerebral palsy (CP) is an umbrella term, used to describe a group of non-progressive [78] and non-contagious motor conditions that cause physical disability in human development, mainly in the various areas of body movement [79] that result from disorders of the developing nervous system [80], which is caused by damage to the motor control centers of the developing brain and can occur during pregnancy, during childbirth or after birth up to about age three [9]. All types of CP are characterized by abnormal muscle tone (slouching over while sitting), reflexes or motor development and coordination [9]. CP is usually associated with various other disabling abnormalities including seizures, learning disabilities, communication and intellectual impairments, behavioral problems, feeding, visual, speech and hearing difficulties, as well as sensory impairments [81]. There can also be joint and bone deformities and contractures (permanently fixed, tight muscles and joints) [9].

## **2.5 Type of cerebral palsy**

There are different types of cerebral palsy those are divided into two categories as according to the parts of the body affected and quality of child's postural tone that are described below.

### **2.5.1 According to the parts of the body affected**

#### *2.5.1.1 Monoplegia*

Cerebral palsy affects only one limb (arm or leg) on one side of the child's body in monoplegia which is very rare and movement impairments are usually mild that often disappear with time [82].

#### *2.5.1.2 Diplegia*

Cerebral palsy mainly affects a child's legs in diplegia [82]. In addition, children with diplegia tend to stand on their toes and scissor their legs that is to bring their legs and feet strongly together in a crossed position when upright due to spastic leg muscles and they may have subtle or mild muscle tone problems in the upper part of the body, but they have adequate control of trunk, arms and head for most daily activities.

### *2.5.1.3 Hemiplegia*

Cerebral palsy affects one side of the child's body in hemiplegia where the arm is usually more affected than the leg, trunk or face and is typically held in flexed or bent at the hand, wrist and elbow and 50% of children with hemiplegia have some loss of sensation [82]. In addition, the arm or leg on the affected side of children with hemiplegia may be shorter or less developed than the other side and they may or may not be able to use their affected hand, depending on the degree of impairment and sensation having in hand.

### *2.5.1.4 Paraplegia*

Paraplegia is a form of cerebral palsy that affects both legs, but the arms are spared [83].

### *2.5.1.5 Triplegia*

Triplegia is a form of cerebral palsy that affects three limbs [84]. The term may be confusing because there is not a typical pattern of involvement as usually it describes involvement of both legs and one arm, but can also involve both arms and one leg [85].

### *2.5.1.6 Quadriplegia*

Quadriplegia is a form of cerebral palsy which affects a child's whole body as face, trunk, arms and legs- the child is said to have quadriplegia [82]. In addition, a child's legs and feet are usually more affected by abnormal muscle tone and involuntary movements than arms and hands in quadriplegia. Along with, children with quadriplegia may also have major impairment of the facial muscles used in feeding and speaking and due to their motor disabilities; children with quadriplegia have difficulty with most activities of daily living.

## **2.5.2 According to the quality of child's postural tone**

### *2.5.2.1 Spastic*

Spastic cerebral palsy (CP) is the most common and accounts for approximately 60-70% of the cases of CP which is characterized by hypertonicity [86]. Spastic type of CP refers to a cerebral palsy child with increased muscle tone and the child with

spastic type of CP seems very stiff or rigid [87]. In addition, according to the National Institutes of Health (NIH), spasticity is marked by an abnormal increase in muscle tension and a reduced ability of a muscle to stretch. As well, spasticity can be so severe that joint movement is not possible and untreated spasticity can lead to loss of function and deformity.

#### *2.5.2.2 Flaccid*

Flaccid type of cerebral palsy (CP) refers to decreased muscle tone and the child with flaccid type of CP seems very relaxed, even floppy [88]. In addition, according to National Institutes of Health (NIH), flaccidity is marked by decreased muscle tone (the amount of resistance to movement in a muscle). The symptoms of flaccidity include problems with mobility and posture, breathing and speech difficulties, lethargy, ligament and joint laxity, and poor reflexes [88] as well as head control may be poor or absent in the floppy infant with the head falling to the side, backward or forward [89].

#### *2.5.2.3 Mixed*

Mixed type of cerebral palsy (CP) accounts for about 10% of the cases of children with CP [82]. In the mixed type of CP, two different patterns occur together and the most frequent mixed type is spastic-athetoid and children with this type have signs of athetosis and fluctuating postural tone fluctuates from hypertonicity [86].

#### *2.5.2.4 Athetoid*

Athetosis accounts for approximately 20% of the cases of cerebral palsy which is characterized by involuntary and uncontrolled movements, fluctuating tone, excessive movement and hypermobility may be present, but contractures are rare [86].

#### *2.5.2.5 Ataxic*

Ataxic cerebral palsy (CP) is much less common than spastic and athetoid [86]. In addition, it accounts for only 5-10% of individuals with CP and affects coordination of movement all four limbs and the trunk. As well, ataxic CP is characterized by low muscle tone, also known as hypotonic, usually having a wide-based gait or walk and because of poor sense of balance the individuals tend to walk with their feet unusually far apart. The children with ataxic CP look very unsteady [90] and shaky like a

tremor, especially when they are trying to handle or hold a small object such as a pen in appearance [91].

## **2.6 Caring for children with cerebral palsy**

Children with cerebral palsy (CP) need assistance to do daily activities and for movement as well [9]. The effects of CP are seen by ages. Children with CP are dependent and frequently perceived as a burden, since they need endless caregiving as many of them have limitations in self-care functions such as feeding, dressing, bathing and mobility [80].

CP is a complex clinical entity and children with CP often need special care which causes changes in family routines, with a possible direct impact on caregivers' lives, mainly mothers [92]. Thus the caregivers experience a high level of stress and they also need professionals' help in decreasing such a burden [93].

## **2.7 Caregiver**

The caregivers regularly provide care under complex circumstances as balancing the concerns of their own immediate families, their careers and responsibilities [94]. In addition, caregiving is defined as providing unpaid assistance to another person for his/her physical and emotional needs which ranges from partial assistance to 24-hour care. Caregivers are considered primary and secondary those are described below.

## **2.8 Types of caregiver**

### **2.8.1 Primary caregiver**

The primary caregiver is the person primarily responsible for the care and upbringing of a child [95]. In addition, a primary caregiver can be an individual or a public entity. If the mother lives with the child, she is usually considered to be this person. However, it can be the father, a grandparent or a guardian. Beside this, the term primary caregivers is used to refer to the mothers/fathers/grandparents/guardians of children who serve as parental figures for these children and are responsible for the day-to-day care and maintenance of these children [96].



### **2.8.2 Secondary caregiver**

Secondary caregivers refer to people who are less frequently involved in the personal care, although help with support and respite of the primary caregiver [97]. The role of the secondary caregiver is to support the primary caregiver in caring for the individual [98]. In addition, the primary caregiver is the final decision maker who leads the team of secondary caregivers.

### **2.9 Impact of low back pain in everyday life**

Low back pain (LBP) ranks high, frequently first, as a cause of disability and inability to work and a reason for medical consultation [62]. Persons with LBP experience more restrictions while performing all their physical activities including self-cleaning and dressing comparing to those without LBP and believed that they are in bad health conditions [99]. LBP can hinder with work, sleep and usual daily routines [100]. There is an association between sleep disorders and chronic LBP and also a correlation between the intensity of the impact of chronic LBP on daily life and the severity of sleep disorders [101].

Persons with LBP often report impaired ability to perform daily activities and the impact of pain on daily functioning can be expressed as a level of disability [19]. Disability and physical activity reflect the impact of pain on daily functioning [102]. In addition, there are moderate correlations between physical activity and disability for persons with chronic LBP, which indicates that persons with chronic LBP and high levels of disability are likely to have low levels of physical activity; where disability focuses on what persons cannot do and physical activity focuses on what persons actually do in daily living. Consequently, LBP leads to performance at a reduced level of physical activity in everyday life [103].

### **2.10 Role of Occupational Therapy on low back pain**

As a part of the rehabilitation program, the primary goal of Occupational Therapy (OT) is to enable people to participate in the activities of everyday life [104]. MÜLLERSDORF discussed Christiansen and Baum, Törnquist's work in his dissertation [105] 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. As well,

MÜLLERSDORF quoted Strong's (1996) work in his dissertation [105] that the overall aim of OT in pain management is "maximizing the patient's functional status and control over her life, and minimizing the patients' loss of role and associated competences... through specific techniques and engagement in purposeful activities". Besides, MÜLLERSDORF quoted Caruso and Chan, Scudds and Solomon, Strong's (1986, 1987, 1996, 1998) work in his dissertation [105] that the areas concerning OT are personal self-care, housework, work and leisure.

OT supports those who are restricted in their day to day lives and offers them specific exercises, adjustment to their environment, counseling etc. [106]. In addition, OT for persons with chronic low back pain suggests treatment programs including work related training, behavior therapy, reducing pain and limitations. Occupational therapists focus on persons' activity limitations or participation restrictions and in literature, the interventions in occupational therapy pain management include initial assessments and planning (e.g. assessment task of performance/activity analysis, attitudes assessment, goal setting), occupational performance (e.g. work hardening, ergonomics, energy conservation), external adaptation (e.g. assistive devices, splinting) or educational perspectives (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) [105].

Sanders and Morse discussed Pirie and Herman, Maynard and Blain, Sanders's (2004) work in their article [15] that occupational therapists and parents together can take problem solving strategies that minimize biomechanical stresses while parents perform tasks as transporting, bathing and feeding the children by choosing child-care equipment that has design features that encourage proper body alignment. As well, occupational therapists can advise on planning, pacing, prioritizing activities by developing a daily routine and overcoming pain-causing hazards at work; providing advice on caring for muscles and joints and how to incorporate exercise and relaxation into daily life; suggesting techniques to conserve energy; helping to develop strategies for bending, lifting and reaching; 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 [107].

## Chapter Three: Methodology

### 3.1 Study design

Cross sectional design was selected to meet the aim of the study. Since cross sectional studies are the best way to determine prevalence and are useful at identifying associations [108]. In addition, a cross sectional survey collects information from a sample that has been drawn from a predetermined population. Furthermore, the information is collected at just one point in time, although the time it takes to collect all of the data desired may take anywhere from a day to a few weeks or more [109].

### 3.2 Study setting

The study setting was selected conveniently. The study was conducted at the Inpatient Paediatric Unit at the Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka, Bangladesh. CRP was founded in 1979 and focuses on a holistic approach to rehabilitation and its headquarter is in Savar, approximately 25km from Dhaka, the capital city of Bangladesh and is situated in around 13 acres of land [110]. CRP is a large non-government organization (NGO) that serves children and adults with disabilities, especially physical and neurological impairments including cerebral palsy (CP) [111]. One of the services which is sited at CRP-Savar is a Paediatric Unit with residential care for disabled children and the main function of this is to run a two-week (Each group starts on Saturday of the 1st week and ends on Thursday of the 2nd week) residential program designed to integrate children with CP into family and community life [112]. In order to achieve this, children participate in physical and psychological therapy and carers are educated on how to care for the child and are made aware of disability issues and rights. At present, there is a 40-bed capacity at the Inpatient Paediatric Unit and each batch stays for two weeks.

### 3.3 Study population

The study population were the female caregivers who came in order to receive rehabilitative treatment for their children with cerebral palsy at the Inpatient Paediatric Unit at the Centre for the Rehabilitation of the Paralyzed (CRP), Savar,

Dhaka within the period of data collection and who met the inclusion and exclusion criteria.

### **3.4 Sample selection procedure and study sample**

In this study, the sample was chosen from the female caregivers who came in order to receive rehabilitative treatment for their children with cerebral palsy at the Inpatient Paediatric Unit, CRP, Savar, Dhaka during the data collection period and who met the inclusion and exclusion criteria. During the survey, a total of 90 female caregivers responded. 75 of them fulfilled the inclusion and exclusion criteria as well as being interested to participate in the study. Therefore, the 75 female caregivers were the study sample.

### **3.5 Inclusion criteria**

- Female caregivers of children with cerebral palsy between 2-12 years.

### **3.6 Exclusion criteria**

- Female caregivers who have history of back surgery.
- Female caregivers who have history of back fracture.

### **3.7 Study period**

The total study period is from May, 2012 to February, 2013. For this cross sectional study, the period of data collection was from October, 2012 to November, 2012.

### **3.8 Data collection tool**

#### **3.8.1 Screening form**

A Bengali screening form (Annex C (a)) 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**

The researcher used a Bengali information sheet and consent form (Annex D (a)) to maintain ethical consideration.

### 3.8.3 Questionnaire

The researcher used a self-reported Bengali survey questionnaire (Annex I (a)) as 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 estimate the prevalence of LBP among female caregivers (Section B) and the Oswestry Disability Index version 2.1a (Section C).

#### 3.8.3.1 Demographic information

Demographic information includes such characteristics as age in year, area of residence (rural/urban), marital status, educational status, occupation, relationship with the child, number of children in the family, family's monthly income level in Bangladeshi Taka (BDT), daily engagement in child care tasks (in hour), percent of time while others assist with child care, daily engagement in household (in hour) in case of female caregiver and age in year, sex, weight in kilogram, types of cerebral palsy in case of child with cerebral palsy. Definitions of demographic variables used in this study are mentioned in Table-1.

**Table-1:** Definitions of demographic variables used in this study

<b>Age</b>	Indicating how old the female caregivers or child is.	
<b>Area of residence</b>	Rural	Indicating the countryside as village areas.
	Urban	Indicating the city or town.
<b>Marital status</b>	Married	Indicating that who has husband.
	Unmarried	Indicating that who is not married.
	Widow	Indicating that whose husband has died and who has not married again.
	Divorcee	Indicating that who is divorced and has not married again.
<b>Educational status</b>	Illiterate	Indicating who is unable to read and write.
	Under primary school	Indicating that who does not completed primary education and has not the certificate.
	Primary school	Indicating that who has completed primary education and has the certificate.

	Secondary school	Indicating that who has completed secondary education and has the certificate.
	Higher secondary school	Indicating that who has completed higher secondary education and has the certificate.
	Graduate	Indicating that who has completed college or university education and has the certificate.
	Masters	Indicating that who has completed advanced college or university education and has the certificate.
<b>Occupation</b>	Student	Indicating that who is learning at a school or college or university.
	Housewife	Indicating that whose work is inside the home, doing the cleaning, cooking etc., and who usually does not have any other job.
	Government employee	Indicating that who works in the government organization.
	Non-government employee	Indicating that who works in the non-government organization.
	Self-employee	Indicating that who does not work for an employer, but having her own business.
	Retired	Indicating that who has withdrawn from job or business.
<b>Relationship with the child</b>	Mother	Indicating the female parent.
	Grandmother	Indicating the mother of the child's father or mother.
	Sister	Indicating the girl or woman who has the same parents or who is the daughter of child's aunt or uncle.
	Aunt	Indicating that the sister of child's father or mother or the wife of child's uncle.
<b>Number of</b>	Indicating the total number of children in the family including	

<b>children in the family</b>	the child with cerebral palsy.	
<b>Family income level</b>	Indicating the amount of family income in Bangladeshi taka per month.	
<b>Daily engagement in child care tasks</b>	Indicating the duration of engagement in childcare tasks counting in hours per day.	
<b>Percent of time, while others assist with child care</b>	Never	Indicating while others do not assist with childcare at any time.
	Occasionally	Indicating while others assist with childcare at 1-24%.
	Frequently	Indicating while others assist with childcare at 24-49%.
	Always	Indicating while others assist with childcare at 50% or more.
<b>Daily engagement in household</b>	Indicating the duration of engagement in household counting in hours per day.	
<b>Child's sex</b>	Male	Indicating a boy.
	Female	Indicating a girl.
<b>Child's weight</b>	Indicating the amount that the child weighs. The weight of child with cerebral palsy was measured by using a weighing machine of Paediatric Unit, CRP, Savar, Dhaka.	
<b>Child's type of cerebral palsy</b>	Type of cerebral palsy was taken from the patients' record file (Assessment form) of Paediatric Unit, CRP, Savar, Dhaka.	

### 3.8.3.2 Estimating the prevalence of low back pain

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

### 3.8.3.3 *The Oswestry Disability Index*

In this study, an original UK English version of the Oswestry Disability Index (ODI) [113] was used to determine how low back trouble affects caregivers' ability to manage in everyday life. 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 likert scale. The ODI was translated into Bengali by following the Linguistic Validation of a Patient Reported Outcomes Measure [114], provided by MAPI Research Trust and the linguistic validation was conducted consisting 3 steps including forward translation including the production of a reconciliation version (Version 1); backward translation and comparing it with the Version 1 to detect mistranslation or inaccuracies and after that producing Version 2; patient testing of Version 2 on a panel of 6 female caregivers with LBP and then the third version of questionnaire was produced and finally after proof-reading the third version was considered as final version. The guidelines to fill up the ODI version 2.1a and the ODI version 2.1a are attached in Annex H.

The scoring procedure of ODI version 2.1a was done according to the Information Booklet [115], provided by MAPI Research Trust. In the ODI version 2.1a, items are scored on a 0 to 5 scale with 0 indicating no limitation of function and 5 indicating major functional disability due to back pain. For each items the maximum score is 5. 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, 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. If one or more items are missed, the index score is calculated by dividing total score of each item answered by total possible score (5 x number of items answered), which is then 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. In addition, range of scores for the index score is 0 to 100%. The scoring procedure of ODI version 2.1a is attached in Annex F.



The interpretation of high and low scores of ODI version 2.1a was done according to the Information Booklet [115], 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%). The persons who have minimal disability can cope with most living activities and have particular difficulty with sitting and this may be important if their occupation is inactive. Usually no treatment is indicated for them except advice on lifting, sitting posture, physical fitness and diet. Persons who have moderate disability experience more pain and difficulty with sitting, lifting and standing as well as their travel and social life are more difficult as well as they may be disabled from work. However, personal care, sexual activity and sleeping are not grossly affected and the back condition can usually be managed by conservative means. In the case of persons who have severe disability pain remains the main problem in this group of patients as well as activities of daily living (travel, personal care, social life, sexual activity and sleep) are also affected. Therefore, these patients require a detailed investigation. In case of persons who are crippled back pain interrupts on all aspects of their life both at home and at work. Therefore, positive intervention is required. Persons who are bed-bound remain either bed-bound or with exaggerated symptoms. This can be evaluated by careful observation of the patient during the medical examination. The interpretation of high and low scores of ODI version 2.1a is attached in Annex G.

#### *3.8.3.3.1 Validity 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.

#### *3.8.3.3.2 Reliability of the Oswestry Disability Index*

The two forward translations of the Oswestry Disability Index (ODI) version 2.1a were done by two translators. Both translators and local project coordinator had discussed the 2 forward versions during a meeting and agreed a reconciliation version in order to produce a conceptually equivalent translation (Version 1) of the original

questionnaire in which the language is informal and easy to understand. The backward translation of ODI was done by one translator who had no access to the original version of the ODI questionnaire. Comparison of this backward translation with Version 1 was done by the local project coordinator during a meeting with the backward translator to detect any misunderstandings, mistranslations or inaccuracies in the intermediary forward version of the questionnaire (Version 1) which resulted in changes to the Version 1 and gave rise to the second version (Version 2). Patient testing of Version 2 had been done in the study setting on a panel of 6 patients (Female caregivers with low back pain) who are native speakers of the Bengali language in order to conduct a comprehension test through face to face interviews during which the interviewer (researcher) inquired whether the patient had any difficulty in understanding and checked the patient's interpretation of all items. The patients understood and interpreted the whole ODI questionnaire. By these, the third version of the questionnaire had been produced. The third version of the questionnaire was proof-read and was considered as final version.

### **3.9 Data collection procedure**

The researcher collected data from the study sample at the study setting. At the beginning of the interview, the researcher introduced herself, conducted screening, clearly explained the information sheet and consent form to build up trust and completed the procedure before data collection. Data was collected on the 1st 5 days (Saturday to Wednesday of 1st week) from each group at the Inpatient Paediatric Unit, Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka during the period of data collection. The data was collected by using a self-reported Bengali survey questionnaire.

### **3.10 Data analysis process**

The data analysis was performed through a statistical software named Statistical Package for the Social Sciences (SPSS), Inc, USA (version 17.0). Each study subject was given a code number and each question is 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 in case of all study subjects. The researcher

checked and rechecked every questionnaire and data view for any missing or incorrect or unclear information. Then the dataset was ready for analysis.

Descriptive statistics was used to estimate the prevalence of low back pain (LBP) over the last 12 months of the study subjects (female caregivers). It was also used to find out the frequency and percentage of demographic variables and the levels of physical disability.

Inferential statistics was used to estimate the prevalence range in 95% confidence interval (CI) and association. Pearson chi-square test was performed to find out the association, whether statistically significant or not, between demographic variables and LBP over the last 12 months of female caregivers having children with cerebral palsy. This chi-square test was done by using 2x2 table (Crosstab) with P-value less than 5% ( $P < 0.05$ ) for statistical significance.

### **3.11 Ethical consideration**

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

- Taking permission from Department of Occupational Therapy, Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of the Paralyzed (CRP) before conducting the study (Annex A).
- Taking permission from the In-charge of Pediatric Unit of CRP-Savar before data collection (Annex B).
- Taking permission from MAPI Research Trust (Annex E) 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 to lessen the effect of biasness, as the study sample was selected based on inclusion and exclusion criteria.
- An informed consent (Annex D (a)) 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 pass over the section 8 (sex life) of ODI version 2.1a (Annex H) without any hesitation.
- The Pediatric Unit and the study sample were not disadvantaged by the study.
- Maintaining confidentiality during the whole process of the study.
- A code number had been used for each study subject as none could identify the study subjects.
- All sources and works of the others, which were used in this study, were properly cited and duly acknowledged.

## Chapter Four: Result

### 4.1 Demographic variables

In this cross sectional study, most of the female caregivers (80%) were between the age range 20-30 years and most of them (77.3%) were from rural area. Almost all of the female caregivers (97.3%) were married. Most of them (69.3%) had education upto primary school and majority of them (94.7%) were housewives. Almost all of them (97.3%) were mothers and most of them (74.7%) had 1-2 children. About three-fourth's (70.7%) had less than 10000 taka income per month.

More than half of the female caregivers (58.7%) engaged in childcare tasks for less than 6 hours per day. More than half of the them (57.3%) never (0%) need assistance, then about one-fourth (24%) need assistance always (50% or >), then a few of them (12%) need frequent (24-49%) assistance and very few of them (6.7%) need assistance occasionally (1-24%) from others with child care. Most of them (89.3%) engaged in household activities also for less than 6 hours per day.

More than three-fourth of the children with cerebral palsy (CP) (78.7%) were less than 5 years old, less than three-fourth of them (70.7%) were male and most of them (82.7%) were of less than 15 kilogram in weight. Most of the children with CP were spastic (82.7%) and quadriplegic (41.3%).

**Table-2:** Demographic information of female caregivers (study subjects, n=75) and children with cerebral palsy

Demographic variables		Frequency	Percent(%)
Age of the female caregivers (in year)	20-30yrs	60	80.00
	30-40yrs	12	16.00
	40-50yrs	3	4.00
Area of residence	Rural	58	77.30
	Urban	17	22.70
Marital status	Married	73	97.30
	Widow	2	2.70
Educational status	Illiterate	6	8.00
	Primary school	52	69.30
	SSC	9	12.00
	HSC and above	8	10.70
Occupation	Housewife	71	94.70
	Non-government employee	4	5.30
Relationship with the child with cerebral palsy	Mother	73	97.30
	Grandmother	2	2.70
Number of children in the family	1-2 children	56	74.70
	>2 children	19	25.30
Family income level in BDT (monthly)	<10000tk/month	53	70.70
	≥10000tk/month	22	29.30
Daily engagement in child care tasks (in hour)	<6hrs/day	44	58.70
	≥6hrs/day	31	41.30
Percent of time while others assist with child care	Never (0%)	43	57.30
	Occasionally (1–24%)	5	6.70
	Frequently (24–49%)	9	12.00
	Always (50% or >)	18	24.00
Daily engagement in household (in hour)	<6hrs/day	67	89.30
	≥6hrs/day	8	10.70
Age of the child with cerebral palsy (in year)	<5yrs	59	78.70
	≥5yrs	16	21.30
Sex of child with cerebral palsy	Male	53	70.70
	Female	22	29.30
Weight of child with cerebral palsy (in kilogram)	<15kg	62	82.70
	≥15kg	13	17.30
Type of cerebral palsy according to the parts of the body affected	Monoplegic	1	1.30
	Diplegic	12	16.00
	Hemiplegic	8	10.70
	Paraplegic	20	26.70
	Triplegic	3	4.00
	Quadriplegic	31	41.30
Type of cerebral palsy according to the quality of child's postural tone	Spastic	62	82.70
	Flaccid	4	5.30
	Athetoid	9	12.00

## 4.2 Prevalence of low back pain

In the female caregivers, the prevalence of low back pain (LBP) of the last 12 months is 66.70%, which is mentioned in Table-2.1. If the prevalence is estimated in population (all female caregivers during data collection period) then that prevalence will range between 56.3-77.6% in 95% confidence interval (CI), which is mentioned in Table-2.2.

**Table-3.1:** Prevalence of LBP of the last 12 months of female caregivers (study subjects, n=75)

Time outline	Frequency		Percent (%)	
	Yes	No	Yes	No
<b>12-months prevalence at lower back</b>	50	25	66.70	33.30

**Table-3.2:** Prevalence of LBP of the last 12 months of female caregivers (study subjects, n=75) with CI

	Percent (%)	95% CI, %
Yes	67	56.30-77.60
No	33	22.30-43.60

## 4.3 Association between low back pain and demographic variables

There is a statistically significant association between low back pain (LBP) of last 12 months and relationship with the child with cerebral palsy. The P-value of this association is 0.043. Here, the association is present in case of mothers (100.00%). There is also a statistically significant association between LBP of last 12 months and family's monthly income level. The P-value of this association is 0.049. Here, the association is significantly higher in case of those (78.00%) whose family income is less than 10000tk per month than those (22.00%) whose family income is equal or greater than 10000tk per month.

In this study, it is found that there is no association of LBP with age of female caregivers, area of residence, marital status, educational status, occupation, number of children in the family, daily engagement in child care tasks hourly, percent of time while others assist with child care, daily engagement in household hourly, age, sex,

weight of the child with cerebral palsy, type of cerebral palsy according to the parts of the body affected and the quality of child's postural tone.

**Table-4:** Association between LBP of the last 12 months and demographic variables of female caregivers (study subjects, n=75)

Demographic variables		Frequency		Percent of LBP of last 12 months (%)		Chi-square value	P-value (P<0.05)
		Yes	No	Yes	No		
Age of female caregivers	20-30yrs	38	22	76.00	88.00	5.175	0.075
	30-40yrs	11	1	22.00	4.00		
	40-50yrs	1	2	2.00	8.00		
Area of residence	Rural	37	21	74.00	84.00	0.951	0.330
	Urban	13	4	26.00	16.00		
Marital status	Married	49	24	98.00	96.00	0.257	0.612
	Widow	1	1	2.00	4.00		
Educational status	Illiterate	4	2	8.00	8.00	2.678	0.444
	Primary school	32	20	64.00	80.00		
	SSC	7	2	14.00	8.00		
	HSC and above	7	1	14.00	4.00		
Occupation	Housewife	46	25	92.00	100.00	2.113	0.146
	Non-government employee	4	0	8.00	0.00		
Relationship with the child with cerebral palsy	Mother	50	23	100.00	92.00	4.110	0.043
	Grandmother	0	2	0.00	8.00		
Number of children in the family	1-2 children	37	19	74.00	76.00	0.035	0.851
	>2 children	13	6	26.00	24.00		
Family income level in BDT (monthly)	<10000tk/month	39	14	78.00	56.00	3.892	0.049
	≥10000tk/month	11	11	22.00	44.00		
Daily engagement in child care tasks (in hour)	<6hrs/day	27	17	54.00	68.00	1.347	0.246
	≥6hrs/day	23	8	46.00	32.00		
Percent of time while others assist with child care	Never (0%)	29	14	58.00	56.00	0.912	0.823
	Occasionally (1-24%)	4	1	8.00	4.00		
	Frequently (24-49%)	5	4	10.00	16.00		
	Always (50% or >)	12	6	24.00	24.00		
Daily engagement in household (in	<6hrs/day	45	22	90.00	88.00	0.070	0.791
	≥6hrs/day	5	3	10.00	12.00		



hour)							
<b>Age of the child with cerebral palsy( in year)</b>	<5yrs	37	22	74.00	88.00	1.947	0.163
	≥5yrs	13	3	26.00	12.00		
<b>Sex of child with cerebral palsy</b>	Male	35	18	70.00	72.00	0.032	0.858
	Female	15	7	30.00	28.00		
<b>Weight of child with cerebral palsy (in kilogram)</b>	<15kg	41	21	82.00	84.00	0.047	0.829
	≥15kg	9	4	18.00	16.00		
<b>Type of cerebral palsy according to the parts of the body affected</b>	Monoplegic	1	0	2.00	0.00	9.411	0.094
	Diplegic	11	1	22.00	4.00		
	Hemiplegic	6	2	12.00	8.00		
	Paraplegic	15	5	30.00	20.00		
	Triplegic	1	2	2.00	8.00		
	Quadriplegic	16	15	32.00	60.00		
<b>Type of cerebral palsy according to the quality of child's postural tone</b>	Spastic	39	23	78.00	92.00	5.395	0.067
	Flaccid	2	2	4.00	8.00		
	Athetoid	9	0	18.00	0.00		

#### 4.4 Levels of physical disability to manage in everyday life due to low back pain

Due to low back pain (LBP), most of the female caregivers (74.00%) had moderate disability (21-40%), then least of them (26.00%) had minimal disability (0-20%) which is mentioned in Table-4. Besides, none of them had severe disability (41-60%) and none of them was crippled (61-80%) or bed-bound patients (81-100%).

**Table-5:** Levels of physical disability among female caregivers (study subjects, n=75) to manage in everyday life due to LBP

Level of disability	Frequency	Percent (%)
<b>Minimal disability (0-20%)</b>	13	26.00
<b>Moderate disability (21-40%)</b>	37	74.00
<b>Severe disability (41-60%)</b>	---	---
<b>Crippled (61-80%)</b>	---	---
<b>Bed-bound patients (81-100%)</b>	---	---

## Chapter Five: Discussion

The first objective of this study was to estimate the prevalence of low back pain (LBP) of the last 12 months among female caregivers of children with cerebral palsy (CP). This study showed that the prevalence of LBP of the last 12 months among female caregivers of children with CP is 66.70%.

However, this value is reasonable in comparison with a study of the third National Health and Nutrition Examination Survey (NHANES III) of US population. In NHANES III, it was estimated that the 12-month period prevalence of back pain episodes was 17.8% lasting for at least 1 month [116]. A study of Tong et al. showed that the prevalence of LBP is higher in adult female primary caregivers of children with physical disabilities than those of children with non-physically disabling medical illness [10]. In another study, Tonga and D'uger founded in their study that 91% of the mothers with disabled children had LBP [48].

The second objective of this study is to find out the association between LBP of the last 12 months and demographic variables. This study showed 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.

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 [48].

This 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.

According to the knowledge of the researcher, there is no published article that suggests the association of LBP with family's monthly income level.

In this study, it is reported that there is no association of LBP of the last 12 months with age of female caregivers, area of residence, marital status, educational status,

occupation, number of children in the family, daily engagement in childcare tasks hourly, percent of time while others assist with child care, daily engagement in household hourly.

The other studies showed the association of LBP with some demographic variables in case of female caregivers. Finkelstein quoted Kelsey and Golden, Riihimaki's work in his research [27] that age is associated with the occurrence of LBP and the likelihood of having LBP increases with age [61]. Sanders and Morse quoted Hall and Gordon's work in their research [15] 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 [37]. Besides, the number of children in family is highly associated with musculoskeletal pain in female workers [117] and women in residence [37]. As well, a greater number of children is associated with increased LBP in women [118]. LBP is the most common musculoskeletal disorder related to caring for children [15]. In the study of Sanders and Morse, less than half of all spouses got assistance >50% of the time with child care [15]. Sanders and Morse quoted Esdaile and Olson (2004), Hochschild (2000), Pirie and Herman (1995), Primeau's (2000) work in their research [15] 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 [119]. In the study of Habib and Zein, the number of housework hours is significantly associated with musculoskeletal pain in women [37].

According to the knowledge of researcher, any published article did not show the association of LBP with area of residence and educational status of the female caregivers.

It is noted in this study that there is no association of LBP of the last 12 months with age, sex, weight of the child with cerebral palsy, type of cerebral palsy according to the parts of the body affected and the quality of child's postural tone.

The other studies showed the association of LBP with some demographic variables related to children with CP. Finkelstein quoted Kelsey and Golden, Riihimaki's work

in his research [27] that age is associated with the occurrence of LBP and LBP increases with age [61]. Sanders and Morse quoted Kroemer and Grandjean, Sanders's work in their research [15] that a strain on the low back which is worsened by the weight of the child. The type of disability among children may have an effect on the back pain [48].

According to the knowledge of the researcher, there is no published article that suggests the association of LBP with sex and types of CP of the children with CP.

The third objective of this study is to find out the levels of physical disability to manage in everyday life due to LBP. Most of the female caregivers had moderate disability with the least of them experiencing minimal disability due to LBP. Moreover, none of them had severe disability; none of them was crippled and bed-bound patients due to LBP.

According to knowledge, there is no published article, which discusses specifically the levels of physical disability. Only Tonga and D'uger discussed about the correlation of WeeFIM locomotion-mobility in case of children with CP and muscular dystrophy (MD) with the Oswestry Disability Index (ODI) scores in case of their mothers [48].

Other studies have discussed about disability due to LBP and some sections (personal care, walking, sleeping, sex life, social life) of ODI. A study revealed that LBP is a leading cause of disability and chronic back pain is more disabling [62]. Besides, LBP negatively impacts on the ability of caregivers to care their children with physical disabilities [14]. Smith et al. discussed Bergner et al. (1976) and Bergner et al.'s (1981) work in their research [120] that chronic pain is associated with difficulty in performing everyday activities. Beside this, Yip discussed OSLEN et al.'s work in his research [121] that about 30-50% of self-reported LBP implicated daily activity limitations, sleeping interruption and walking interference. Moreover, the impact of LBP causes limitations in their family and social roles pointing out that persons with chronic LBP experience significant restrictions in activities such as parenting, sexual relationships and participation in leisure activities [54]. Furthermore, patients with LBP experience more restrictions when performing all their physical activities including self-cleaning and dressing as compared to those without LBP [99].

## **Chapter Six: Limitation of the 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 population. Therefore, the result of the study can not be generalized.

This cross sectional study represents the association between LBP of the last 12 months and demographic variables. However, it does not show any causal relationship.

## Chapter Seven: Recommendation

There are a lot of articles throughout the world regarding low back pain (LBP), but there were limited access to some international journals and articles. There is a scarcity of available studies regarding LBP among female caregivers of physically disabled children, especially children with cerebral palsy (CP). Still there is no study in Bangladesh regarding this. This limited amount of data 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 female caregivers of children with CP in Bangladesh.

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. Moreover, it will be better to find out the causal 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 Occupational Therapy (OT) in Bangladesh. BOTA can raise awareness to the appropriate authority and general people about the impact of LBP on taking care of their own children with cerebral palsy 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 balance on the basis of Occupational Health and Safety and Ergonomics concerns.

## Chapter Eight: Conclusion

Low back pain (LBP) is a major problem all over the world and chronic LBP is the cause of disability. In this study, the prevalence of LBP is reasonable among female caregivers, mainly mothers. Beside this, most of the female caregivers had moderate disability and least of them had minimal 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 children, especially children with disabilities. They are the part and parcel of intervention program for their disabled children. 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 children and managing their everyday life to build an effective family-centered practice.

The proper ergonomic intervention can be provided to the female caregivers of the children with cerebral palsy (CP) through appropriate authority concern. Thus, the children with CP as well as the female caregivers may get their fruitful intervention.

## Reference List<sup>1</sup>

- [1] DIONNE CE, DUNN KM, CROFT PR. Does back pain prevalence really decrease with increasing age? A systematic review. *Age and Ageing*. 2006;35(3):229–34.
- [2] Lidgren L. The bone and joint decade 2000-2010. *Bull World Health Organ*. 2003;81(9):629.
- [3] Hoy D, Bain C, Williams G, March L, Brooks P, Blyth F, et al. A Systematic Review of the Global Prevalence of Low Back Pain. *Arthritis & Rheumatism* 2012;64(6):2028–37.
- [4] Jin K, Sorock GS, Courtney TK. Prevalence of low back pain in three occupational groups in Shanghai, People's Republic of China. *J Safety Res*. 2004;35(1):23-8.
- [5] Thelin A, Holmberg S, Thelin N. Functioning in neck and low back pain from a 12-year perspective: a prospective population-based study. *J Rehabil Med*. 2008 Jul;40(7):555-61.
- [6] The Burden of Musculoskeletal Conditions at the Start of the New Millennium. Geneva, Switzerland: World Health Organization 2003.
- [7] Shakoor MA, Islam MA, Ullah MA, Ahmed MM, Hasan SA. Clinical profile of the patients with chronic low back pain- A study of 102 cases. *Journal of Chittagong Medical College Teachers' Association*. 2007;18(2):16-20.
- [8] Manek NJ, MacGregor AJ. Epidemiology of back disorders: prevalence, risk factors, and prognosis. *Curr Opin Rheumatol*. 2005 Mar;17(2):134-40.
- [9] Sharan D, Ajeesh P, Rameshkumar R, Manjula M. Musculoskeletal Disorders in Caregivers of Children with Cerebral Palsy Following a Multilevel Surgery. *Work - Journal of Prevention Assessment and Rehabilitation*. 2012;41:1891-5.
- [10] Tong HC, Haig AJ, Nelson VS, Yamakawa KSJ, Kandala G, Shin KY. Low back pain in adult female caregivers of children with physical disabilities. *Archives of Pediatrics and Adolescent Medicine*. 2003;157(11):1128-33.
- [11] Mobarak R, Khan NZ, Munir S, Zaman SS, McConachie H. Predictors of stress in mothers of children with cerebral palsy in Bangladesh. *J Pediatr Psychol*. 2000 Sep;25(6):427-33.
- [12] Tierney D, Romito P, Messing K. She ate not the bread of idleness: exhaustion is related to domestic and salaried working conditions among 539 Québec hospital workers. *Women & Health*. 1990;16(1):21-42.
- [13] Coltrane S. Research on household labor: modeling and measuring the social embeddedness of routine family work. *Journal of Marriage and the Family*. 2000;62(4):1208–33.
- [14] Prior M, Grimmer-Somers K, Gibson S. validation of a unique measure of physical cerer demand in parents of physically disabled children- a pilot study. *the internet journal of allied health sciences and practice*. 2007;5(1):1-11.
- [15] Sanders MJ, Morse T. The ergonomics of caring for children: an exploratory study. *Am J Occup Ther*. 2005 May-Jun;59(3):285-95.
- [16] Waddell G. Simple low back pain: rest or active exercise? *Ann Rheum Dis*. 1993 May;52(5):317-9.

---

<sup>1</sup> By following Vancouver Referencing System through EndNote X4



- [17] Linton SJ, Hellsing AL, Halldén K. A population-based study of spinal pain among 35–45-year-old individuals. Prevalence, sick leave, and health care use. *Spine*. 1998;23(13):1457-63.
- [18] Smeets RJEM, Vlaeyen JWS, Hidding A, Kester ADM, Heijden GJMvd, Geel ACMv, et al. Active rehabilitation for chronic low back pain: Cognitive-behavioral, physical, or both? First direct post-treatment results from a randomized controlled trial. *BMC Musculoskeletal Disorders*. 2006;7(5):1-16.
- [19] Koes BW, Tulder Mv, Lin C-WC, Macedo LG, McAuley J, Maher C. An updated overview of clinical guidelines for the management of non-specific low back pain in primary care. *European Spine Journal*. 2010;19:2075–94.
- [20] Andersson GB. Epidemiologic aspects on low-back pain in industry. *Spine (Phila Pa 1976)*. 1981 Jan-Feb;6(1):53-60.
- [21] Josephson M, Lagerstrom M, Hagberg M, Wigaeus HE. Musculoskeletal symptoms and job strain among nursing personnel: a study over a three year period. *Occup Environ Med*. 1997 Sep;54(9):681-5.
- [22] Parks SM, Novielli KD. A practical guide to caring for caregivers. *Am Fam Physician*. 2000 Dec 15;62(12):2613-22.
- [23] Deepak Sharan AP, Rameshkumar R, Manjula M. Musculoskeletal Disorders in Caregivers of Children with Cerebral Palsy Following a Multilevel Surgery Work. 2012;41:1891-5.
- [24] Biering-Sorensen F. Low back trouble in a general population of 30-, 40-, 50-, and 60-year-old men and women. Study design, representativeness and basic results. *Dan Med Bull*. 1982 Oct;29(6):289-99.
- [25] Messing K, Stock SR, Tissot F. Should studies of risk factors for musculoskeletal disorders be stratified by gender? Lessons from the 1998 Québec Health and Social Survey. *Scand J Work Environ Health*. 2009;35(2):96-112.
- [26] Leijon O, Mulder M. Prevalence of low back pain and concurrent psychological distress over a 16-year period. *Occup Environ Med*. 2009 Feb;66(2):137-9.
- [27] Finkelstein MM. Back pain and parenthood. *Occup Environ Med*. 1995 Jan;52(1):51-3.
- [28] Rossignol M, Lortie M, Ledoux E. Comparison of spinal health indicators in predicting spinal status in a 1-year longitudinal study. *Spine (Phila Pa 1976)*. 1993 Jan;18(1):54-60.
- [29] Düger T, Yilmaz O, Aki E, Kayihan H, Karaduman A. The environmental barriers of children with Muscular Dystrophies and its effect on mother's low back pain. *Disabil Rehabil*. 2003 Oct 21;25(20):1187-92.
- [30] Luo X, Pietrobon R, Sun S, Liu G, Hey L. Estimates and patterns of direct health care expenditures among individuals with back pain in the United States. *Spine*. 2004;29(1):79–86.
- [31] Maniadakis N, Gray A. The economic burden of back pain in the UK. *PAIN*. 2000 Jan;84(1):95-103.
- [32] Walker BF, Muller R, Grant WD. Low back pain in Australian adults: the economic burden. *Asia Pac J Public Health*. 2003;15(2):79-87.
- [33] Videman T, Rauhala H, Asp S, Lindstrom K, Cedercrutz G, Kamppi M, et al. Patient-handling skill, back injuries, and back pain. An intervention study in nursing. *Spine (Phila Pa 1976)*. 1989 Feb;14(2):148-56.
- [34] Linton SJ. A review of psychological risk factors in back and neck pain. *Spine (Phila Pa 1976)*. 2000 May 1;25(9):1148-56.

- [35] Muto S, Muto T, Seo A, Yoshida T, Taoda K, Watanabe M. Prevalence of and risk factors for low back pain among staffs in schools for physically and mentally handicapped children. *Ind Health*. 2006 Jan;44(1):123-7.
- [36] Smedley J, Trevelyan F, Inskip H, Buckle P, Cooper C, Coggon D. Impact of ergonomic intervention on back pain among nurses. *Scand J Work Environ Health*. 2003 Apr;29(2):117-23.
- [37] Habib RR, Zein KE, Hojeij S. Hard work at home: musculoskeletal pain among female homemakers. *Ergonomics*. 2012;55(2):201-11.
- [38] Silman AJ FS, Papageorgiou AC, Jayson MI, Croft PR. Number of children as a risk factor for low back pain in men and women. *Arthritis & Rheumatism*. 1995 38 (9):1232-5.
- [39] Dyson LL. Response to the presence of a child with disabilities: parental stress and family functioning over time. *Am J Ment Retard*. 1993 Sep;98(2):207-18.
- [40] Hall MC, Kieke B, Gonzales R, Belongia EA. Spectrum bias of a rapid antigen detection test for group A beta-hemolytic streptococcal pharyngitis in a pediatric population. *Pediatrics*. 2004 Jul;114(1):182-6.
- [41] Bobinac A, Exel NJv, Rutten FF, Brouwer WB. Caring for and caring about: disentangling the caregiver effect and the family effect. *J Health Econ*. 2010 Jul;29(4):549-56.
- [42] Bobinac A, Exel NJv, Rutten FF, Brouwer WB. Health effects in significant others: separating family and care-giving effects. *Med Decis Making*. 2011 Mar-Apr;31(2):292-8.
- [43] Al-Janabi H, Flynn TN, Coast J. Estimation of a preference-based carer experience scale. *Med Decis Making*. 2011 May-Jun;31(3):458-68.
- [44] CARING FOR THE CAREGIVER: WHY YOUR MENTAL HEALTH MATTERS, WHEN YOU ARE CARING FOR OTHERS. In: HEALTH WFFM, editor. Woodbridge VA 22192 USA.
- [45] Singhi PD, Goyal L, Pershad D, Singhi S, Walia BN. Psychosocial problems in families of disabled children. *Br J Med Psychol*. 1990 Jun;63 ( Pt 2):173-82.
- [46] Gathwala G, Gupta S. Family Burden in Mentally Handicapped Children. *Indian Journal of Community Medicine*. 2004;29(4):188-9.
- [47] Tabib SMSB. Prevalence of childhood disabilities and cerebral palsy in the community. Bangladesh2009; Available from: [http://www.gttd.net/acmr\\_19/pdf/57.pdf](http://www.gttd.net/acmr_19/pdf/57.pdf).
- [48] Tonga E, D'uger Tu. Factors affecting low back pain in mothers who have disabled children. *Journal of Back and Musculoskeletal Rehabilitation*. 2008;21 219–26.
- [49] Strazdins L, Bammer G. Women, work and musculoskeletal health. *Soc Sci Med*. 2004 Mar;58(6):997-1005.
- [50] Olsson MB, Hwang CP. Socioeconomic and psychological variables as risk and protective factors for parental well-being in families of children with intellectual disabilities. *J Intellect Disabil Res*. 2008;52(12):1102-13.
- [51] Harreby M, Neergaard K, Hesselsoe G, Kjer J. Are radiologic changes in the thoracic and lumbar spine of adolescents risk factors for low back pain in adults? A 25-year prospective cohort study of 640 school children. *Spine (Phila Pa 1976)*. 1995 Nov 1;20(21):2298-302.
- [52] Koes BW, Tulder MWv, Thomas S. Diagnosis and treatment of low back pain. *BMJ*. 2006 Jun 17;332(7555):1430-4.

- [53] Grant M, Foster N, Wright C, Barlow J, Cullen L. Being a parent or grandparent with back pain, ankylosing spondylitis or rheumatoid arthritis: a descriptive postal survey. *Musculoskeletal Care*. 2004;2(1):17-28.
- [54] Strunin L, Boden LI. Family consequences of chronic back pain. *Social Science & Medicine*. 2004;58(7):1385-93.
- [55] Gowen JW, Johnson-Martin N, Goldman BD, Appelbaum M. Feelings of depression and parenting competence of mothers of handicapped and nonhandicapped infants: a longitudinal study. *American Journal on Mental Retardation*. 1989;94(3):259-71.
- [56] Ireys HT, Anderson GF, Shaffer TJ, Neff JM. Expenditures for care of children with chronic illnesses enrolled in the Washington State Medicaid program, fiscal year 1993. *Pediatrics*. 1997 Aug;100(2 Pt 1):197-204.
- [57] Kelly AF, Hewson PH. Factors associated with recurrent hospitalization in chronically ill children and adolescents. *J Paediatr Child Health*. 2000 Feb;36(1):13-8.
- [58] Herring S, Gray K, Taffe J, Tonge B, Sweeney D, Einfeld S. Behaviour and emotional problems in toddlers with pervasive developmental disorders and developmental delay: associations with parental mental health and family functioning. *J Intellect Disabil Res*. 2006 Dec;50(Pt 12):874-82.
- [59] Benjak T, Vuletic MG, Pavic SI. Comparative study on self-perceived health of parents of children with autism spectrum disorders and parents of non-disabled children in Croatia. *Croat Med J*. 2009 Aug;50(4):403-9.
- [60] Désiron HA, Rijk Ad, Hoof EV, Donceel P. Occupational therapy and return to work: a systematic literature review. *BMC Public Health*. 2011;11:1-14.
- [61] Low back pain. Reed Group; 2012 [17th December 2012]; Available from: <http://www.mdguidelines.com/low-back-pain/definition>.
- [62] Ehrlich GE. Low back pain. *Bulletin of the World Health Organization* 2003;81(9):671-6.
- [63] Low Back Pain Farlex, Inc.; 2012 [17th December 2012]; Available from: <http://medical-dictionary.thefreedictionary.com/low+back+pain>.
- [64] Managing acute-subacute low back pain: Clinical practice guideline. WorkCover Corporation of South Australia. South Australia 2010.
- [65] Chronic Low Back Pain. In: Society NAS, editor. Public Education Series 2009.
- [66] Age. Dictionary.com, LLC.; 2012 [18th December 2012]; Available from: <http://dictionary.reference.com/browse/age>.
- [67] Gender, women and health. World Health Organization 2012 [18th December 2012]; Available from: <http://www.who.int/gender/whatisgender/en/>.
- [68] Weight. Dictionary.com, LLC.; 2012 [18th December 2012]; Available from: <http://dictionary.reference.com/browse/weight>.
- [69] Weight. Macmillan Publishers Limited; 2012 [17th December 2012]; Available from: <http://www.macmillandictionary.com/dictionary/british/weight>.
- [70] Residence. Dictionary.com, LLC.; 2012 [18th December 2012]; Available from: <http://dictionary.reference.com/browse/residence>.
- [71] Marital status. Farlex, Inc.; 2012 [18th December 2012]; Available from: <http://www.thefreedictionary.com/marital+status>.
- [72] Educational status. Farlex, Inc.; 2012 [18th December 2012]; Available from: <http://medical-dictionary.thefreedictionary.com/educational+status>.

- [73] Occupation. Dictionary.com, LLC. ; 2012 [18th December 2012]; Available from: <http://dictionary.reference.com/browse/occupation>.
- [74] Occupation. Oxford University Press; 2012 [17th December 2012]; Available from: <http://oxforddictionaries.com/definition/english/occupation>.
- [75] Income. Farlex, Inc.; 2012 [17th December 2012]; Available from: <http://www.thefreedictionary.com/income>.
- [76] What does “duty of care” mean? : Yahoo!7 Inc.; 2012 [19th December 2012]; Available from: <http://au.answers.yahoo.com/question/index?qid=20120118024423AAW6585>.
- [77] Household. Definitions.net. STANDS4 LLC.; 2012 [18th December 2012]; Available from: <http://www.definitions.net/definition/household>.
- [78] Mutch L, Alberman E, Hagberg B, Kodama K, Perat MV. Cerebral Palsy Epidemiology: Where are We Now and Where are We Going? *Developmental Medicine & Child Neurology*. 1992;34(6):547–51.
- [79] Beukelman DR, Mirenda P. *Augmentative and Alternative Communication: Management of severe communication disorders in children and adults*. 2nd ed. Baltimore: Paul H Brookes Publishing Co.; 1999.
- [80] Brehaut JC, Kohen DE, Raina P, Walter SD, J.Russell D, Swinton M, et al. The health of primary caregivers of children with cerebral palsy: how does it compare with that of other Canadian caregivers? *Pediatrics*. 2004;114(2):e182-91.
- [81] Odging E, Roebroek ME, Stam HJ. The epidemiology of cerebral palsy: incidence, impairments and risk factors. *Disabil Rehabil*. 2006 Feb 28;28(4):183-91.
- [82] Geralis E. *Children with Cerebral Palsy: A Parents' Guide*. 2nd ed. USA: Woodbine House, Inc.; 1998.
- [83] Dworkin PH. *Pediatrics*. 4th ed. USA: Lippincott Williams & Wilkins; 2000.
- [84] Stanton M. *Cerebral palsy: A Practical Guide* London: Little, Brown and Company; 1992.
- [85] Triplegia. *Forms of Cerebral Palsy*; [19th December 2012]; Available from: <http://www.formsofcerebralpalsy.com/triplegia.html>.
- [86] Hansen RA, Atchison B. *Conditions in Occupational Therapy: Effect on Occupational Performance*. 2nd ed. USA: Lippincott Williams & Wilkins; 2000.
- [87] Hypertonic Cerebral Palsy: What Does It Mean For My Child? : Special-Needs-Hope.com; 2006 [19th December 2012]; Available from: <http://www.special-needs-hope.com/hypertonic-cerebral-palsy.html>.
- [88] Hypotonic Cerebral Palsy: What Does It Mean For My Child? : Special-Needs-Hope.com; 2006 [19th December 2012]; Available from: <http://www.special-needs-hope.com/hypotonic-cerebral-palsy.html>.
- [89] Hypotonic Cerebral Palsy. *Cerebral Palsy Source*; 2005 [19th December 2012]; Available from: [http://www.cerebralpalsysource.com/Types\\_of\\_CP/hypotonic\\_cp/index.html](http://www.cerebralpalsysource.com/Types_of_CP/hypotonic_cp/index.html).
- [90] Ataxic Cerebral Palsy. *Cerebral Palsy Source* 2005 [19th December 2012]; Available from: [http://www.cerebralpalsysource.com/Types\\_of\\_CP/ataxic\\_cp/index.html](http://www.cerebralpalsysource.com/Types_of_CP/ataxic_cp/index.html).
- [91] Ataxic Cerebral Palsy. *Ask the Doctor: About Cerebral Palsy*.; [19th December 2012]; Available from: <http://www.about-cerebral-palsy.org/definition/ataxic-cerebral-palsy.html>.
- [92] Prudente COM, Barbosa MA, Porto CC. Relation Between Quality of Life of Mothers of Children With Cerebral Palsy and the Children’s Motor Functioning, After Ten Months of Rehabilitation. 2010;18 (2):149-55.

- [93] Hanprasitkum C, Wichiencharoen K, Seeda R, Priyatrak P. Caregivers' Needs for Caring Cerebral Palsy Children at Home. *Thai Journal of Pediatric nursing*. 2001;1(1):89-99.
- [94] *Elderly Caregiving: Choices, Challenges and Resources for the Family*. San Francisco: University of California Human Resources; [20th December, 2012].
- [95] Primary Caregiver. Human Resources and Skills Development Canada; 2012 [20th December 2012]; Available from: [http://www.hrsdc.gc.ca/eng/learning/education\\_savings/publications\\_resources/promoter/tools/infocapsules/05.shtml](http://www.hrsdc.gc.ca/eng/learning/education_savings/publications_resources/promoter/tools/infocapsules/05.shtml).
- [96] Swanepoel Y. Primary Caregivers' Experiences of Raising Children with Autism: A Phenomenological Perspective [Partial fulfilment of the requirements for the degree of Master of Arts]: Rhodes University; 2003.
- [97] *Elderly Caregiving: Choices, Challenges, and Resources for the Family*. University of California San Francisco Human Resources; [20th December 2012]; Available from: <http://ucsfhr.ucsf.edu/index.php/assist/article/elderly-caregiving-choices-challenges-and-resources-for-the-family/>.
- [98] Primary Caregivers Versus Secondary Caregivers: What's the Difference. Caregiver's Match; 2012 [20th December 2012]; Available from: <http://www.caregiversmatch.com/primary-caregivers-versus-secondary-caregivers-whats-the-difference/>.
- [99] KAYA K, UNSAL-DELIALIOGLU S, ORDU-GOKKAYA NK, OZISLER Z, ERGUN N, OZEL S, et al. Musculo-skeletal pain, quality of life and depression in mothers of children with cerebral palsy. *Disability and Rehabilitation*. 2010;32(20):1666–72.
- [100] *Low Back Pain*. New York: Association for Behavioral and Cognitive Therapies [20th December 2012]; Available from: <http://www.abct.org/docs/Members/FactSheets/LOW%20BACK%20PAIN%200707.pdf>.
- [101] Marty M, Rozenberg S, Duplan B, Thomas P, Duquesnoy B, Allaert F. Quality of sleep in patients with chronic low back pain: a case-control study. *European Spine Journal*. 2008;17:839–44.
- [102] Lin C-WC, McAuley JH, Macedo L, Barnett DC, Smeets RJ, Verbunt JA. Relationship between physical activity and disability in low back pain: A systematic review and meta-analysis. *PAIN*. 2011;152:607–13.
- [103] Verbunt JA, Seelen HA, Vlaeyen JW, Heijden GJvd, Heuts PH, Pons K, et al. Disuse and deconditioning in chronic low back pain: concepts and hypotheses on contributing mechanisms. *European Journal of Pain*. 2003;7(1):9-21.
- [104] Desiron HA, de Rijk A, Van Hoof E, Donceel P. Occupational therapy and return to work: a systematic literature review. *BMC Public Health*. 2011;11:615.
- [105] MÜLLERSDORF M. Needs Assessment in Occupational Therapy. Sweden: Uppsala University; 2001.
- [106] Fact sheet: Treating chronic low back pain. [informedhealthonline.org](http://www.informedhealthonline.org); 2012 [updated 3rd January 2012] [21st December 2012]; Available from: [http://www.informedhealthonline.org/fact-sheet-treating-chronic-low-back-pain.895.en.pdf?bab\[subpage\\_id\]=0-1-3](http://www.informedhealthonline.org/fact-sheet-treating-chronic-low-back-pain.895.en.pdf?bab[subpage_id]=0-1-3).
- [107] *Occupational therapy and Pain management*. London: College of Occupational Therapists Limited.
- [108] Mann CJ. Observational research methods. Research design II: cohort, cross sectional, and case-control studies. *Emerg Med J*. 2003 Jan;20(1):54-60.

- [109] Fraenkel JR, Wallen NE. How to design and evaluate research in education. 4th ed. London: Mc Graw Hill Companies, Inc.; 2000.
- [110] CRP-Savar. Centre for the Rehabilitation of the Paralysed (CRP); 2010 [25 July 2012]; Available from: [http://www.crp-bangladesh.org/index.php?option=com\\_content&view=article&id=74&Itemid=69](http://www.crp-bangladesh.org/index.php?option=com_content&view=article&id=74&Itemid=69).
- [111] Ackerman DP, Thormann DMS, Huq DS. Assessment of Educational Needs of Disabled Children in Bangladesh United States Agency for International Development (USAID)2005 Report No.: HNE-1-00-00-00038-00.
- [112] Paediatric. Centre for the Rehabilitation of the Paralysed (CRP); 2012 [25 July 2012]; Available from: [http://www.crp-bangladesh.org/index.php?option=com\\_content&view=article&id=85&Itemid=101](http://www.crp-bangladesh.org/index.php?option=com_content&view=article&id=85&Itemid=101).
- [113] Fairbank JC, Pynsent PB. The Oswestry Disability Index. Spine (Phila Pa 1976). 2000 Nov 15;25(22):2940-52; discussion 52.
- [114] Linguistic Validation of a Patient Reported Outcomes Measure. France: Mapi Research Institute; 2005. p. 1-7.
- [115] Savre I. Oswestry Disability Index Information Booklet. 1st ed. France: Mapi Research Trust; 2011. p. 1-33.
- [116] Dillon C, Paulose-Ram R, Hirsch R, Gu Q. Skeletal muscle relaxant use in the United States: data from the Third National Health and Nutrition Examination Survey (NHANES III). Spine (Phila Pa 1976). 2004;29(8):892-6.
- [117] Ratzon NZ, Jarus T, Baranes G, Gilutz Y, Bar-Haim EA. Reported level of pain of upper extremities related to multi-factorial workloads among office workers during and after work hours. Work. 1998;11(3):363-9.
- [118] Silman AJ, Ferry S, Papageorgiou AC, Jayson MI, Croft PR. Number of children as a risk factor for low back pain in men and women. Arthritis & Rheumatism. 1995;38(9):1232-5.
- [119] Josephson M, Ahlberg G, Härenstam A, Svensson H, Theorell T, Wiktorin C, et al. Paid and unpaid work, and its relation to low back and neck/shoulder disorders among women. Women Health. 2003;37(2):17–30.
- [120] Smith BH, Elliott AM, Chambers WA, Smith WC, Hannaford PC, Pennyb K. The impact of chronic pain in the community. Family Practice. 2001;18(3):292-9.
- [121] Yip YB. The association between psychosocial work factors and future low back pain among nurses in Hong Kong: A prospective study. Psychology, Health and Medicine. 2002;7(2):223-33.



# Annex

## Annex A

### Permission from BHPI

Date: 30<sup>th</sup> July, 2012

To  
The Course Coordinator,  
Department of Occupational Therapy,  
BHPI, CRP, Savar, Dhaka-1343.

**Subject:** An application for seeking permission to conduct the research project.

Sir,

I beg most respectfully to state that I am Fatema Khanam, a student of Bachelor of Science in Occupational Therapy course (4<sup>th</sup> year) from Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka-1343, Bangladesh. I am seeking permission to conduct the research project in regards to partial fulfillment of requirements for the Bachelor Degree. My research title is "Prevalence of Low Back Pain and its impact on everyday life among female caregivers of Children with Cerebral Palsy" and the aim is to find out the prevalence of low back pain and its impact on everyday life among female caregivers of children with cerebral palsy. It is also mentioned that anything of the project will not be harmful for the study subjects and unfavorable for the study setting.

May I, therefore, pray and hope that you would be kind enough to grant me the permission and approve me to conduct the research project further and thus it will facilitate me to conduct a fruitful study as a part of my course and oblige thereby.

I remain

Sir,

~~30.07.2012~~ 30.07.2012

**Fatema Khanam**

Bachelor of Science in Occupational Therapy, 4<sup>th</sup> year

Department of Occupational Therapy

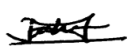

Bangladesh Health Professions Institute (BHPI)

The academic institute of-

Centre for the Rehabilitation of the Paralyzed (CRP)

Chapain, Savar, Dhaka-1343, Bangladesh.

**Attachment:** Proposal of research project.

Signature and comments of the supervisor	Signature and comments of the Course Coordinator
<p><i>Recommended-</i></p> <p></p> <p>Md. Monjurul Habib Lecturer in Occupational Therapy Department of Occupational Therapy BHPI, CRP, Savar, Dhaka-1343.</p>	<p><i>Project can be approved. Due permission and adjustments are need considered (if neccessary)</i></p> <p></p> <p>Mohammad Mosayed Ullah Assistant Professor and Course Coordinator Department of Occupational Therapy BHPI, CRP, Savar, Dhaka-1343.</p> <p><i>30.7.2012</i></p>

## Annex B

### Permission from Paediatric Unit

Date: 2<sup>nd</sup> October, 2012

To  
The In-charge,  
Paediatric Unit,  
CRP, Savar, Dhaka-1343.

**Subject:** An application for seeking permission to conduct data collection for the research project.

Madam,

I beg most respectfully to state that I am Fatema Khanam, a student of Bachelor of Science in Occupational Therapy course (4<sup>th</sup> year) from Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka-1343, Bangladesh. I am seeking permission to conduct data collection at Paediatric Unit (Inpatient) for my research project in regards to partial fulfillment of requirements for the Bachelor Degree. My research title is "Prevalence of Low Back Pain and its impact on everyday life among female caregivers of Children with Cerebral Palsy" and the aim is to find out the prevalence of low back pain and its impact on everyday life among female caregivers of children with cerebral palsy. It is also clearly mentioned that during data collection, anything will not be harmful for the study subjects and unfavorable for the Paediatric Unit.

May I, therefore, pray and hope that you would be kind enough to grant me the permission to conduct data collection for the research project which will facilitate me to carry out a fruitful study as a part of my course and oblige thereby.

I remain  
Madam,

~~FF~~  
2.10.2012

**Fatema Khanam**  
Bachelor of Science in Occupational Therapy, 4<sup>th</sup> year  
Department of Occupational Therapy  
Bangladesh Health Professions Institute (BHPI)  
The academic institute of-  
Centre for the Rehabilitation of the Paralyzed (CRP)  
Chapain, Savar, Dhaka-1343, Bangladesh.

She is permitted for  
data collection. please  
help her.  
FF  
2-10-12



## Annex C (a)

### Screening Form in Bengali

**গবেষণার শিরোনাম:** সেরেরাল পলসি বাচ্চাদের মহিলা যন্ত্রকারীদের পিঠের নিচের অংশের বেদনার প্রাদুর্ভাব এবং প্রতিদিনের জীবনে এর প্রভাব।

স্ক্রিনিং এর তারিখ:

অংশগ্রহণকারীর নাম:

১. বাচ্চার বয়স কি ২ বছরের নিচে?

১ হ্যাঁ  ২ না

২. আপনার কি পিঠে সার্জারি/অপারেশন হয়েছিল?

১ হ্যাঁ  ২ না

৩. আপনার কি পিঠ ভেঙ্গেছিল?

১ হ্যাঁ  ২ না

## Annex C (b)

### Screening Form in English

**Research title:** Prevalence of low back pain and its affect on everyday life among female caregivers of children with cerebral palsy.

Date of screening:

Participant's name:

1. Is the child's age is below 2 years?

1 Yes       2 No

2. Did you have back surgery?

1 Yes       2 No

3. Did you have back fracture?

1 Yes       2 No

## Annex D (a)

### Information Sheet and Consent Form in Bengali

#### তথ্য পত্র

আমি ফাতেমা খানম, বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট (বি এইচ পি আই), পঞ্চাষাতন্ত্রসুদের পুনর্বাসন কেন্দ্র (সি আর পি)-র একটি শিক্ষা প্রতিষ্ঠান, চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ-এর অকুপেশনাল থেরাপীতে স্নাতক শ্রেণীর একজন ছাত্রী। আমি চার বছরের কোর্সের চূড়ান্ত বছরে আছি। স্নাতক ডিগ্রীর আংশিক পূর্ণতার প্রয়োজনে ৪র্থ বর্ষে একটি গবেষণা কর্ম-পরিকল্পনা পরিচালনা করা বাধ্যতামূলক। আমি আমার গবেষণায় অংশগ্রহণ করার জন্য আপনাকে আমন্ত্রণ জানাই। গবেষণার শিরোনামটি হলো “সেরেব্রাল পলসি বাচ্চাদের মহিলা যন্ত্রকারীদের পিঠের নিচের অংশের বেদনার প্রাদুর্ভাব এবং প্রতিদিনের জীবনে এর প্রভাব” এবং এই গবেষণার লক্ষ্যটি হলো সেরেব্রাল পলসি বাচ্চাদের মহিলা যন্ত্রকারীদের পিঠের নিচের অংশের বেদনার প্রাদুর্ভাব এবং প্রতিদিনের জীবনে এর প্রভাব জানতে পারা।

এই গবেষণায় 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 ক্ষতিগ্রস্ত বা অসুবিধাপ্রাপ্ত হবেন না।

একমাত্র আপনি এবং আপনার বাচ্চার ব্যক্তিগত বিবরণ এবং প্রশ্নপত্রের উত্তরসমূহের দলিল রাখা এবং ব্যবহার করা হবে এ গবেষণার উদ্দেশ্যে। আপনার অংশগ্রহণের জন্য আপনাকে আর্থিক সুবিধা প্রদান করা হবে না।

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

## সম্মতিপত্র

পরিপূর্ণ করা হবে যাদের দ্বারা:

ক. অংশগ্রহণকারী (যদি অংশগ্রহণকারী শিক্ষিত হয়)/প্রত্যক্ষদর্শী (যদি অংশগ্রহণকারী অশিক্ষিত হয়)

১. আপনি কি তথ্য পত্র পড়েছেন/জেনেছেন? হ্যাঁ/না
২. এই গবেষণা আলোচনা এবং কোন প্রশ্ন জিজ্ঞাসা করতে আপনার কি সুযোগ হয়েছে? হ্যাঁ/না
৩. আপনি কি আপনার সকল প্রশ্নসমূহের সন্তোষজনক উত্তরসমূহ পেয়েছেন? হ্যাঁ/না
৪. গবেষণা সম্পর্কে আপনি কি যথেষ্ট তথ্য গ্রহণ করেছেন? হ্যাঁ/না
৫. গবেষণাটি কি আপনার কাছে ব্যাখ্যা করা হয়েছিল? হ্যাঁ/না
৬. কোন কারণ দেয়া ছাড়াই যে কোন সময় গবেষণা থেকে প্রত্যাহার করায় আপনি স্বাধীন, এটা কি আপনি বোঝেন? হ্যাঁ/না
৭. গবেষক আপনার থেকে যে তথ্য সংগ্রহ করবে তা অন্য সহযোগী গবেষক দ্বারা পরীক্ষিত হতে পারে। যাহোক, সকল ব্যক্তিগত বিবরণ সর্বোচ্চ গোপনীয় হিসেবে পরিচালনা করা হবে। এই ব্যক্তিদেরকে আপনার বিবরণীসমূহে প্রবেশের জন্য আপনি কি অনুমতি দিবেন? হ্যাঁ/না
৮. আপনি আপনার সিদ্ধান্তে আসতে কি পর্যাপ্ত সময় পেয়েছেন? হ্যাঁ/না
৯. এই গবেষণায় অংশগ্রহণ করতে আপনি কি সম্মত? হ্যাঁ/না

অংশগ্রহণকারীর স্বাক্ষর/টিপসই: \_\_\_\_\_ তারিখ: \_\_\_\_\_

প্রত্যক্ষদর্শীর স্বাক্ষর/টিপসই: \_\_\_\_\_ তারিখ: \_\_\_\_\_

### খ. গবেষক

আমি গবেষণাটি উপরের অংশগ্রহণকারীকে যথামতভাবে ব্যাখ্যা করেছি এবং এই গবেষণায় অংশগ্রহণ করতে সে তার ইচ্ছা নির্দেশ করেছে।

গবেষকের স্বাক্ষর: \_\_\_\_\_ তারিখ: \_\_\_\_\_

## **Annex D (b)**

### **Information Sheet and Consent Form in English**

#### **Information Sheet**

I am Fatema Khanam, a student of the Bachelor of Science in Occupational Therapy course of Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of the Paralyzed (CRP), Chapain, Savar, Dhaka-1343, Bangladesh. I am in my final year of the 4-year course. In regards to partial fulfillment of requirements for the Bachelor Degree, it is obligatory to conduct a research project in 4th year. I would like to invite you to take part in my study. The research title is “Prevalence of low back pain and its affect on everyday life among female caregivers of children with cerebral palsy” and the aim is to find out the prevalence of low back pain and its affect on everyday life among female caregivers of children with cerebral palsy.

Your participation in this study is voluntary. You are not obliged to participate at all. If you want to withdraw from the study, you may do so at any time without any hesitation. You will not be harmed or disadvantaged by the study.

Only you and your child’s personal details (not including your and child’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.

The researcher will maintain confidentiality of all proceedings. Without your permission, the data provided by you will never be used.

## Consent Form

**To be completed by the:**

**A. Participant (if participant is literate)/Witness (if participant is illiterate)**

1. Have you read the information sheet? Yes/No
2. Have you had an opportunity to discuss this study and ask any question? Yes/No
3. Have you had satisfactory answers to all of your questions? Yes/No
4. Have you received enough information about the study? Yes/No
5. Was the study explained to you? Yes/No
6. Do you understand that you are free to withdraw from the study at any time, without having to give a reason? Yes/No
7. Information collected by the researcher from you might be examined by other research assistants. However, all personal details will be treated as highly confidential. Will you give permission for these individuals to have access to your records? Yes/No
8. Have you had sufficient time to come to your decision? Yes/No
9. Do you agree to take part in this study? Yes/No

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

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

**B. Researcher**

I have explained the study to the above participant precisely and she has indicated her willingness to take part in the study.

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

## Annex E

### Permission of using the Oswestry Disability Index version 2.1a

Subject: RE: 28268\_ Translation agreement: The Oswestry Disability Index (ODI)

From: Iliana PETKOVA (ipetkova@mapigroup.com)

To: fk\_mily2009@yahoo.com;

Cc: monjurulshagar@yahoo.com;

Date: Tuesday, July 17, 2012 7:20 PM

Dear Fatema,

Thank you for sending the completed and signed translation agreement. May I take this opportunity to remind you that we must receive the original signed User Agreement by post for our records.

I am pleased to send you today the original UK English version of the ODI together with our Linguistic Validation Guidelines. Please read the guidelines carefully before starting to translate. If you have any questions concerning this document, just let me know.

I am also sending you the scoring instructions for the ODI.

Please keep us informed about the progress of your work by sending us electronic copies of all reports documenting the translation process as well as the final translated version.

All the best,

Iliana

**Iliana PETKOVA**

PRO Information Support

**MAPI Research Trust**

27 rue de la Villette | 69003 Lyon | France

Tel.: +33 (0)4 72 13 65 75 | Fax: +33 (0)4 72 13 55 73

E-mail: [ipetkova@mapigroup.com](mailto:ipetkova@mapigroup.com)

Please visit our websites [www.mapi-store.com](http://www.mapi-store.com) | [www.mapi-trust.org](http://www.mapi-trust.org) | [www.proqolid.org](http://www.proqolid.org) | [www.mapigroup.com](http://www.mapigroup.com)

**De :** Fatema Khanom Mily [mailto:fk\_mily2009@yahoo.com]

**Envoyé :** samedi 14 juillet 2012 11:51

**À :** Iliana PETKOVA

**Cc :** monjurulshagar@yahoo.com

**Objet :** Translation agreement: The Oswestry Disability Index (ODI)

## Annex F

### 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  <math display="block">\text{Total score} / \text{Total possible score} \times 100</math>                     with:                      Total score = sum of the score obtained for each 10 items                      Total possible score = 50</li> </ul>
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:  <math display="block">\text{Total score} / \text{Total possible score} \times 100</math>                     with:                      Total score = sum of the score of each item answer                      Total possible score = 5 x number of items answered</li> </ul>
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>



## Annex G

### 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.

## Annex H

### **Guidelines to fill up the Oswestry Disability Index (ODI) version 2.1a and the ODI version 2.1a**

This questionnaire is designed to give us information as to how your 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 favourite 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 - Travelling**

- 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 ODI =  %

## Annex I (a)

### Survey Questionnaire in Bengali

অংশগ্রহণকারীর নাম:

কোড নম্বর:

বাচ্চার নাম:

<b>পর্ব ক: জনসংখ্যাতাত্ত্বিক তথ্য</b> (টিক চিহ্ন দিন)	
১. মহিলা যন্ত্রকারীর বয়স (বছরে): _____	
২. আপনার বসবাসের এলাকা: <input type="checkbox"/> ১ গ্রাম <input type="checkbox"/> ২ শহর	
৩. মহিলা যন্ত্রকারীর বৈবাহিক অবস্থা: <input type="checkbox"/> ১ বিবাহিতা <input type="checkbox"/> ২ অবিবাহিতা <input type="checkbox"/> ৩ বিধবা <input type="checkbox"/> ৪ তালকপ্রাপ্তা	
৪. মহিলা যন্ত্রকারীর শিক্ষাগত পদমর্যাদা/অবস্থা: <input type="checkbox"/> ১ অশিক্ষিত <input type="checkbox"/> ২ অসমাপ্ত প্রাথমিক বিদ্যালয় <input type="checkbox"/> ৩ প্রাথমিক বিদ্যালয় <input type="checkbox"/> ৪ মাধ্যমিক বিদ্যালয় <input type="checkbox"/> ৫ উচ্চ মাধ্যমিক বিদ্যালয় <input type="checkbox"/> ৬ স্নাতক <input type="checkbox"/> ৭ মাস্টার্স <input type="checkbox"/> ৮ অন্যান্য _____	
৫. মহিলা যন্ত্রকারীর পেশা: <input type="checkbox"/> ১ ছাত্রী <input type="checkbox"/> ২ গৃহিণী <input type="checkbox"/> ৩ সরকারী চাকুরিজীবী <input type="checkbox"/> ৪ বেসরকারী চাকুরিজীবী <input type="checkbox"/> ৫ আত্ম-কর্মসংস্থান <input type="checkbox"/> ৬ চাকুরি থেকে অবসরপ্রাপ্তা <input type="checkbox"/> ৭ অন্যান্য _____	
৬. বাচ্চার সাথে মহিলা যন্ত্রকারীর সম্পর্ক: <input type="checkbox"/> ১ মা <input type="checkbox"/> ২ দাদি/নানি <input type="checkbox"/> ৩ বোন <input type="checkbox"/> ৪ আন্টি (খালা, ফুফু, চাচি, মামী) <input type="checkbox"/> ৫ অন্যান্য _____	
৭. পরিবারে কতজন বাচ্চা আছে? _____	
৮. পরিবারের মাসিক আয় (বাংলাদেশী টাকায়): _____	
৯. আপনি দৈনিক কত সময় ধরে বাচ্চা যন্ত্র নেয়ার কাজসমূহ করেন (ঘন্টায়)? _____	
১০. বাচ্চা যন্ত্র নেয়ার ক্ষেত্রে অন্যান্যরা যখন সহযোগিতা করে, তার সময়ের হার: <input type="checkbox"/> ১ কখনই না (০%) <input type="checkbox"/> ২ মাঝেমাঝে (১-২৪%) <input type="checkbox"/> ৩ প্রায়ই (২৪-৪৯%) <input type="checkbox"/> ৪ সবসময় (৫০% অথবা এর বেশি)	
১১. আপনি দৈনিক কত সময় ধরে গৃহস্থালি কাজ করেন (ঘন্টায়)? _____	
১২. বাচ্চার বয়স (বছরে): _____	
১৩. বাচ্চার লিঙ্গ: <input type="checkbox"/> ১ ছেলে <input type="checkbox"/> ২ মেয়ে	
১৪. বাচ্চার ওজন (কেজিতে): _____	

১৫. বাচ্চার কোন ধরণের সেরেব্রাল পলসি?

(ক) শরীরের প্রভাবিত স্থান অনুসারে:

১ মনোপ্লেজিক  ২ ডাইপ্লেজিক  ৩ হেমিপ্লেজিক  ৪ প্যারাপ্লেজিক

৫ ট্রাইপ্লেজিক  ৬ কোয়াদ্রিপ্লেজিক

(খ) শরীরের টোনের ধরণ অনুসারে:

১ স্পাস্টিক  ২ ক্লাসিড  ৩ মিশ্র  ৪ এথেটেয়েড  ৫ এটাক্সিক

**পর্ব খ: পিঠের নিচের অংশের বেদনার প্রাদুর্ভাব নির্ণয়**

অনুগ্রহপূর্বক বাম্পে একটি টিক দেয়ার মাধ্যমে উত্তর করুন।

গত ১২ মাসের মধ্যে যে কোন সময় আপনার কি নিম্নোক্ত ক্ষেত্রে বিড়ম্বনা (যেমন, অবিরত যন্ত্রণা, বেদনা, অস্বাচ্ছন্দ্য, অসাড়তা) ছিল?

পিঠের নিচের অংশ:

১ হ্যাঁ  ২ না

**পর্ব খ-** তে আপনার উত্তর যদি “হ্যাঁ” হয়, তাহলে অনুগ্রহপূর্বক পর্ব গ- এর উত্তর করুন।

**পর্ব গ: অসুওয়েস্টি প্রতিবন্ধিতা সূচক (বিবৃতি ২.১ এ)**

আপনার পিঠের নিচের অংশের বিড়ম্বনা কিভাবে প্রতিদিনের জীবন পরিচালনা করতে আপনার সামর্থ্যকে প্রভাবিত করে তা জানার জন্য এই প্রশ্নপত্রটি পরিকল্পনা করা হয়।

অনুগ্রহপূর্বক সবগুলো প্রশ্নের উত্তর দিন। প্রতিটি অংশে শুধুমাত্র একটি বাম্প/উত্তর চিহ্নিত করুন যা আজ আপনার অবস্থাকে সর্বাপেক্ষা কাছাকাছি বর্ণনা করে।

**অংশ ১- ব্যথার তীব্রতা**

- এ মুহূর্তে আমার কোন ব্যথা নেই।
- এ মুহূর্তে ব্যথা অত্যন্ত কম।
- এ মুহূর্তে ব্যথা মোটামুটি।
- এ মুহূর্তে ব্যথা যথেষ্ট পরিমাণে তীব্র।
- এ মুহূর্তে ব্যথা অত্যন্ত তীব্র।
- এ মুহূর্তে ব্যথা এমন যে তা কল্পনার সর্বোচ্চ খারাপ।

**অংশ ২- ব্যক্তিগত যত্ন (ধৌতকরণ, পোশাক পরিধান ইত্যাদি)**

- কোন ধরণের ব্যথা ছাড়াই আমি আমার নিজের স্বাভাবিক যত্ন নিতে পারি।
- আমি আমার নিজের স্বাভাবিক যত্ন নিতে পারি, কিন্তু এটি অত্যন্ত ব্যথাদায়ক।
- আমার নিজের যত্ন নেওয়া ব্যথাদায়ক এবং এ জন্যে আমি ধীর ও সতর্কতা অবলম্বন করি।
- আমার কিছু সাহায্যের দরকার হয়, কিন্তু আমি আমার অধিকাংশ ব্যক্তিগত কাজ নিজেই সম্পাদন করি।
- প্রতিদিন আমার নিজের অধিকাংশ কাজের জন্যে অন্যের সাহায্য প্রয়োজন হয়।
- আমি আমার পোশাক-পরিচ্ছদ পরিধান করতে পারি না, ধৌতকরণ করা যথেষ্ট কষ্টদায়ক এবং আমি বিছানাতেই থাকি।

### অংশ ৩- উত্তোলন

- আমি কোন বাড়তি ব্যথা ছাড়াই ভারী ওজন উত্তোলন করতে পারি।
- আমি ভারী ওজন উত্তোলন করতে পারি, কিন্তু এটা বাড়তি ব্যথা সৃষ্টি করে।
- ব্যথার কারণে আমি মেনে থেকে ভারী ওজন উত্তোলনে বাঁধার সম্মুখীন হই, কিন্তু যদি এগুলো সুবিধাজনক অবস্থানে যেমন, টেবিলে রাখা হয়, তাহলে আমি তা উত্তোলন করতে পারি।
- ব্যথা আমাকে ভারী ওজন উত্তোলনে বাঁধা সৃষ্টি করে, কিন্তু যদি এগুলো সুবিধাজনক অবস্থানে রাখা হয়, তাহলে আমি হালকা থেকে মাঝারি ধরনের ওজন উত্তোলন করতে পারি।
- আমি কেবল অত্যন্ত হালকা ওজন উত্তোলন করতে পারি।
- 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 বাড়ায়।
- 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 ছাড়াই 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।

ফল: আপনার অসুখে প্রতিবন্ধিতা সূচক =  %

*জরিপে অংশগ্রহণের জন্য আপনাকে ধন্যবাদ।*



## Annex I (b)

### Survey Questionnaire in English

Participant's name: \_\_\_\_\_

Code no.: \_\_\_\_\_

Child's name: \_\_\_\_\_

<b>Section A: Demographic information</b> (Put the tick mark)	
<b>1.</b>	Female caregiver's age (in year): _____
<b>2.</b>	Your area of residence: <input type="checkbox"/> 1 Rural <input type="checkbox"/> 2 Urban
<b>3.</b>	Female caregiver's marital status: <input type="checkbox"/> 1 Married <input type="checkbox"/> 2 Unmarried <input type="checkbox"/> 3 Widow <input type="checkbox"/> 4 Divorcee
<b>4.</b>	Female caregiver's educational status: <input type="checkbox"/> 1 Illiterate <input type="checkbox"/> 2 Under primary school <input type="checkbox"/> 3 Primary school <input type="checkbox"/> 4 Secondary school <input type="checkbox"/> 5 Higher secondary school <input type="checkbox"/> 6 Graduate <input type="checkbox"/> 7 Masters <input type="checkbox"/> 8 Others _____
<b>5.</b>	Female caregiver's occupation: <input type="checkbox"/> 1 Student <input type="checkbox"/> 2 Housewife <input type="checkbox"/> 3 Government employee <input type="checkbox"/> 4 Non-government employee <input type="checkbox"/> 5 Self-employee <input type="checkbox"/> 6 Retired <input type="checkbox"/> 7 Others _____
<b>6.</b>	Female caregiver's relationship with the child: <input type="checkbox"/> 1 Mother <input type="checkbox"/> 2 Grandmother <input type="checkbox"/> 3 Sister <input type="checkbox"/> 4 Aunt <input type="checkbox"/> 5 Others _____
<b>7.</b>	Number of children in the family: _____
<b>8.</b>	Family income level in BDT (monthly): _____
<b>9.</b>	For how long do you engage in child care tasks daily (in hour)? _____
<b>10.</b>	Percent of time, while others assist with child care: <input type="checkbox"/> 1 Never (0%) <input type="checkbox"/> 2 Occasionally (1–24%) <input type="checkbox"/> 3 Frequently (24–49%) <input type="checkbox"/> 4 Always (50% or >)
<b>11.</b>	For how long do you engage in household daily (in hour)? _____
<b>12.</b>	Child's age in years: _____
<b>13.</b>	Child's sex: <input type="checkbox"/> 1 Male <input type="checkbox"/> 2 Female
<b>14.</b>	Child's weight (in kilogram): _____

**15. Child's type of cerebral palsy:**

(a) According to the parts of the body affected-

1 Monoplegic    2 Diplegic    3 Hemiplegic    4 Paraplegic

5 Triplegic    6 Quadriplegic

(b) According to the quality of child's postural tone-

1 Spastic    2 Flaccid    3 Mixed    4 Athetoid    5 Ataxic

**Section B: Estimating 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 favourite 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 - Travelling**

- 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 ODI =**  %

---

*Thank you for your participation.*