

**LEVEL OF DEPRESSION OF MOTHERS OF CHILDREN WITH
CEREBRAL PALSY (CP)**



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Statement of Authorship

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Abstract

Mother of children with Cerebral Palsy (CP) plays an essential role in the successful rehabilitation of their children which may affect their mental health. The aim of this study is to find out the level of depression of mothers of children with CP. The objectives are to find out socio-demographic characteristics, common depressive symptoms, level of depression of the mothers and also to find out the association between socio-demographic characteristics and severity of depression of mothers. A cross sectional study was conducted in the pediatric unit of Centre for the Rehabilitation of the Paralyzed (CRP) at Savar and Mirpur. 110 participants were included in conveniently. Socio-demographic questionnaire, Depression Scale-DS was used for data collection and analysis was done by using Statistical Package for Social Science (SPSS) version 17.0. In this study, it was found that most of the participants' (43.6%) were 21-25 years, 39.1% (n=43) had education up to secondary school, 93.6% (n=103) were married, 92.7% (n=102) were Muslim, 41.8 % (n=46) came from urban areas, 40.0 % (n=44) took care their children for 6-10 hours, 50.9% (n=56) had only one child and 63.6% (n=70) came from middle socio-economic status. In case of common depressive symptoms, crying was very common 49.1% (n=54), 42.7% (n=47) participants reported low mood and 38.2% (n=42) reported lack of pleasure. Moreover, mostly (61.8%) had minimal level of depression. There were significant association between educational status ($p > .013$), marital status ($p > .002$) and socioeconomic status ($p > .032$) with level of depression of the participants. In conclusion, it seems that having a CP child lead to maternal depression so, to improve rehabilitation processes psychological support for mothers is needed.

Key Words: *Cerebral Palsy, Maternal Depression, Depressive symptoms*

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List of Acronyms

- BHPI:** Bangladesh Health Professions Institute
CRP: Centre for the Rehabilitation of the Paralysed
NGO: Non-Government Organization
NIMH: National Institute of Mental Health
CP: Cerebral Palsy
LBP: Low Back Pain
WHO: World Health Organization
DSM: Diagnostic and Statistical Manual of Mental Disorders
SPSS: Statistical Package for social Science

CHAPTER 1 INTRODUCTION

Cerebral Palsy (CP) is the most common severe physical disability among children and 3rd most common major developmental disability after autism and mental retardation (Begum and Desai, 2010 and Al-Gamal, 2013). Although the impaired motor function is a hallmark of the CP, many children also experience health, sensory and perceptual difficulties and may have complex limitations in self-care functions, such as feeding, dressing, bathing, and mobility (Baltor and Dupas, 2013). It is a condition caused by abnormal formation of brain that limits motor function, intellectual and behavioral abilities of the children. They have risks for seizures, difficulties in cognitive functions, behavior, learning and emotion. These difficulties often influence the requirements of long term care and have an impact on the quality of life of parents especially mother (Krstic *et al.* 2012 and Marrón, 2013).

Birth of a CP child is one of the unfortunate events in the life of any couple. This incident could impair their mental health (Rezvani, 2014). The first reactions of parents after a disability diagnosis of their children are sense of injustice, resentment against fate, blaming each other (Hung *et al.* 2010). Parents of such children may suffer from different conditions such as depression, anxiety, anger, fear, shame and desire to die (Rezvani, 2014). Children's general improvement directly related to caregivers dedication and concern (Marx, 2011). Care-giving a child is an important role of parents but providing the care for a child with long-term functional limitations is completely different and it has a negative impact on parents especially mother in terms of demands on physical health, disrupted sleep, difficulty in maintaining social relationships, pressure on marital relationships, financial burden (Khayatazadeh *et al.* 2013, Eker and Tuzun, 2004). Sajedi *et al.* (2009) stated that mothers of children with CP have lower quality of life and high level of depression.

Mothers of children with different levels of disability tolerate high level of stress (Sajedi *et al.* 2009). The need of constant assistance for children with CP can make their mothers become stressed and this state can lead to changes in depression levels. Mother's wellbeing depends on the child's level of impairment, care giving demand, and family structure (Zanon and Batista, 2012). Mothers with a disabled child experience emotional and behavioral changes such as forgetfulness, depression,

dependence, lack of motivations and often feel confined, overwhelmed, and fatigued due to their responsibilities, but they are reluctant to give up their caregiver role (Mu'ala, Rabati and Shwani, 2008).

1.1. Background

No one wants a handicapped child. Everyone wants fit and intelligent children who will do well in the competitive society they live in. So the birth of a disabled child is a family stressor and mothers often feel guilty because of taking more responsibility to their children than the other family members (khayatzadeh *et al.* 2013 and Sajedi *et al.* 2009). Mother of children with CP require more attention and longer duration of care, these excessive responsibility can negatively affects their physical, psychological and social health (Kumara and Joseph, 2014, Marron, 2013 and Al Gamal, 2013). Mother of children with CP suffers from depression, grief, disbelief, fear, hopelessness and feelings of inability to cope for their children with long-term disability (Al-Gamal, 2013). A study carried out in Bangladesh by Mubarak and colleagues, they reported that psychiatric morbidity rate is 41.8% in mothers of 91 children with CP (Eker and Tuzun, 2004 and Gleen *et al.* 2009). Children with CP often suffer from sleep disturbances, which affect their caregivers' quality of sleep as well (Marx, 2011). Poor sleep quality is associated with higher levels of depression. According to Diagnostic and Statistical Manual of Mental Disorders (DSM IV) sleep impairment is part of the diagnostic criterion for depression disorder and sleep trouble is a risk factor for depressive symptoms (Marx, 2011).

During 2nd year placement in pediatric unit researcher observed that most of the mothers seemed depressed. Most of the mothers reported that they felt guilty and could not sleep properly because their children need about 24 hours care. The mother whose children totally dependent on mothers their physical and psychological distresses are very high compared to others. Some mothers experience back pain and loss of energy whose children's are heavy and unable to walk. Therapists guess that it is usual for a mother of children with CP to stay in depressive mood. But there is no research about their level of depression in Bangladesh .If there is evidence that mothers suffers from depression having children with CP then the therapist can include basic counseling in intervention procedure for mothers to find better

functional outcome on children with CP. For this reason researcher want to conduct this study on mothers of children with CP.

In a study reported that musculoskeletal pain (62.5%) and Low Back Pain (LBP) (42%) rates were high in mothers having cerebral palsy child (Kayat *et al.* 2010). Mental health problem have a significant adverse effect on the physical and social health of individuals (Saywer *et al.* 2011). Psychological distress, depressed mood were associated with transition to chronic LBP (Kayat *et al.* 2010).

The study of Manuel *et al.* (2003) on a sample of 270 mothers of children with CP showed that 30% of the mothers had symptoms of depression. A study in turkey reported a high (61.2%) depression ratio was found in mother of children with CP (Delialioğlu *et al.* 2009). Various studies have shown that around 30-70% of mothers of children with CP suffer from major depression (Sousa and Singhvi, 2011). Depressive symptoms may be related to multiple factors such as disability level, socio-economic status and educational level (Altinda *et al.* 2006). A study by Al-Gamal (2013) found that 88.6% of mother having CP child require more emotional energy which was measured by personal sacrifice burden subscale and 80.60% of mother having CP child spent a lot of time worrying about bad things to come and it was measured by felt isolated worry and subscale. In Canada Brehaut and Colleagues found that significantly more psychological distress, emotional and physical problem are noticed among 95% mothers having CP child (Glenn *et al.* 2009).

1.2. Significance

Although CP is not curable, right therapy intervention can improve child performance in daily living activities and can reduce the long-term impact of the condition upon caregivers (Muala, Rabati and Shwani, 2008). During therapy sessions, therapists place main focus on children with CP for their intervention. But sometimes they notice that mothers of children with CP seem depressed and show some depressive symptoms.

Health care services delivery has been shifted away from child centered model toward a family centered model (Hung *et al.* 2010). Due to the mother's central role in family life and responsibilities for childcare, she will experience a higher level of stress and anxiety (Borzoo *et al.* 2014). Occupational therapists set long term and short goals

discussing with parents and teach them about therapeutic techniques so that they can provide therapy at home properly following learned therapeutic techniques. Any occupational therapy rehabilitation process should be directed toward parents. Regular and active participation of parents have vital significance during all phases of treatment of children with physical disability (Hung *et al.* 2010).

CP children's better functional outcome not only depends on therapist's intervention but also mother's intervention. Because therapists provide intervention only for about 45 minutes in a day, rest of the time of the day mothers continue therapy at home. Psychological problems such as depression may limit the role of mothers in the management of the child's illness (Hung *et al.* 2010). Depressed mothers are less responsive to their children. Many researchers suggest that a parent-child interaction is not only critical to the typically developing children but also to the developmental outcomes of children who have disabilities like CP (Rani, Tripathi and Singh, 2014). If mothers stay in depressive mood they cannot provide appropriate services to their children for this reason, the possibility to get better functional outcome may

be reduced. Therapist can find out possible causes behind depression through communication with mothers and can provide basic counseling to mothers having cerebral palsy child. Psychological support is required for the family mother of handicapped children (Altinda *et al.* 2006).

If anyone is interested to do study to know the effectiveness of therapy, he or she cannot get appropriate functional outcome of services from his or her study result due to mother's depressive symptoms. Occupational therapists should consider mothers depression during intervention and include basic counseling in intervention procedure for them to get better functional outcome of their provided intervention. Some studies emphasizes the role of occupational therapy psycho-education of caregivers to empower them to handle their stress and work towards better outcome of their children with CP (Jahagirdar, 2012).

1.3. Aim of this study

The aim of this research is to find out the level of depression of mother of children with CP.

1.4. Objectives of this study

- To identify the common socio- demographic picture of mothers of children with CP.
- To find out the most common depressive symptoms among mothers of children with CP.
- To find out the severity of depression among mothers of children with CP.
- To identify the association between socio- demographic characteristics and level of depression of mothers with CP.

CHAPTER 2 LITERATURE REVIEW

2.1. Cerebral Palsy (CP)

CP is a chronic condition defined as a group of functional limitations due to the damage in the development of central nervous system (kumara and Joseph, 2014). The resulting impairments are thought to be due to faulty development or damage to the motor areas in the brain, which disrupt the brain's ability to control movement and posture (Bjornson, Belza and Thompson, 2008)

“Cerebral” means “brain” and “palsy” means “a physical disorder”. So CP means “brain paralysis.” (Mushtaq and Suman, 2014).

The last definition of CP published in 2007 describes it as a group of permanent disorders of the development of movement and posture, causing activity limitation, that are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain (Marx, 2011 and Tessier, Hefner and Newmeyer, 2014).

2.1.1. Incidence of CP in Different Countries

The world incidence of CP was estimated between 2 to 2.5 cases per 1000/live births (Kumara and Joseph, 2014) and the life expectancy is 20 years (Baltor and Dupas, 2013). In developing countries, the prevalence is much higher because of poor antenatal care, large numbers of children born at home, dehydration, malnutrition, and poor disease management (Delialioglu *et al.* 2009). Childhood disability is not uncommon in Bangladesh. CP is one of the common causes of childhood disability in Bangladesh, with a frequency of 1.4-2.7/1000 of live birth (Tabib, 2009). In underdeveloped countries the incidence of this condition is superior, being 7 cases per 1,000 births (Baltor and Dupas, 2013). CP affects 2-3 out of every 1000 live births in Europe and up to 7 per 1000 in Brazil (Krstic and Oros, 2012, Tarsuslu and Livanelioglu, 2010). Its prevalence is reported to be 4.4 per 1000 live birth in Turkey (Delialioglu *et al.* 2009). CP was found to have a prevalence of 2 to 2.5 per 1000 live births in Northern Ireland. In South Africa, the estimated prevalence of CP is between 1% and 8% (Quinn and Gordon, 2011).

2.1.2. Causes of CP

The etiology of CP is very diverse. The causes are congenital, genetic, inflammatory, infectious, anoxic, traumatic and metabolic (Sanker and Mundkur, 2005).

According to the time of influence, causes of cerebral palsy can be divided into prenatal, perinatal and postnatal. 70-80% of CP is occurred due to prenatal factors such as hereditary factors, intoxication of the mother, psychological trauma, smoking, insufficient nutrition, mother age (Svraka, 2012). Perinatal risk factors are infections, intracranial hemorrhage, seizures, hypoglycemia and significant birth asphyxia (Sanker and Mundkur, 2005).

In most cases, CP develops during pregnancy due to brain injury. Approximately 10% to 20% of children acquire CP after birth, typically from brain damage may result from brain infections or from head trauma (Allah, Awady and Hammed, 2012). The incidence of CP is higher among twins and triplets than single children. Prematurity and low birth weights are the most important risk factor for developing CP (Sanker and Mundkur, 2005). However, in most cases no specific cause can be identified (Allah, Awady and Hammed, 2012).

2.1.3. Classification of CP

CP is classified based on the type of neuromuscular deficit into (i) spastic (ii) dyskinetic (iii) ataxic (iv) hypotonic and (v) mixed. Spastic CP is the commonest and accounts for 70%-75% of all cases, dyskinetic – 10% to 15% and ataxic is less than 5% of cases (Sanker and Mundkur, 2005).

The topographic classification of CP is monoplegia, hemiplegia, diplegia and quadriplegia (Alcassa *et al*, 2013 and Sanker and Mundkur, 2005). Monoplegia and triplegia are relatively uncommon. There is a substantial overlap of the affected areas. In most studies, diplegia is the commonest form (30% – 40%), hemiplegia is 20%-30%, and quadriplegia accounting for 10% -15%.

Quadriplegic CP

This is the most severe form of CP involving all four limbs, and the trunk upper limbs are more severely involved than the lower limbs, Intellectual impairment is severe in all cases.

Hemiplegic CP

Spastic Hemiplegic is a unilateral type of CP, where upper limbs more severely affected than the lower limbs. It is seen in 56% of term infants and 17% of preterm infants. Sensory abnormalities in the affected limbs are common. Seizures occur in more than 50%.

Diplegic CP

Spastic diplegia is associated with prematurity and low birth weight. In this condition, lower limbs are more severely affected than the upper limbs (Sanker and Mundkur, 2005).

2.2. Maternal Depression

Referring to World Health Organization (WHO) definition depression is very frequent mental disorder that includes depressive mood, loss of interest or pleasure, awake the feeling of guiltiness, affects the appetite, dream and concentration (Mehmedinovic, Sinanvanic and Ahmetovic, 2012).

Maternal depression is an all-encompassing term for a spectrum of depressive conditions that can affect mothers. It can lead to serious health risks for both the

mother and the child and it has long lasting or even permanent effects on child development and well-being. Maternal depression is increasingly recognized as a worldwide public health issue and can have a negative impact on an individual's life which is consequently affect his work, family, the health and development of his baby (National Institute for Health Care Management, 2010).

2.2.1. Primary care giver of children with CP

Health care of a child with disabilities is largely determined by primary care giver. Though in a family father is playing role as an earner but all responsibility of caring children is on primary care giver. In Bangladeshi, Jordanian and Indian family mothers take role as primary care giver for caring their children (Al-Gamal, 2013 and Diwan, chovatiya and Diwan, 2011).

2.2.2. Causes of Depression

National Institute for Health Care Management (2010) mentioned the causes of depression.

Family History: Depression of a family member immediately increases the risk of developing depression of the other member of the family.

Age: Most of the people experience their first episode of depression between the age ranges of 20 to 40 years.

Gender: It is estimated that 1 out of every 4 women and 1 out of every 10 men experience some type of depression during their lifetime. While women suffer from depression more often and attempt suicide more frequently, men are more successful in their suicide attempts.

Stress: Negative life events, such as divorce, loss of closed person or loss of employment are associated with increased depression.

Residence: Depression seems to be higher in urban residents than in rural residents.

Marital Status: Depression is highest among divorced, separated persons. It is lowest among single and married persons.

Work Status: Research shows that people unemployed for six months or more in the last five years had a rate of depression three times that of the general population.

Physical Illness: certain physical illnesses are associated with depression such as thyroid disorder, hormonal imbalances and heart diseases.

Psychosocial Factors: Several psychosocial factors such as having four or more children living in a single house, Isolation from social contacts, Poor relationship with partner, Feelings of loneliness are related to the depression of mother (Lambrenos *et al.* 1996)

Child Disability: Having a disable child is a cause of maternal depression. Characteristics of the children's disabilities, the level of the children's emotional and behavioral problems and the level of social support available to mothers are associated with an increased risk of mental health problems among mothers of children with disabilities (sawyer *et al.* 2011).

2.2.3. Depressive Symptoms

The severity, frequency and duration of symptoms vary depending on the individual particular illness. National Institute for Health Care Management (2010) mentioned some depressive symptoms such as

- Persistent sad and anxious feelings
- Feelings of hopelessness
- Feelings of guilt
- Irritability
- Loss of interest in activities including sex
- Fatigue
- Difficulty concentrating, remembering and making decisions
- Insomnia or excessive sleeping
- Overeating or appetite loss
- Thoughts of suicide
- Crying
- Poor bonding with the baby, lack of interest in the baby
- Mood lability

American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) specified some depressive symptoms for diagnosis of depression such as depressed mood, loss of pleasure, apathy, low energy, sleep and appetite problems and negative views of oneself and about his future. In case of some individuals low self-esteem, low self-confidence, guilt, and pessimism are present (Khayat-zadeh *et al.* 2003).

2.3. Severity of Disability and Maternal Depression

Severity of disability is one of the main factors affecting functional status. CP children's independence level and limitations in activities in daily living depend on impairment type and severity level (Tarsuslu and Livanclioglu, 2010). Zanon and Batista (2012) stated that the higher child's impairment is related to the higher caregiver's physical and psychological impairment and the lower child's impairment is related with the higher caregiver's self-perception. In another side, the lower care giving demand by the children with cerebral palsy ensures the better caregiver's physical and psychological well-being. Manuel *et al* (2009) assessed the significance of the severity of the disability and the child's functional status as predictors of depressive symptoms in the mother. Sajedi *et al.* (2009) conducted a study on 43 mothers of children with different types of CP to find out their depression level related to types of CP. In this study there were no significant differences between disabilities severity, the type of CP and maternal depression. Depression of mothers was not correlated with the severity of CP (Delialioglu *et al.* 2009). Hung *et al.* (2010) also showed that the severity of the disability and the functional status of the child did not affect the occurrence of depression. However, social support had a very significant impact, because it moderated the relationship between the child's functional status and the occurrence of depressive symptoms in the mother.

2.4. Complications with CP and Maternal Depression

CP is described as a non-progressive disorder which primarily causes motor disability (Quinn and Gordon, 2011). The motor disorders of cerebral palsy are often accompanied by disturbances of sensation, cognition, communication and behavior by epilepsy and by secondary musculoskeletal problems, (Chen *et al.* 2009) cognitive disorders, auditory impairment, visual impairment, speech and language impairment, conduct disorder (Quinn and Gordon, 2011 and Tarsuslu and Livanclioglu, 2010,

Dobhal *et al.* 2014) mutism, mental retardation, deafness, and blindness (Nagarkar *et al.* 2014).

Children who acquired CP due to prenatal causes have 1.2 times greater chance of developing epilepsy. Children with spastic quadriplegia (50% to 94%) or hemiplegia (30%) have a higher incidence of epilepsy than children with ataxic CP (16 to 27%). In an Indian study, it was found that 35% of children with CP had epilepsy as an associated feature. 66% of children with spastic hemiplegia, 43% of spastic quadriplegia and 16% of children with spastic diplegia had seizures as an associated feature (Sanker and Mundkur, 2005).

Mothers of children with CP show higher levels of emotional expression towards their children. Children with CP with epilepsy had the significant impact on the mothers' depression symptom (Bumin, Gunal and Tukul, 2008). 40-50% of children with CP have mental retardation along with behavioral problems that cause difficulties to train in activities of daily living (Sousa and singvi, 2011). About 40% of children with hemiplegic CP have normal cognitive abilities while, children with tetraplegic CP have greater risk to be intellectually impaired (Sanker and Mundkur, 2005). Mothers of children with CP associated with mental retardation showed higher depression scores than mothers of children who had normal intelligence scores (Sousa and Singvi, 2011).

Speech problem are present in 38% children with CP (Sanker and Mundkur, 2005). People with hemiplegic or diplegic often have normal intelligence but may have difficulty with speech. People with spastic quadriplegia have the most difficulty with speech, have a higher risk of mental retardation and may also experience seizure (Morris, 2010). Language development influences attachment bond between the children and the mother. Children with cerebral palsy have speech and language disorders that could impact negatively on attachment behavior with mother (Quinn and Gordon, 2011). Mothers' depression status was significantly affected by the presence of speech problems in the children with CP (Delialioglu *et al.* 2009). Visual impairments are common (28%) in children with CP. Hearing impairment occurs in approximately 12% of children with CP. This occurs more commonly if the etiology of CP is related to very low birth weight, neonatal meningitis (Sanker and Mundkur, 2005).

Maternal depression has been linked to poor speech development, degree of paralysis and motor difficulties, feeding problems, poor toilet training, presence of epilepsy in the child and poor self-care skills (Sousa and Singvi, 2011). Children with chronic medical conditions cause depression, emotional and behavioral problems in their mothers (Sajedi *et al.* 2009).

2.5. The effect of maternal depression on child Development

Maternal depression can lead to serious health risks for both the mother and children. Children of a mother who suffers from depression are at increased risk for delayed or impaired cognitive and emotional development. They are also more likely to experience long-term mental health problems (National Institute for Health Care Management, 2010). Gagliardi and Honigfeld, (2008) stated that mothers who suffered from depression are less likely to engage in maternal behaviors that enhance the development and well-being of their children.

Maternal depression threatens a mother's emotional and physical ability to care her child and they also face difficulty to foster a healthy relationship with her child (National Institute for Health Care Management, 2010). Depressed mother are less involved with their children, inconsistent, sometimes nurturing and sometimes withdrawn, make critical comments, have difficulty in encouraging the child's speech and language facility, face difficulty in providing appropriate stimulation (Koplewicz *et al.* 2003). Depressed mother often communicate less, demonstrate less eye contact and also show less responsiveness to their children (Tystahl, 2011), express fewer positive facial emotions and show less positive physical affection with their children (Minkovitz, 2005), less sensitive to their child's development, less likely to engage their children in age appropriate activities and less adhere to recommended care and follow-up services (Adiga, 2014).

Maternal depression also has a negative impact on children's psychosocial functioning. Garliardi and Honigfeld (2008) found that Children are most vulnerable to poor developmental outcomes when maternal depression is chronic. Maternal depression is a risk factor for child malnutrition (Anoop *et al.* 2004). Children whose mothers are chronically depressed have the lowest levels of social competence and the highest levels of externalizing behaviors such as disruption, hyperactivity and aggression. There are some studies suggesting that psychological health of the

caregivers is associated with the level of disability with their children (Hung *et al.* 2010).

2.6. The effect of Child's Disability on mother

The relationship between the mother and her child facilitates the development of an emotional bond between two. Child with CP may not be able to express their needs due to motor, sensory and cognitive deficits. This affects the mother's attachment response to the child (Quinn and Gordon, 2011). The lack of a secure attachment between the mother and her child places mother at risk for developing maternal depression (National Institute for Health Care Management, 2010).

A child with CP suffers from several problems that limit them in self-care functions such as feeding, dressing, bathing, and mobility. These limitations can result in requirements for long-term care. For these excess responsibilities, mothers experience a higher level of mental health problem which has an adverse effect on their physical health and social well-being (Nimbalkar *et al.* 2014 and Witt, Gottlico and Litzelman, 2009). As disabled child keep their mother continuously busy so, they cannot participate in social gatherings such as marriages and other ceremonies (Nagarkar *et al.* 2014). Participation in social function, mental health, and emotional vitality are seen lower in CP children's mothers (Yalmax, Ekrin and Izki, 2013). They also experience loss of job, lack of concentration at work, loss of family joy due to having children with CP (Olawale, Deih and Yaadar, 2013). However, providing a high level of care that is required by a child with long-term functional limitations may affect the psychological health of the mothers such as depression may limit the role of mother in the management of the child's illness (Hung *et al.* 2010). Mothers of children with CP are at risk of developing depression. It was also shown that having a child with CP increases the risk of developing depression as much as 2.26 times (Sajedi *et al.* 2009). In a study conducted by Diwan, Chovatiya and Diwan, (2011) stated that 70% of mothers with CP children were reported to have mild to moderate depression, and the depression negatively effect on quality of life of mothers (Yalmax, Ekrin and Izki, 2013).

CHAPTER 3 METHODOLOGY

This chapter is designed to discuss about the method of action of this study.

3.1. Study design

This was a cross-sectional study which had been conducted over a short period of time. According to Levin (2006) cross sectional study provide a Snapshot of the existing situation and characteristics associated with the subject at a specific point in time. Investigator wanted to identify the level of depression of mother of children with CP and investigator also wanted to identify the common depressive symptoms that are commonly experienced by the mothers who have children with CP at a short period of time. This type of study helped the investigator to describe an overall picture of mental status of mother who has children with CP at a specific point in time. For this reason, the cross-sectional study was more appropriate design to find out the aim and objective of this study.

Grimes and Schulz (2002) mentioned in his study that it is relatively inexpensive and takes little time to conduct and efficient to use, those were another reason of using this design in this study.

3.2. Study settings

The study was conducted in indoor and outdoor paediatric unit of Centre for the Rehabilitation of the Paralysed (CRP) at Savar and Mirpur. The head office of the (CRP) is in Savar. The main aim of this Non Government Organization (NGO) is to improve the quality of life of person with disability as much as possible. There has paediatric unit, neuromusculoskeletal unit, stroke rehabilitation unit and hand therapy unit. In addition, CRP at Saver is specializes in the treatment for the person with spinal cord injury. The inpatient paediatric unit of CRP at Savar and Mirpur is residential programs which provide two weeks of intensive service for only children with cerebral palsy and their primary caregivers. The two weeks residential program starts on Saturday. Most of the children in inpatient and outpatient are children with CP. As mothers of children with CP stay in the inpatient paediatric unit for two weeks so, it was easy for the researcher to get participants and collect data at the same time from the same place.

3.3. Study Population

Population is a group of people who have a common characteristic which is of interest to the researcher (Hicks, 2000). Population for this study was the mothers who have the children with CP and who came in indoor and outdoor of paediatric unit of CRP at Saver and Mirpur to take therapy services on November and December.

3.4. Participants Selection Procedure

The study participants were selected in convenient way from population based on some selected inclusion and exclusion criteria. Convenience sampling method relies on data collection from population who conveniently available to participate in study. This type of sampling method takes short duration of time to select participants and it is very cost effective (Farrokhi and Mahmoudi-Hamidabad, 2012). As the researcher is an undergraduate student and has time limitation to complete data collection so, this method was appropriate for the researcher to collect more data conveniently within limited time.

3.4.1. Sample Size

Researcher selected 110 participants for this study. Because researcher got only two months for data collection, it was very short period of time to conduct researcher with standard amount of participants. Larger sample is more likely to be representative of

the population than a smaller one. The appropriate size for the sample is not easy to determine, since it depends very much on the subject being studied, as well as on the researcher's knowledge (Hicks, 2000). As the researcher is an undergraduate student and has time limitations to complete data collection, so it was very difficult for the researcher to use a standard amount of participants. Basically, for this reason, the researcher conducted the study with 110 participants.

3.4.2. Inclusion Criteria

- Mother who is a primary caregiver of the children with CP.

3.4.3. Exclusion Criteria

- Mothers having past or current psychiatric illness and neurological disorder like stroke, chronic illness like diabetes, cardiovascular disease, pulmonary disorder and renal disorder.
- Other caregivers such as father, grandmother, aunt and sister were excluded from this study.
- Mothers who have two children with CP.

3.5. Data collection Instruments

Researcher used consent form, socio-demographic questionnaire, standardized scale, pencil and pen for collecting data from the participants.

- **Consent Form**

Before data collection, the researcher took consent from all participants giving written consent form (See Appendix-4) and assured that all the participants' information would be kept confidential and their name and address would not be published in the study.

- **Socio-demographic Questionnaire**

Researcher used self-developed Socio-demographic questionnaire (including age, occupation, educational status, marital status, care giving duration, religion, number of children, financial status) to identify the demographic characteristics of the mother of children with CP (See Appendix-5).

- **Standardized Scale Named Depression Scale-DS**

Researcher used Depression Scale-DS to identify the level of depression and common depressive symptoms of mother who have children with CP (See Appendix - 6). This

scale is developed by Md. Zahir Uddin and Mohammad Mahmudur Rahman the clinical Psychologist of National Institute of Mental Health (NIMH) in the cultural context of Bangladesh (Uddin and Rahman, 2005).

3.6. Data collection process

At first, researcher took permission from the in-charge of pediatrics unit of CRP at Savar and Mirpur for collecting data (See Appendix- 2).

Before collecting data, time and place were confirmed with participants and the study aim and purpose were explained to all participants. All the participants were given consent form for taking permission from them to participate in this study and they were given opportunity to ask any types of study related questions. The participants who could not read the consent form, researcher read the consent form in front of the participants. After getting written consent, researcher started to collect data. At first, the researcher collected general information using self-developed socio-demographic questionnaire then conducted face to face interview by using structured questionnaire named Depression Scale to assess the caregiver depression. By using this method researcher became able to interact directly and to understand the participant's non-verbal language easily. According to participants understanding level, sometimes the question were described in native language so that the participants understood perfectly and answered correctly. After successfully collecting data, researcher leaves the participants by giving thanks to all participants to be a part of study willingly.

3.7. Field test

Prior the final study investigator conducted a field test with 4 participants. Investigator collected data from these participants used all mentioned data collection instruments and following whole data collection procedure. This field test was done for checking participants understood the questions or not and how participants responded to questionnaire. It helped the investigator to prove the validity of the questionnaire in this study.

3.8. Data analysis

Study result was analyzed by using Statistical Package for Social Science (SPSS), Version-17. Socio-demographic characteristic, level of depression and common symptoms of mother of children with CP were found out by descriptive analysis.

Researcher found out the association between socio demographic characteristics and level of depression through Chi-Square test.

3.9. Ethical consideration

- At first researcher approved the selected study proposal by the supervisor and head of the department of occupational therapy of Bangladesh Health Professions Institute (BHPI) which is the academic institute of CRP (See Appendix- 1).
- After getting the permission for doing this study from the academic institute of CRP then researcher started to do it.
- Researcher obtained permission for using structured questionnaire (See Appendix- 3).
- Researcher obtained permission for conducting data collection from the in-charge of pediatrics' unit of CRP at Savar and Mirpur.
- A written bangle consent form will use to take permission from each of the participants of the study.
- All participants had the rights to leave the study at any time.
- All participants had given equal rights to ask any types of study related questions.
- Researcher was accountable to the participants to answer any types of study related questions.
- Aim and objectives of the study were informed to all participants.
- Researcher did not create any mental pressure to participants to engage in this study and researcher gave the priority of participant's willingness.
- Researcher also informed the participants that they did not get direct benefit from this study.

CHAPTER 4

RESULT

Result at a glance

Objectives of the study

1. To identify the common socio-demographic picture of mothers of children with CP.
2. To find out the most common depressive symptoms among mothers of children with CP.

Findings of the study

Following demographic characteristics of the participants, 43.6% were 21-25 years, 39.1% had education up to secondary school, 93.6% were married, 92.7% were Muslim, 41.8 % came from urban areas, 40.0 % took care their children for 6-10 hours, 50.9% had only one child and 63.6% came from middle socio-economic status.

In this study, 49.1% of all participants reported crying, 42.7% low mood. 38.2% lack of peace, 37.3% painful life, 37.3% weakness, 34.5% lack of pleasure, 30.9% inferiority, 28.2% irritability, 27.3% lack of concentration and 27.3% sleep

- problem.
3. To find out the severity of depression among mothers of children with CP. In case of severity of depression, 61.80% participants had minimal, 15.50% had mild, 9.10% had moderate and 13.60% had severe level of depression.
4. To identify the association between socio- demographic characteristics and level of depression of mothers with CP. There were significant association between educational status ($p>0.013$), marital status ($p> 0.002$) and socioeconomic status ($p>0.032$) with level of depression of the participants.

4.1. Socio-demographic Characteristics of the participants

Table-1 Shows the socio-demographic picture including age, educational status, marital status, occupation, living area, religion, care giving duration, number of children and financial status of all participants. The study was conducted on 110 participants where all of them were mother of children with CP. Among them most of the participants 43.6% (n=48) were in between the age of 21-25years and 24.5% (n=27) were 26-30 years, 13.6% (n=15) were 15-20 years, 10.9% (n=12) were 30-35 years and 7.3% (n=8) were above 35year. The mean age of the participants was 26.07years and standard deviation was 5.9 (26.07± 5.9). Findings on education level shows that most of the participants 39.1% (n=43) had education up to the level of secondary school, 26.4% (n=29) had education up to intermediate level and 16.4 % (n=18) had education up to primary level and 14.5% (n=16) had education up to university level. The illiterate participants recorded low percentage 2.7% (n=4). In this study, majority of the participants 93.6% (n=103) were married, 3.6% (n=4) were divorced and 2.7% (n=3) were widowed. In this study, it was found that most of the participants 87.3% (n=96) were housewife, 8.2% (n=9) were employee and 4.5% (n=5) were student. In this study, majority of participants 92.7% (n=102) were Muslim and 7.3 % (n=8) were Hindu. Almost half of the participants 41.8 % (n=46) came from urban areas, 33.6 % (n=37) from rural and 24.5% (n=27) from semi-rural areas. In this study, it was found that 40.0 % (n=44) participants took care their

children for 6-10 hours, 30.9% (n=34) for 11-15 hours and 29.1% (n=32) for 2-5 hours per 24 hours. Among all participants 50.9% (n=56) participants had only one child, 38.2% (n=42) had 2 children, 7.3% (n=8) had 3 children and 3.6% (n=4) had 4 children. In this study, 32.7% (n=36) participants came from low socio-economic status, more than half of participants 63.6% (n=70) came from middle socio-economic status and 3.6% (n=4) came from high socio-economic status.

Table 1: Common Socio-demographic profiles of all participants

Variables	Frequency	Percentage (%)
Age (in year)		
15-20	15	13.6
21-25	48	43.6
26-30	27	24.5
31-35	12	10.9
>35	8	7.3
Mean Age \pm SD		
(26.07 \pm 5.9)		
Educational Status		
Up to Primary school	18	16.4
Up to Secondary school	43	39.1
HSC	29	26.4
University level	16	14.5
Illiterate	4	3.6
Marital status		
Married	103	93.6
Divorced	4	3.6
Widow	3	2.7
Occupation		
Housewife	96	87.3
Employee	9	8.2
Student	5	4.5
Living Area		
Rural	37	33.6
Semi-rural	27	24.5
Urban	46	41.8
Religion		
Islam	102	92.7
	22	

Hindu	8	7.3
Others		
Care giving duration (Hours)		
2-5	32	29.1
6-10	44	40.0
11-15	34	30.9
Number of children		
1	56	50.9
2	42	38.2
3	8	7.3
4	4	3.6
Socioeconomic Status (SES)		
Low SES	36	32.7
Middle SES	70	63.6
High SES	4	3.6

Total participants, N=110

4.2. Common picture of Depressive Symptoms among all participants according to Depression Scale-DS.

Table (2) shows: Common picture of Depressive Symptoms among participants.

Sl. No	Depressive Symptoms	Not at All Applicable %	Not Applicable %	Moderately Applicable %	Somewhat Applicable %	Fully Applicable %
1	I feel lack of peace in my mind.	12.7	1.8	15.5	31.8	38.2
2	Now a day I experience low mood.	9.1	3.6	19.1	25.5	42.7
3	My future is dark.	56.4	6.4	6.4	10.0	20.9
4	My condition will be worse in future.	58.2	7.3	4.5	10.9	19.1
5	I am finished.	58.2	5.5	8.2	11.8	16.4
6	Currently I think that my life is very painful.	17.3	4.5	11.8	29.1	37.3

7	Currently I feel that I am a complete failure	46.4	4.5	7.3	15.5	26.4
8	I find no pleasure any where	13.6	8.2	17.3	26.4	34.5
9	I feel myself very inferior	41.8	3.6	8.2	15.5	30.9
10	My self-esteem has reduced in every respect	38.2	8.2	7.3	21.8	24.5
11	I think that I am an object of pity to the people	20.0	4.5	13.6	41.8	20.0
12	Life is meaningless	42.7	4.5	6.4	17.3	29.1
13	I often feel like crying	4.5	1.8	20.9	23.6	49.1
14	Often I feel irritated	19.1	6.4	32.7	26.4	15.5
15	I feel no interest in anything	22.7	13.6	16.4	23.6	23.6
16	Now a days I cannot think and cannot take decisions	28.2	9.1	13.6	31.8	17.3
17	Now a days I cannot concentrate in many things	19.1	3.6	16.4	33.6	27.3
18	I cannot remember as before	36.4	2.7	5.5	38.2	17.3
19	I feel weak and exhausted easily	13.6	1.8	15.5	31.8	37.3
20	Currently I sleep less	28.3	9	14.5	29.1	27.3
21	Currently I sleep more	7	-	1.8	3.6	1.8
22	My temper has turned irritate	26.4	3.6	20.0	21.8	28.2
23	My appetite has reduced	41.8	2.7	15.5	26.4	13.6
24	My appetite has increased	93.6	-	1.8	4.5	-
25	My weight has reduced (Not due to intentional	60.9	1.8	12.7	15.5	9.1

	attempt to control weight)					
26	I think speed of my work has reduced	26.4	2.7	13.6	39.1	18.2
27	I cannot laugh even when there is a funny event	29.1	9.1	11.8	24.5	25.5
28	My desire in sex has reduced.	38.2	2.7	20.9	24.5	13.6
29	I cannot participate in social activities as I used to.	33.6	6.4	12.7	22.7	24.5
30	I cannot do academic or professional activities as I used to.	16.4	8.2	23.6	37.3	14.5

Table-2 shows that all participants responses to 30 depressive symptoms according to Depression Scale-DS.

4.3. The Most 10 Common Depressive Symptoms among participants

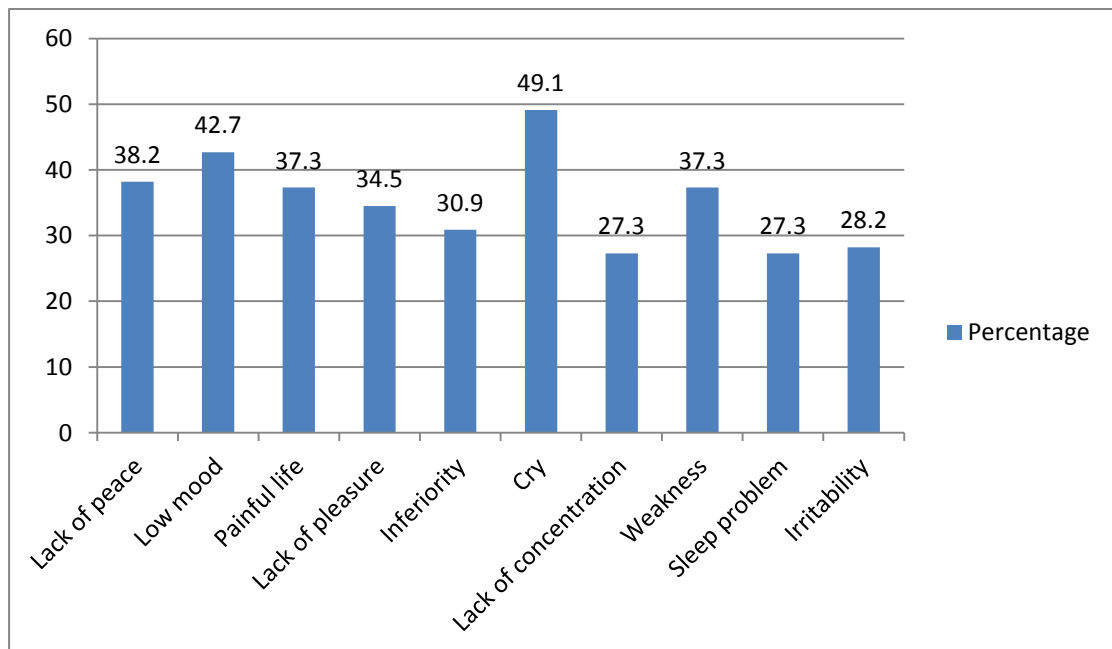


Figure 1: The Most 10 Common Depressive Symptoms among participants.

This bar chart-1 represents that 10 depressive symptoms of 30 depressive symptoms (According to Depression Scale- DS) those were most common and fully applicable for most of the participants.

In the present study result found that 49.1% (n=54) of all participants reported that they often felt like crying. In this study, crying was the very most common and fully applicable depressive symptoms among mothers of children with cerebral palsy according to their opinions. The second most common depressive symptoms was low mood and 42.7% (n=47) of all participants reported low mood. 38.2% (n=42) participants reported that they felt lack of peace in their mind and this was the third most common depressive symptoms among participants. Among 110 participants 37.3% (n=41) participants reported painful life, 37.3% (n=41) participants reported weakness, 34.5% (n=38) Participants reported lack of pleasure, 30.9% (n=34) participants reported inferiority, 28.2% (n=31) participants reported irritability, 27.3% (n=30) participants reported lack of concentration and also 27.3% (n=30) participants reported sleep problem.

4.4. Level of Depression among participants

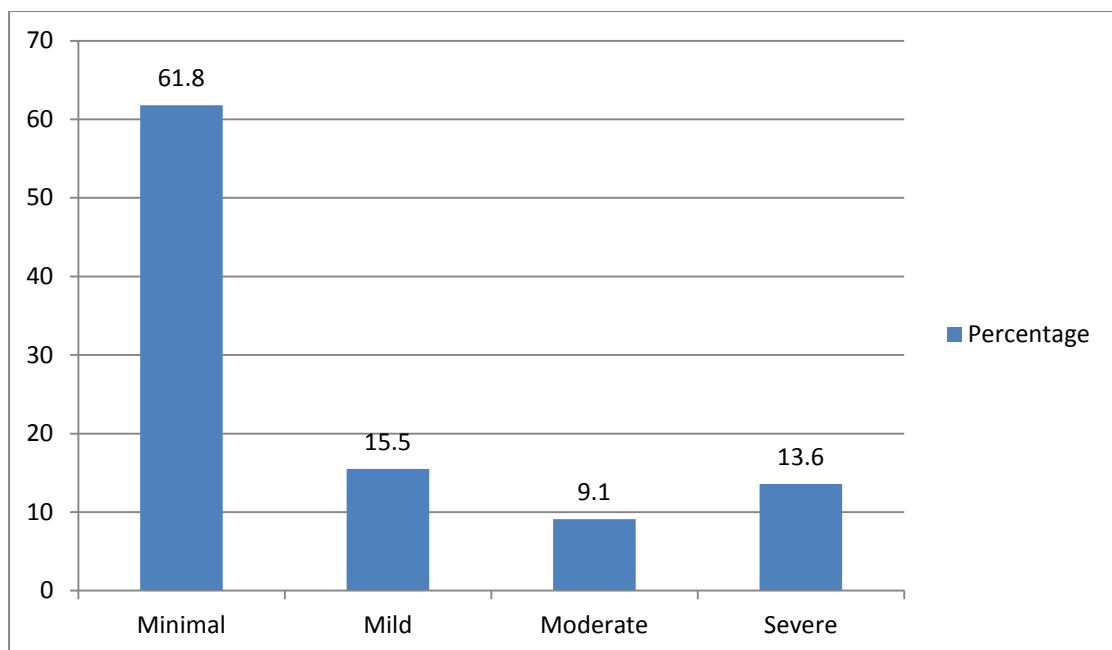


Figure 2: The level of depression among participants

This bar chart-2 represents that in this study, 61.80% (n=68) of all participants had minimal level of depression, 15.50% (n=17) participants had mild level of depression, 9.10% (n=10) participants had moderate level of depression level of depression and 13.60% (n=15) participants had severe level of depression.

4.5. Association between socio-demographic characteristics and level of depression of the participants.

Table-3: Association between educational status and level of depression.

Educational Status	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
Up to primary School	27.8	38.9	16.7	16.7	0.016	24.71
Up to Secondary School	74.4	9.3	7.0	9.3		
Up to Higher Secondary School	62.1	6.9	10.0	20.7		
University Level	75.0	18.8	6.3	–		
Illiterate	25.0	25.0	–	50.0		

Total participants (N=110)

Table-3 represents that among (n=18) participants who had educated up to primary school, 27.8% (n=5) had minimal, 38.9% (n=7) had mild, 16.7% (n=3) had moderate and also 16.7% (n=3) had severe level of depression. In this study most of the participants' (n=43) were educated up to secondary school, among them 74.4% (n=32) experienced minimal, 9.3% (n=4) experienced mild, 7.0% (n=3) experienced

moderate and 9.3% (n=4) experienced severe level of depression. Among all participants, (n=29) participants were educated up to higher secondary school, where 62.1% (n=18) had minimal, 6.9% (n=2) had mild, 10.0% (n=3) had moderate and 20.7% (n=6) had severe level of depression. Study result showed that 16 participants had education up to university level where 75% (n=12) reported minimal, 18.8% (n=3) reported mild and no one reported severe level of depression.

In this present study, it was found that depression levels were minimal among participants who had education up to university level but depression level was very high among illiterate participants. There were only (n=3) of all participants were illiterate but among them, 66.7% (n=2) experienced severe level of depression. Here p-value was .013 which is lower than .05 ($p < .05$) and χ^2 -value is 24.713 that indicates that there is significant association between educational status and level of depression of the participants.

Table-4: Association between marital status and level of depression of the participants.

Marital Status	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
Married	66.0	14.6	8.7	10.7	0.002	21.270
Divorced	–	50.0	–	50.0		
Widowed	–	–	33.3	66.7		

In this study, among (n=103) married participants, 66.0% (n=64) had minimal, 14.6% (n=15) had mild, 8.7% (n=9) had moderate and 10.7% (n=11) had severe level of depression. Among all participants, 4 participants were divorced where 50.0% (n=2) reported mild and also 50.0% (n=2) reported severe level of depression. In this study, there were only 3 widowed participants where 33.3% (n=1) experienced moderate and 66.7% (n=2) experienced severe level of depression. In this present study, it was found that divorced and widow participants were very depressed than married participants. Here P-Value is .002 and χ^2 -value is 21.270. At the present study an association ($p < .05$) was found between marital status and level of depression of the participants.

Table-5: Association between Socio-economic Status (SES) and level of depression of the participants.

Socio-economic Status (SES)	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
Low SES	38.9	27.8	13.9	19.4	0.032	13.808
Middle SES	71.4	10.0	7.1	11.4		
High SES	100.0	–	–	–		

Table-5 represents (n=36) participants came from low SES among them 38.9% (n=14) had minimal, 27.8% (n=10) had mild, 13.9% (n=5) had moderate and 19.4% (n=7) had severe level of depression. More than half of the participants (n=70) came from middle SES where most of the participants 71.4% (n=50) experienced minimal, 10.0% (n=7) experienced mild, 7.1% (n=5) experienced moderate and 11.4% (n=8) experienced severe level of depression. In this Study only (n=4) participants came from high SES and all of them 100% (n=4) reported minimal level of depression. It was showed that the participants who came from low SES were more depressed than other participants who came from middle and high SES. Here p-value is .032 which is lower than .05 ($p < .05$) and χ^2 -value is 13.808 that indicates that there was strong association between SES and level of depression of the participants.

Table-6: Association between age and level of depression of the participants.

Age in Year	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
15-20	66.7	6.7	20.0	6.7	0.128	17.615
21-25	75.0	8.3	4.2	12.5		
26-30	51.9	22.2	11.1	14.8		
31-35	50.0	33.3	8.3	8.3		
>35	25.0	25.0	12.5	37.5		

In this study, it was found that, (n=15) participants were in age group of 15-20year among them most of the participants 66.7% (n=10) experienced minimal, 6.7% (n=1) experienced mild, 20.0% (n=3) experienced moderate and 6.7% (n=1) experienced severe level of depression. Out of 110 participants, almost half of the participants (n=48) were in age group of 21-25years, where 75.0% (n=36) had minimal, 8.3% (n=4) had mild, 4.2% (n=2) had moderate and 12.5% (n=6) had severe level of depression. Among 27 participants whose were age group of 26-30years, 51.9% (n=14) had minimal, 22.2% (n=6) had mild, 11.1% (n=3) had moderate and 14.8% (n=4) had severe level of depression. 10.9% (n=12) participants were age group of 31-35years, where 50.0% (n=6) had minimal, 33.3% (n=4) had mild, 8.3% (n=1) had moderate and also 8.3% (n=1) had severe level of depression. In this study, only (n=8) participants were above 35years among this participants 37.5% (n=3) reported severe depression, 25.0% (n=2) reported minimal depression and only 25.0% (n=2) reported mill depression. Finally, It was showed that the participants who were above 35 years their level of depression was very high than other age groups. In this study, it was found that there was no significant association between the age and the level of depression of the participants.

Table-7: Association between occupation and level of depression of the participants.

Occupation	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
Housewife	59.4	15.6	9.4	15.6	0.731	3.600
Employee	77.8	11.1	11.1	—		

Student	80.0	20.0	-	-		
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In this study, (n=96) participants were housewife among them 59.4% (n=57) had minimal, 15.6% (n=15) had mild, 9.4% (n=9) had moderate and 15.6% (n=15) had severe level of depression. Among (n=9) employed participants' 77.8% (n=7) had minimal, 11.1% (n=1) had mild and also 11.1% (n=1) had moderate and no one reported severe level of depression. In this study, (n=5) participants were student among them 80.0% (n=4) reported minimal, 20.0% (n=1) reported mild, and 4.5% (n=5) reported severe level of depression. In this study, no significance was found regarding occupation and level of depression of participants.

Table-8: Association between living areas and level of depression of the participants.

Living Area	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
Rural	51.4	21.6	10.8	16.2	0.510	5.270
Semi-rural	63.0	14.8	3.7	18.5		
Urban	69.6	10.9	10.9	8.7		

Table-8 represents that (n=37) participants came from rural area among them 51.4% (n=19) participants had minimal, 21.6% (n=8) had mild, 10.8% (n=4) had moderate and 16.2% (n=5) had severe level of depression. In this study, (n=27) participants came from Semi-rural area among them most of the participants 63.0% (n=17) reported minimal, 14.8% (n=4) reported mild depression, 3.7% (n=1) reported moderate depression and 24.5% (n=7) reported severe level of depression. In this study most of the participants (n=46) came from urban area where 69.6% (n=32) had minimal depression, 10.9% (n=5) had mild depression, 10.9% (n=5) had moderate depression and 8.7% (n=4) had severe depression. In this study, there was no association between living area and level of depression of mother of children with CP.

Table- 9: Association between religion and level of depression of the participants.

Religion	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal	Mild	Moderate	Severe		

	%	%	%	%		
Islam	61.8	16.7	9.8	11.8	0.126	5.721
Hindu	62.5	–	–	–		

Table-9 shows that among (n=102) Muslim participants, 61.8% (n=63) experienced minimal depression, 16.7% (n=17) experienced mild depression, 9.8% (n=10) experienced moderate depression and 11.8% (n=12) experienced severe depression. In this study, among (n=8) Hindu participants 62.5% (n=5) had minimal level of depression and 37.5% (n=3) had severe level of depression. In this study, there was no significant association between religion and level of depression of participants.

Table-10: Association between care giving duration and level of depression of the participants.

Care giving duration in hours	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
2-5	65.6	15.6	6.3	12.5	0.453	2.637
6-10	59.1	18.2	6.8	15.9		
11-15	61.8	11.8	19.7	11.8		

Finding on care giving duration shows that among (n=32) participants who spent 2-5 hours for caring their children, 65.6% (n=21) reported minimal, 15.6% (n=5) reported mild, 6.3% (n=2) reported moderate and 12.5% (n=4) reported severe level of depression. In this study, there were (n= 44) participants who spent 6-10 hours for caring their children among them 59.1% (n=26) had minimal, 18.2% (n=8) had mild, 6.8% (n=3) had moderate and 15.9% (n=7) participants had severe depression. (n=34) participants took care their children for 11-15 hours where 61.8% (n=21) experienced minimal, 11.8% (n=4) experienced mild, 19.7% (n=5) experienced moderate and 11.8% (n=4) experienced severe depression. In this study, it was mentioned that the participants who spent 11-15 hours per 24 hour were more vulnerable to be depressed than others. In this study there was no significant association between care giving duration and level of depression of mothers of children with CP.

Table-11: Association between number of children and level of depression of the participants.

Number of children	Level of Depression				P-Value	Chi-square (χ^2) Value
	Minimal %	Mild %	Moderate %	Severe %		
1	71.4	12.5	8.9	7.1	0.122	14.013
2	59.5	11.9	9.5	19.0		
3	25.0	37.5	12.5	25.0		
4	25.0	50.0	–	25.0		

Table (11) Shows that among (n= 56) participants who had one child 71.5% (n=40) reported minimal, 12.5% (n=7) reported mild, 8.9% (n=5) reported moderate, 7.1% (n=4) reported severe level of depression. In this study, (n=42) of all participants had 2 child where 59.55% (n=25) had minimal level of depression, 11.9% (n=5), 9.5% (n=4) and 19.0% (n=8) participants had mild, moderate and severe level of depression respectively. Among (n=8) participants who had 3 child, 25.0% (n=2) reported minimal, 37.5% (n=3) reported mild, 12.5% (n=1) reported moderate and 25.0% (n=2) reported severe level of depression. Among 3.6% (n=4) participants who had 4 child, 25.0% (n=1), 50.0% (n=2) and 25.0% (n=1) participants had minimal, mild and severe level of depression. In this study, there was no association between number of child and level of depression of the mothers of children with CP.

CHAPTER 5 DISCUSSION

In this study, all participants were the mother of children with CP. The first responsible person to take care of a child is the mother (Sawer *et al.* 2011). Many researchers have suggested that mothers bear a greater care giving burden than father. Mothers spend more time in caring for their children and other family members and they also tend to experience greater depression, poorer well-being, and worse physical health outcomes than fathers in care giving roles (Zanon and Batista, 2012). Shidhaye (2011) stated that depression is particularly common in women and the burden of depression is 50% higher among females than males.

In this present study, most of the participants 43.6% (n=48) were in the age group of 21-25years. The average age of the participants was 26.07years and standard deviation was 5.9. Bumin, Gunel and Tukul (2008) conducted a study on 107 mothers of children with CP where most of the participants 42.1% (n=45) were in age group of 31- 39years. The average age of the mothers was 34.8 years and standard deviation was 7.8 (34.8±7.8). Similarly, Glenn *et al.* (2008) conducted a study on 80 participants where participant's average age was 30.9years with a 2.0 standard deviation (30.9±2.0).

In this study, it was showed that among 110 participants, most of the participants' 39.1% (n=43) had education up to secondary school. Similarly a study done by Bumin, Gunel and Tukul (2008) where it was found that among 107 participants, most of the participants' 50.5% (n=54) had education up to secondary school. In another study found that among 80 participants majority of participants 73.8% (n=59) educated up to primary school and 18.8% (n=15) were illiterate (Kaya *et al.* 2010).

In this study, it was found that majority of the participants 93.6% (n=103) were married, 3.6% (n=4) were divorced and 2.7% (n=3) were widow. Similarly, in a Bumin, Gunel and Tukul (2008) study found that 94.4% (n=101) participants were married 4.7% (n=5) were divorced and .9% (n=1) were widow. In a study done by Marron *et al.* (2013) found that among 61 participants 90.3% (n=56) were married 6.5% (n=4) were divorced and 1.6% (n=1) were widowed.

This study also found that half of all participants 50.9% (n=56) had only 1 children and 38.2% (n=42) had 2 children. But in another study it was found that most of the participants 49.5% (n=53) had 2 children (Bumin, Gunel and Tukul 2008) and also in another study found that 46% (n=42) participants had 2 children (Hung *et al.* 2010). In the result of this study it was found that most of the participants 63.3% (n=70) were from middle socio economic background and 32.7% (n=36) were from lower socio economic background. In a study result of Bumin, Gunel and Tukul (2008) found that majority of participants 81.3% (n=87) were from middle-high socio economic background. In a study of Kumari and Joseph (2014) found that almost half of the participants 48.6% were from lower socio economic background. In another study result found that 79% of caregivers came from low socioeconomic families (Mu'ala, Rabati and Shwani, 2008). In present study, majority of participants were housewife. Similarly, in another study result done by Kaya *et al.* (2010) found that majority of participants 97.5% (n=79) were housewife. In this study, most of the participants 41.8% (n=46) come from urban area but Allah (2012) in his study found that among 50 participants 72.0% (n=36) participants came from urban area.

Psychological status and mental health of mothers of children with CP negatively affected by higher depressive symptoms (Kayat *et al.* 2010 and Lambrenos *et al.* 1996). The results of the presented study reflected that cry, low mood, lack of peace, painful life, weakness, weakness, lack of pleasure, inferiority, irritability, lack of concentration, sleep problem were the most common depressive symptoms among participants. This result agreed with Mu'ala, Rabati and Shwani (2008) whom found in their study that 84% of caregivers cry, 74% of caregivers had sleeping disturbance, 65% of caregivers lose appetite, 90% of caregivers feel guilty because of the heavy burden of the child's disability. They also reported in their study that caregivers have stroking emotional and behavioral changes such as forgetfulness, dependence, lack of motivation, often felt confined and fatigue from their excessive responsibilities. In a

study of Bourke-Taylor *et al.* (2013) found that 79% of mothers experienced sleep problem such as sleep onset latency, disrupted sleep, early awake, inadequate sleep and rest. Poor sleep quality and high burden were associated with higher levels of both depression and anxiety. According to Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) sleep impairment is part of the diagnostic criterion for depression disorder and sleep trouble is a risk factor for depressive symptoms (Marx, 2011). Similarly a study done by (Zaidah, Khairani and Normah, 2004) stated that although a disabled child has the same basic needs as a normal child, it is often quite difficult for parents to meet them. This is because daily care of disabled children often depletes parents' energy and time, causing withdrawal from social and cultural activities. Mothers felt guilty because of having disabled child, fatigue due to the many hours of caring for the child, lack of rest (Zawada, 2011). Mothers of a child with special care needs reported greater depressive symptoms and more restrictions in instrumental activities of daily living (Smith and Grzywacz, 2014).

In this study, Depression scale-DS was used to find out the level of depression of mothers of children with CP. Depression scale-DS has four categories where score 30-100 indicates minimal, 101-114 indicates mild, 115-123 indicates moderate and 123-150 indicates severe level of depression. By using this scale, it was found that among (N=110) participants, majority of participants 61.8% (n=68) had minimal level of depression. Because, in this study most of the participants were educated and they noticed that their child's condition became improve day by day after taking therapy. They also observed that there are many mothers like them in therapy pediatric unit so they could share their feelings with them. These strategies helped them to cope with child's disability condition. Similarly, a study done by Diwan, chovatiya and Diwan, (2011) in Ahmadabad on mothers of children with CP reported that 27% had minimal, 40% had mild, 30% had moderate and 13% had severed level of depression. Mehmedinovic, Sinanvanic and Ahmetovic, (2012) conducted a study in Bosnia among 23 mothers of children with CP where it was found that 95.7% of mothers had mild to moderate level of depression and 4.3% had strong depression. Another study was conducted on 100 caregivers in New Delhi. In this study it was found that out of 30 caregivers 33% (n=1) had mild, 13.40% (n=4) had moderate and 83.30% (n=24) had severe depression (Begum and Desai, 2010). A study done by Sajedi *et al.* (2009) on 43 mothers of children with CP in Iran, among them 55.8% (n=24) reported no

depression, 11.6% (n=5) reported mild, 11.6% (n=5) reported moderated, 14% (n=6) reported severe and 3.3% (n=4) reported very severe level of depression.

At the present study an association was found between depression and marital status of mothers of CP children. It was found in the result of this study that divorced and widowed mothers experienced more depression than married mothers. This was proposed by Sobsey (2014) that mothers of children with disabilities experienced very high rates of marital difficulties and extremely high rates of divorce. Divorce is a very common occurrence after the birth of a disabled child. These factors often increase the depression in such mothers (Souise and Singhvi, 2011). Payab (2010) study results revealed a significant correlation between depression and mother's marital status. A higher rate of depression among mother who has lost their husbands is reported in this study. According to Atkins (2010) stated that risk of onset of depression doubled for single mothers than married. Single marital status related to higher depressive symptoms in single mothers with postpartum depression. Caring for a child with CP can put pressure on marital relationships. Because of the constant needs of caring for a child with CP often reduces the opportunity for couples to do things alone that they want (Davis, 2009).

In this present study, there was a significant association between education status and mother depression. In this study, illiterate mother experienced severe level of depression where educated mother experienced minimal level of depression. Similarly, in Payab *et al.* (2010) study result it was found that there was a significant relation between education and mother's mental health.

Higher educational level can help people to adjust better with the environment and have a better performance in dealing with problems and it can improve their mental health. Souise and Singvi (2011) suggested that educated mothers may know how to handle their children better than non-educated mothers and they may also choose the right resources for treatment and management of their children thus they face fewer problems in managing their children with CP. Illiterate or less educated mothers may get frustrated early and have lower tolerance level than educated mothers.

The present study reported that the mothers who were above 35 years old experienced more depression than others. But it was suggested in other studies that older adults show greater positive well-being. In addition, older adults can evaluate many aspects

of psychological well-being more positively and experienced lower levels of depression than younger adults (Ha, Hong and Greenberg, 2008).

In present study found that depression level is minimal among employed mothers. Souse and Singhvi, (2011) stated that employment is known to serve as a buffer against any depression. Mothers who were employed fared better than unemployed mothers. In this study found that mother who had 2 children showed higher levels of depressive symptoms. But in another study done by Souse and Singhvi (2011) found that mothers who had just a single child who had CP showed much higher levels of depressive symptoms.

In this study, a highly significant association was recorded between economic status and level of depression of mothers having CP children. It has been proposed by Sia, Leventhal and Weitzman (2013). Maternal depression is a highly prevalent problem in low-income family. Providing the basic necessities for caring a child with CP is costly and places financial pressure on parents. The current study result found that maximum mothers were educated but they were housewife which is similar with the suggestion of Davis (2009) that a mother's ability to maintain employment can be negatively affected because of caring of children with CP. He also stated that this not only places more financial pressure on the family but also negatively impact on a mother's identity.

In present study found that most of the mothers (40.0%) spent 6-10 hours per 24 hours caring for their CP children. In present study, there was no in significant association between care giving duration and level of depression of mothers. A similar study done by Sawyer (2011) on 158 mothers of children with CP in Australia stated that mothers spent 6.0 hours per 24 hours on weekdays and 8.3 hours per 24 hours on weekends caring for children with CP on average. Mothers of children with CP who experience greater time pressure have higher rates of mental health problems than those experiencing less time pressure. Mothers who felt more time pressured had higher levels of psychological impairment and depression.

A lower education, little social support, and the fact of being a single mother are significantly related to increased psychological stress (Bella, Garcia and Bratfish, 2014).

CHAPTER 6 CONCLUSION

6.1. Limitations

This study had some limitations. First of all this study was conducted with limited number of participants that might not represent the whole population of this study. As sample size was too small in this study, researcher found significant association of level of Depression with three variables only. If sample size were larger then association of level of depression with more variables might be founded. Depression Scale- DS was never used in rehabilitation field that's why researcher did not get available literature. Related articles were found but these were studied in the context of different countries so, no significant statistical result was included in this study in the context of Bangladesh. Many studies suggested that a number of factors like age of the child, speech development, presence of epilepsy, low intelligence and presence of severe paralyses are related to maternal depression but these were not investigated in this study.

6.2. Recommendations

If any other researchers want to do this study further, they are recommended to increase the participants' numbers. They are also recommended to include some variables like age of the child, presence of speech problem, presence of epilepsy, intelligence level because these may be the cause of depression of mothers of children with CP. Health care professionals are recommended to early identify the mothers who are at risk of poor mental health and provide psychological support to facilitate successful rehabilitation of children with CP.

6.3. Conclusion

Children with CP need excessive care in self-care activities than normal children. Complex limitations in self-care functions in children with CP can be detrimental to psychological well-being of their Mothers. In this study, it was found that illiterate, single, housewife mother and the mothers who came from semi-rural and low socio-economic status suffered from more depression than other mothers. Based on the result, it can be concluded that mothers of children with CP suffered from more depressive symptoms. As mothers often play principal role in treatment and rehabilitation of children with CP. If they stay in depressive symptoms for long period of time, it will be difficult for them to play their role in rehabilitation process of their children. So, psychological status of mothers should be considered by health professionals and treatment or prevention of depression of mothers is recommended for improving the rehabilitation process and achieve better results in these children. Understanding the psychological impact on mothers could enable healthcare providers to deliver support in a way that promotes optimal adjustment of the mothers to live with this problem. Therefore, health professionals need to avail a support system to prevent or reduce the risk of depression in the mothers of children with CP. In current study, it was suggested that psychological support should include in intervention process for the mothers of children with CP to ensure better outcome from rehabilitation program.

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Appendix 1

Permission letter for conducting study

Permission letter

Date: 27.07.2014.

To

The Head of the Department
Department of Occupational Therapy
Bangladesh Health Professions Institute (BHPI).
CRP-Chapain, Savar, Dhaka-1343.

Subject: Prayer for seeking permission to conduct the research.

Sir,

With due respect and humble submission to state that I am a 4th Year student of B.sc in Occupational Therapy of Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of The Paralyzed (CRP). I am sincerely seeking permission to conduct my research project as the partly fulfillment of the requirement of degree of B.sc in Occupational Therapy. The title of my research is "level of depression of mothers of children with cerebral palsy at Savar and Mirpur CRP". The aim of the study is "To find out the level of depression of mothers of children with cerebral palsy at Savar and Mirpur CRP".

So, I therefore pray and hope that you would be kind enough to grant me the permission of conducting the research and will help me to complete a successful study as a part of my course.

Yours obediently,

Rozina Akter Pushpa

Rozina Akter Pushpa.
4th year, B.Sc in Occupational Therapy.
Bangladesh Health Professions Institute (BHPI).
CRP-Chapain, Savar, Dhaka-1343.

Approved By	Signature and Comment
Name of the Supervisor and Head of the Department Nazmun Nahar Assistant Professor Department of Occupational Therapy. BHPI, CRP-Chapain, Savar, Dhaka-1343.	<i>It may allow her to conduct this study. Best of luck.</i> <i>[Signature]</i> 27-07-14

Appendix 2

Permission letter for data collection



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)

CRP-Chupain, Savar, Dhaka, Tel: 7745464-5, 7741404, Fax: 7745069
BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206. Tel: 8020178, 8053662-3, Fax: 8053661

তারিখ : ২৬.১০.২০১৪

প্রতি
ইনচার্জ
শিশু বিভাগ
সিআরপি, সাতার, ঢাকা।

বিষয় : রিসার্চ প্রজেক্ট (dissertation) প্রসঙ্গে।

জনাব,

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন অকুপেশনাল থেরাপি কোর্সের ছাত্রী রোজিনা আক্তার পুষ্পকে তার রিসার্চ সংক্রান্ত কাজের জন্য আগামী ০১.১১.২০১৪ তারিখ থেকে ৩০.১১.২০১৪ তারিখ পর্যন্ত সময়ে আপনার নিকট প্রেরণ করা হলো।

তাই তাকে সার্বিক সহযোগিতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

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



09-11-14
HOSNEARA PERVEZ
Incharge Paediatric
CRP, Savar, Dhaka.



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)

CRP-Chapain, Savar, Dhaka, Tel: 7745464-5, 7741404, Fax: 7745069
BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206, Tel: 8020178, 8053662-3, Fax: 8053661

তারিখ : ২৬.১০.২০১৪

প্রতি
ইনচার্জ
শিশু বিভাগ
সিআরপি-মিরপুর, ঢাকা।

বিষয় : রিসার্চ প্রজেক্ট (dissertation) প্রসঙ্গে।

জনাব,

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন অকুপেশনাল থেরাপি কোর্সের ছাত্রী রোজিনা আক্তার পুষ্পকে তার রিসার্চ সংক্রান্ত কাজের জন্য আগামী ০১.১১.২০১৪ তারিখ থেকে ৩০.১১.২০১৪ তারিখ পর্যন্ত সময়ে আপনার নিকট প্রেরণ করা হলো।

তাই তাকে সার্বিক সহযোগীতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

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



Permitting to collect data -
f. Narayari
08.12.2014
Narayari Chakraborty
* Obstetric, Gynecology & Fetal Medicine
Perinatal Unit
CRP, Mirpur

Appendix 3

Permission letter for using Depression Scale-DS

Respected sir,

I am Rozina Akter Pushpa, 4th year student of B.Sc in Occupational Therapy department at Bangladesh Health Professions Institute (BHPI). As I am a student of 4th year student I need to do a dissertation for my academic purpose. My dissertation title is 'Level of Depression of Mother of Children with Cerebral Palsy (CP)'. For my study I want to use your 'Depression Scale' to find out the level of depression following injury.

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

Sincerely Yours,

Rozina Akter Pushpa

4th year, B.Sc in Occupational Therapy

Centre for the Rehabilitation of the paralysed (CRP)

Permission given



*Zahid U.
Assistant Prof.
Occupational Therapy Dept.
BHPI*

Appendix 4

Consent Form in Bangle and English

সম্মতি পত্র

বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউটের বি. এস. সি. ইন অকুপেশনাল থেরাপি বিভাগের অধ্যয়নরত একজন ছাত্রী রোজিনা আক্তার পুষ্প তার অধ্যয়নের অংশ হিসেবে একটি গবেষণা করছেন। তার গবেষণার বিষয় ‘সেরেব্রাল পালসি বাচ্চার মায়েদের বিষয়বস্তু পরিমাণ নির্ণয় করা।

এই গবেষণায় আমি ----- একজন অংশগ্রহনকারী এবং আমি এই গবেষণার উদ্দেশ্য পরিষ্কারভাবে বুঝতে পেরেছি। আমি যে কোন সময় এবং গবেষণার যে কোন পর্যায়ে আমার অংশগ্রহন প্রত্যাহার করতে পারি।

এই জন্য আমি কারো কাছে জবাব দিতে বাধ্য থাকব না। আমি অবগত হয়েছি যে, এই গবেষণায় অংশগ্রহন করার ফলে বর্তমান এবং ভবিষ্যতে আমার বাচ্চার চিকিৎসা গ্রহণের উপর কোন প্রভাব পরবে না। এই গবেষণার সাক্ষাতকারের সকল তথ্য যেকোনো গবেষণার কাজে ব্যবহার হবে, সেগুলি সম্পূর্ণরূপে গোপনীয় থাকবে এবং আমার নাম ও ছাপা হবে না।

আমি গবেষণার পদ্ধতি, জটিলতা সুফলের ব্যাপারে যে কোন উত্তর দানের জন্য গবেষকের সাথে আলোচনা করতে পারব। আমি উপরোক্ত সকল তথ্য সম্পর্কে জানি এবং এই গবেষণায় অংশগ্রহনে সম্মতি জানাচ্ছি।

অংশগ্রহনকারীর সাক্ষর/ টিপসই:	তারিখ :
গবেষকের সাক্ষর :	তারিখ :
সাক্ষরীর সাক্ষর/ টিপসই :	তারিখ :

Consent Form

The researcher ‘RozinaAkterPushpa’ is a student of Bangladesh Health Professions Institute (BHPI) in B. Sc. in Occupational Therapy in 4th Year. As a part of Occupational Therapy course, she has conducted a study with mothers of children with Cerebral palsy (CP). The study was entitled as “Level of Depression of Mothers of Children with Cerebral Palsy (CP)”.

In this study I ama participant and I have been clearly informed about the purpose of the study. I have the right to refuse in taking part at any time and at any stage of the study.

I will not be bound to answer to anybody. I understand that there will be no impact receiving treatment at present or in the future by participating in this study. I am also informed that, all the information collected from the interview that is used in the study would be kept safe and maintain confidentiality. Even, my name and address will not published anywhere in this study.

I can consult with the researcher and the research supervisor about the research process or get answers to any questions regarding the research project. I have been informed about the above-mentioned information and I am willing to participate in the study with consent.

Signature /Finger print of the Participant:	Date:
Signature of the Researcher:	Date:
Signature/Finger print of the witness:	Date:

Appendix 5

Socio-demographic questionnaire in Bangla and English

জনসংখ্যা ভিত্তিক প্রশ্নাবলি

অংশগ্রহণকারীর নাম

১। অংশগ্রহণকারীর বয়স

২০ বছর

২১-২৫ বছর

২৬-৩০ বছর

৩১-৩৫ বছর

>৩৫ বছর

২। শিক্ষাগত যোগ্যতা

প্রাইমারী

মাধ্যমিক

উচ্চ-মাধ্যমিক

অশিক্ষিত

৩। বিবাহ সংক্রান্ত

বিবাহিত

তালকপ্রাপ্ত

বিধবা

৪। পেশা

গৃহিনী

চাকরিজীবী

শিক্ষার্থী

৫। বসবাসের ক্ষেত্র

গ্রাম্য

আধা-গ্রাম্য

শহর

৬। ধর্ম

ইসলাম

হিন্দু

৭। বাচ্চার যত্ন নেয়ার সময়কাল

২-৫ ঘন্টা

৬-১০ ঘন্টা

১১-১৫ ঘন্টা

৮। ছেলে মেয়ের সংখ্যা

১

২

৩

৪

৯। আর্থিক অবস্থা

নিম্নবিত্ত

মধ্যবিত্ত

উচ্চবিত্ত

Socio-demographic Questionnaire

1. Participants name

2. Age in year 15-20 years 21-30 years
 31-35 years >35 years

3. Educational status Up to Primary school Up to secondary school
 HSC University level
 Illiterate

4. Marital Status Married Divorced
 Widowed

5. Occupation Housewife Employee
 Student

6. Living Area Rural Semi-rural
 Urban

7. Religion Islam Hindu

8. Care giving duration 2-5hours 6-10hours
 11-15hours

9. Number of children 1 2
 3 4

10. Socio-economic status (SES) Low SES Middle SES
 High SES

Appendix 6

Depression Scale-DS in Bangla and English

বিষন্নতা পরিমাপক

	বিবৃতিসমূহ	একেবারেইপ্র যোজনয়	প্রযোজন য়	মাঝামাঝি	কিছুটা প্রযোজ্য	পুরোপুরিপ্র যোজ্য
১	আমার অশান্তি লাগে।					
২	ইদানিং আমি মনমরা থাকি।					
৩	আমার ভবিষ্য অন্ধকার।					
৪	ভবিষ্যতে আমার অবস্থা দিনদিন আর ও খারাপ হবে।					
৫	আমার সব শেষ হয়ে গেছে।					
৬	আমি মনে করি যে জীবনটা বর্তমানে আমি খুব বেশি কষ্টকর।					
৭	বর্তমানে আমি অনুভব করি যে মানুষ হিসাবে আমি সম্পূর্ণ।					
৮	আমি কোথা ও আনন্দ- স্ফুতি পাই না।					
৯	নিজেকে খুব ছোট মনে হয়।					
১০	সবকিছুতে আমার আত্মবিশ্বাস কমে গেছে।					
১১	আমার মনে হয় মানুষ আমাকে করুণা করে।					
১২	জীবনটা অর্থহীন।					
১৩	প্রায়ই আমার কান্না পায়।					
১৪	আমি প্রায়ই বিরক্ত বোধ করি।					
১৫	আমি কোন কিছুতে আগ্রহ পাইনা।					
১৬	আমি ইদানিং চিন্তা করতে ও সিদ্ধান্ত নিতে পারি না					
১৭	আমি আজকাল অনেক কিছুতেই মনোযোগ নিতে পারি না।					
১৮	আমি আগের মত মনে রাখতে পারি না।					

১৯	আমি দুর্বল বোধ করি এবং অল্পতেই ক্লান্ত হয়ে পড়ি।					
২০	আমি এখন কম ঘুমাই।					
২১	আমি এখন বেশি ঘুমাই।					
২২	আমার মেজাজ খিটখিটে হয়ে গেছে।					
২৩	আমার ক্ষুধা কমে গেছে।					
২৪	আমার ক্ষুধা বেড়ে গেছে।					
২৫	আমার ওজন কমে গেছে(ইচ্ছাকৃতভাবে ওজন নিয়ন্ত্রনের চেষ্টা করার ফলে নয়)।					
২৬	আমার মনে হয় যে আমার কাজকর্মের গতি কমে গেছে।					
২৭	হাসির কোন ঘটনা ঘটলে ও আমি আর হাসতে পারি না।					
২৮	যৌন বিষয়ে আমার আগ্রহ কমে গেছে					
২৯	সামাজিক কাজকর্মে আগের মতো অংশগ্রহণ করতে পারি না।					
৩০	শিক্ষা বা পেশাগত কাজকর্ম আগের মতো করতে পারি না					

Depression Scale- DS

Sl. No	Depressive Symptoms	Not at All Applicable	Not Applicable	Moderately Applicable	Somewhat Applicable	Fully Applicable
1	I feel lack of pleasure in my mind.					
2	Now a day I experience low mood.					
3	My future is dark.					
4	My condition will be worse in future.					
5	I am finished.					
6	Currently I think that my life is very painful.					
7	Currently I feel that I am a complete failure					
8	I find no pleasure anywhere					
9	I feel myself very inferior					
10	My self-esteem has reduced in every respect					
11	I think that I am an object of pity to the people					
12	Life is meaningless					
13	I often feel like crying					
14	Often I feel irritated					
15	I feel no interest in anything					
16	Now a days I cannot think and cannot					

	take decisions					
17	Now a days I cannot concentrate in many things					
18	I cannot remember as before					
19	I feel weak and exhausted easily					
20	Currently I sleep less					
21	Currently I sleep more					
22	My temper has turned irritate					
23	My appetite has reduced					
24	My appetite has increased					
25	My weight has reduced (Not due to intentional attempt to control weight)					
26	I think speed of my work has reduced					
27	I cannot laugh even when there is a funny event					
28	My desire in sex has reduced.					
29	I cannot participate in social activities as I used to.					
30	I cannot do academic or professional activities as I used to.					