DEPRESSION, ANXIETY AND STRESS AMONG THE MOTHERS OF CHILDREN WITH CEREBRAL PALSY.

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This work has not previously been accepted in substance for any degree and isn't concurrently submitted in candidature for any degree. This dissertation is being submitted in partial fulfillment of the requirements for the degree of B.Sc. in Physiotherapy.

I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority. I confirm that the electronic copy is identical to the bound copy of the Thesis.

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CONTENT

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ACRONYMS

SPSS: Statistical Package for social Science

SCMST: Saic College of medical Science & Technology.

WHO: World Health Organization.

GMFCS: Gross Motor Functional Classification System.

DASS-21: Depression, Anxiety and Stress Scale-21.

PSOSK: Protibondhi Sheba-o-Sahajjo Kendra.

DU: Dhaka University

CP: Cerebral Palsy

ADL: Activity of Daily Living

FQOL: Family Quality of Life

IBR: The Institutional Review Board

SSC: Secondary School Certificate.

HSC: Higher Secondary School Certificate

QOL: Quality of Life.

NGO: Non-Government Organization.

χ2: Chi-Square

N: Number

%: Percentage

SD: Standard Deviation

LIST OF TABLE

LIST OF FIGURES

ABSTRACT

Mother of children with Cerebral Palsy (CP) plays an important role in the successful rehabilitation of their children which may affect their psychological health. The aim of this study was to determine the level of depression, anxiety and stress among the mothers of children with cerebral palsy. A cross sectional study was conducted in the Protibondhi Sheba-o-Sahajjo Kendra (PSOSK), Disability schools, Bangladesh Shishu Kalyan Parishad, Private Rehabilitation center in Dhaka city, Bangladesh. About 228 participants were included in this study by conveniently. Socio-demographic informative questionnaire for both mothers and their children, Depression anxiety stress scale-21 (DASS-21), Gross motor functional classification system (GMFCS) used for data collection and analysis was done by using Statistical Package for Social Science (SPSS) version 25 and data was leveled in Microsoft Excel worksheet. In this study, it was found that majority of the participants 91(39.9%) were in the age group of 26-30 years and majority of the children's 147 (64.5%) were in the age group of 1-6 years, CP children 136(59.6 %) were boy, children number in family 114 (50.0%) were single, 217 (95.2%) were muslim, 223 (97.8%) were married, 120 (52.6%) were SSC or lower, 210 (92.1%) were house wife, 79 (34.6%) were higher economic status, 113 (58.3%) residency type were rented, 108 (47.4%) permanent address were in city, 182 (79.8%) weren't married to cousin, 145 (63.6 %) were only birth injured baby, majority of the children gross motor function 102 (44.7%) was in level V, About the study majority 148 (64.9%) participants had normal level of stress, 87 (38.2 %) had normal level of depression, 71 (31.1%) had normal level of anxiety. There were strong association found between level of stress in the mothers and gross motor function of the CP children. Also found more association between monthly income and the depression; monthly income and anxiety; birth injury and anxiety. In conclusion, it seems that having a CP child lead to maternal depression, anxiety and stress. So, to improve rehabilitation processes of the children with CP, the psychological support for mothers should need.

Key words: Cerebral palsy, maternal stress, maternal depression, maternal anxiety, motor impairment of CP children.

CHAPTER: I INTRODUCTION

1.1: Background:

Cerebral palsy (CP) is a scenario characterized via thoughts damage resulting within the loss of movement, affecting frame movements, coordination, and posture, taking place in approximately 2 out of a thousand live births (Goheir et al., 2022). Children with disabilities are studied as it relates to cerebral palsy in Bangladesh. The World Health Organization (WHO) estimates that 10% of Bangladesh's population is disabled and the Bangladesh Bureau of Statistics reports that 16.41% of all impairments are child disabilities, which cause birth defects (Sultana, 2016).

A 2019 study by Khandaker et al stated In Bangladesh, 3.4 per 1000 children was the observed prevalence (Khandaker et al., 2019). The prevalence of cerebral palsy is between 1.8-2.3 instances per 1000 children, according to data from population-based research and national cerebral palsy registries in Europe, Australia, and the United States (Kakooza-Mwesige et al (2017). In 2013, the Bangladeshi government performed a survey of kids who had autism and neurodevelopmental disorders. According to survey findings, there are 4 cases of cerebral palsy for every 1,000 people. Children with CP experience mobility restrictions and postural issues. As well as having severe restrictions in self-care functions like feeding, clothing, bathing, and movement, many children also have sensory, linguistic and intellectual impairments (Basaran et al., 2013; Zhang et al., 2015). Kids with CP have essential confinements in engagement and cooperation within the everyday sports in conjunction with ingesting, wearing cloths, showering, and transferring (Nazi et al., 2017). A 2020 study by Sadowska et al. stated that one of the most frequent causes of movement disabilities in children is cerebral palsy (CP). The most recent definition of CP describes it as a collection of long-term abnormalities of movement and posture that result in activity restrictions and are caused by non-progressive changes in the fetal or infant brain (Sadowska et al., 2020).

At the equal time as getting to know new and vital information regarding their children's disabilities, dad and mom of disabled youngsters are mentioned to enjoy higher melancholy than mother and father of normally growing kids. The development of motor, cognitive, verbal, or social capabilities well-known shows numerous tiers of malfunction in kids with developmental issues, consisting of autism spectrum sickness, highbrow disabilities, and CP. The maximum everyday unique

motor developmental disability is CP. In an unmarried have a study, despair occurrence prices for mothers of autistic kids ranged from 10% to 59%, for mothers of youngsters with fragile X syndrome from 10% to 79% and for mothers of kids with down syndrome from 30% to 38%. The lasting results of cerebral palsy (CP) and its accompanying symptoms and signs and symptoms in children (Park, 2021).

Consistent with current surveys, approximately 0.2% of children international are anxious thru cerebral palsy. Motor and postural signs and symptoms of CP are often observed through manner of the use of cognitive impairment, conversation issues, highbrow disability, vision problems, epilepsy and a lower in sports of each day residing. Those complex signs and symptoms stress the family to spend a whole lot of time, energy and coins being concerned for their little one. Mothers are regularly the primary caregivers of youngsters with CP; they play a important feature in elevating kids and are regularly scenario to excessive ranges of parental strain. The enormously long parenting stress of mothers must purpose them to irritable, depressed and annoying. (Wang et al., 2020).

All family members and their interactions with one another are impacted by the birth of a child with impairments (Nur Saadah et al., 2014). According to Websteret et al. (2008), childhood disabilities frequently place a social and emotional strain on children and their families (Websteret et al. 2008). According to Wijesinghe et al. (2015), caregiver load is a serious issue that affects them on many different levels. It includes responses to financial, social, emotional, psychological, and physical stressors (Wijesinghe et al., 2015). A special needs youngster finds it difficult to perform caregiver responsibilities. In order to assist the child with washing and using the toilet, changing diapers and clothing, and cleaning their mattress two, it may also be necessary to lift and move them repeatedly (Nor Saadahet al., 2014).

Round the arena, the predominance of discouragement amongst moms of CP children became assessed to extend from 6% to forty.5% (Soliman et al., 2019).
The primary emphasis is often on the subsequent musculoskeletal issues in addition to the horrible mobility and postural development. But more considerably, CP impacts how the kid and circle of relative’s function on each day foundation (Ketelaar et al., 2008). The research states that parents of youngsters with CP usually have physical and intellectual health problems, but there may be little consensus on how the ones issues relate to the severity of the kid's motor deficit (Lima et al., 2016).

Preceding research has discovered out a hyperlink among depression and

family emotional fitness. Powerful intervention techniques for decreasing parental pressure should be superior in mild of the huge degree of pressure skilled via dad and mom of children with CP. More than 60% of dad and mom of kids with CP are liable to parenting stress and masses of them see themselves as champions for making sure that their children collect the top-notch care viable. For the ones kids and their dad and mom to accumulate the right assist, expertise of the strain-associated issues also can have a remarkable effect. In place of bodily harm, a few research located that communication had an impact on determine stress. Despite the fact that there are hyperlinks between parental despair, parenting pressure, and kid's stage of disability, it's far nevertheless unknown what motives these correlations (Park and Kim., 2020).

A developmental sickness that lasts an entire lifestyle, CP causes severe trendy motor capacity impairments. The outcomes of getting a toddler with CP on mothers are explored on this have a have a look at. Kids with CP have problem controlling their posture and their motor abilities; a number of them can also furthermore have cognitive and highbrow deficits, seizures, or next musculoskeletal troubles counting on the type and severity of their mind accidents. Age-related will increase in those boundaries (Miller, 2004).

A kid with cerebral palsy calls for huge parental care that consists of a selection of uncommon chores, along with direct beneficial aid with everyday residing bodily games (ADLs). For kids with CP to take part in ADLs and development in their improvement, the mother needs to be actively involved (Dehghan et al., 2016).

Strain is concept to be induced with the aid of infant-associated traits, particularly the severity of the CP circumstance. The maximum well-known motor developmental hassle is cerebral palsy (CP), which makes it hard for dad and mom to care for their children on each day basis due to the aberrant and regular movement styles related to the sickness. Mothers record extra stress and a decrease wonderful of lifestyles whilst their youngsters are much less beneficial. Depending on how excessive the motor impairment ends up, mothers of kids with CP professional varying portions of stress. Parenting problems give up end result from the significant physical and intellectual needs of traumatic for a kid with limited self-mobility. Even though there are hyperlinks among parental despair, parenting pressure, and the diploma of incapacity in kids, their particular causative relationships are however unknown (Park, 2021).

1.2 Justification of the study:

Cerebral Palsy (CP) is one of the most prevalent congenital disorders in childhood across the globe. The lack of awareness is leading to an increasing number of cerebral palsy patients every day. This condition affects a significant number of individuals, causing devastating effects on families, societies, and entire countries. As Bangladesh is a developing nation with a large population living in poverty, the number of children with cerebral palsy is significant. In our society, mothers bear the responsibility of raising children. However, when a child with special needs is born, it shatters a mother's sense of capability, leaving a slow and deep wound that is difficult to heal. This places families in extremely difficult situations. Mothers face numerous challenges in their lives caring for a child with CP, which can lead to stress. Therefore, it is important to understand the everyday problems that mothers of children with CP face. Many children with CP are unable to express their feelings, placing a burden on the mother as the primary caregiver. These children require more care than typically developing children. Every mother hopes that her child will eventually understand her commands, but a child with CP may never be able to do so. This creates stress for the mother. Every mother hopes that her child will be a source of support in the future, earning and taking care of the family.

However, these hopes are shattered when she realizes that her child will never meet her expectations. This realization causes stress for mothers and their families. As a physiotherapy student, I have reviewed previous literature on risk factors, economic barriers, treatment barriers, treatment procedures, and home rehabilitation programs for cerebral palsy. However, there is a lack of research on the association between gross motor function, parenting stress, and depression in Bangladesh. Stronger gross motor function indicates higher functional ability, making it a crucial tool for evaluating the abilities of children with CP. Parenting stress and depression in mothers of children with CP can be influenced by various factors, but it remains unclear whether or not gross motor function plays a role. The aim of this study was to further investigate the level of parenting stress and depression in their mothers.

1.3. Research question:

What is the level of depression, anxiety and stress among the mothers of children with cerebral palsy?

1.4 Objectives of the study:

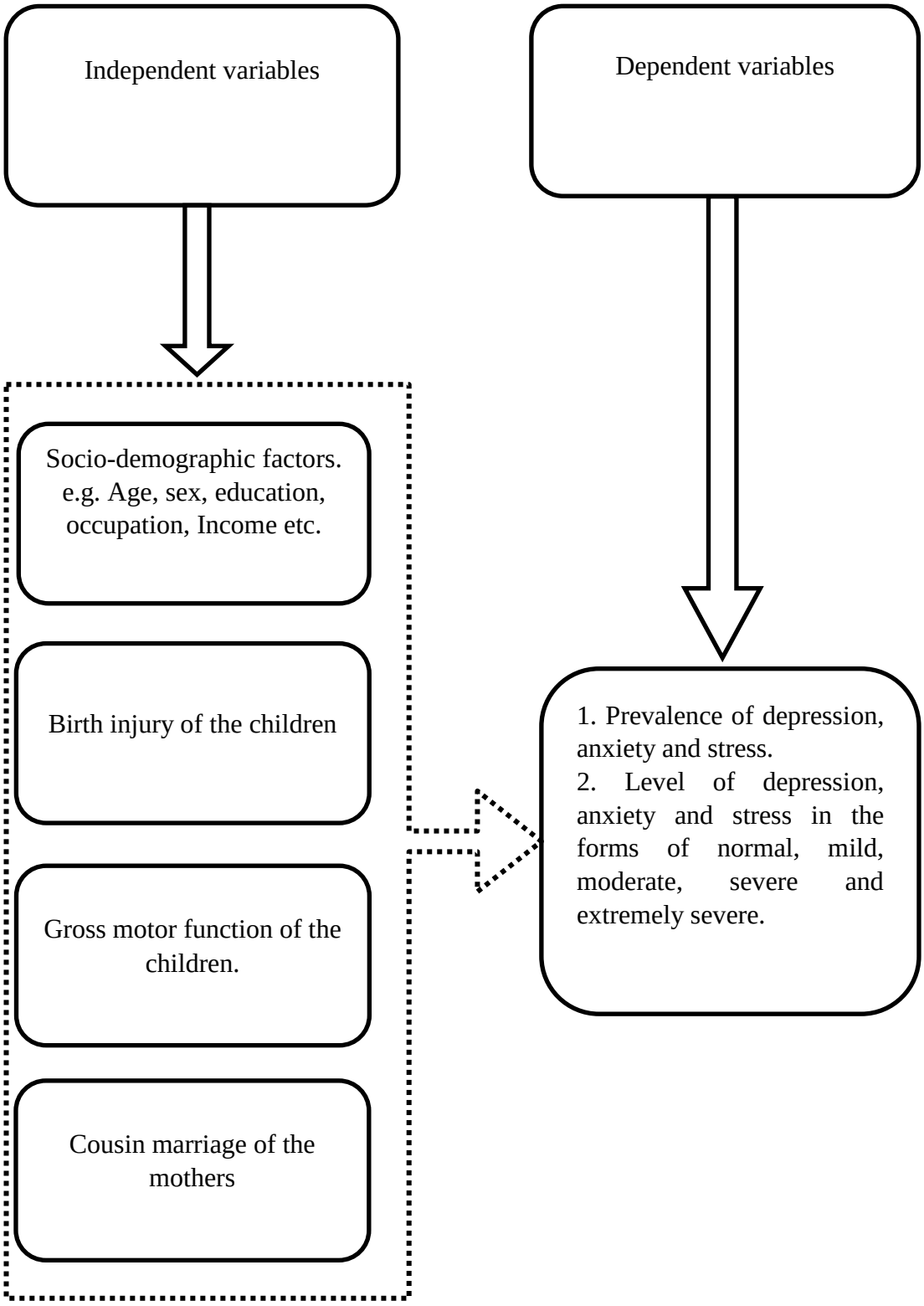
1.4.1 General objective:

To determine the level of depression, anxiety and stress among the mothers of children with cerebral palsy attending different rehabilitation centers in Dhaka city.

1.4.2 Specific objective:

1. To assess the level of depression, anxiety and stress of the mothers of children with cerebral palsy by Depression, Anxiety and Stress Scale 21 (DASS-21).
2. To describe socio-demographic information of the mothers and their children.
3. To examine association between socio-demographic characteristics and depression, anxiety and stress.
4. To find out the level of gross motor function of children with cerebral palsy by (GMFCS).
5. To determine association between gross motor function and depression, anxiety and stress.

1.5 Conceptual framework:



1.6 Operational definition:

Cerebral palsy:

The term "cerebral palsy" (CP) refers to a non-progressive brain damage caused by hypoxia leading to collection of movement and postural abnormalities. Other neurological and physical abnormalities frequently coexist with the impairments of muscular control that characterize cerebral palsy.

Primary caregiver:

The primary caregiver is the care giver who devotes the most of their time to caring for the kid with CP and provides all the necessary support, including assistance with ADLs.

Functional impairment:

Any momentary or long-term loss of normal physiological, psychological or anatomical structure or function. Figuring out the functional problems or limitations that a patient has that make them handicapped.

Depression:

Major depressive disorder, sometimes known as depression, is a common and serious medical illness that has an adverse effect on your feelings, thoughts, and actions.

Anxiety:

Anxiety is a mental state that is characterized by tense emotions, uneasy thoughts, and bodily changes like raised blood pressure. The hallmark of anxiety disorders is the recurrence of intrusive thoughts or worries.

Gross Motor Function:

Gross motor functions are the actions that control the movement of large muscle in the body for walking, running, sitting, crawling and other activities

Parenting stress

Parenting stress is defined as a collection of behaviors that result in adverse psychological and physiological responses as a result of attempts to adjust to the demands of motherhood.

CHAPTER-Ⅱ: LITERATURE REVIEW

In the late 1860s, British physician Sir William Little first describe the term cerebral palsy (Mu'ala et al., 2008). It is widely acknowledged that brain paralysis is a non-progressive condition. Until the second year after birth, there is damage to or abnormal development of the brain in fetuses or children (Polita and Talca., 2014). Previous studies indicated that the global prevalence of brain paralysis in children was 0.2% (Nelson and Blair., 2015). Brain paralysis symptoms that affect movement and posture are typically accompanied by issues with perception, visual, communication, and cognitive abilities that affect day-to-day activities (Badia et al., 2016).

In comparison to assistance from husbands or wives, prior research has demonstrated that receiving aid from relatives and acquaintances significantly influences the degree of stress and satisfaction in the lives of parents (Wang et al., 2020). The results of the study were contrasted with those of another investigation, which indicated that support from acquaintances and family members was among the primary elements that improved the overall quality of life for families with individuals affected by conditions such as cerebral palsy (Kokoric et al., 2012).

Parents of children with cerebral palsy were found to have inadequate physical and mental health, as evidenced by symptoms such as sadness, tension, muscle discomfort, and a decrease in overall well-being. Parents who experience poor mental health and elevated levels of stress require more substantial assistance from others, including family members, spouses and friends (Al-Gamal and Long., 2013). However, social support, defined as the psychological and material resources that individuals can access, offers help to both mothers and fathers through interpersonal interactions (Lima et al., 2016). This support can take various forms, such as tangible resources like food and money, as well as intangible ones like words of encouragement and emotional support. It serves to alleviate or diminish the challenging circumstances faced by parents of children with cerebral palsy, as a lack of social support can lead to feelings of abandonment, anger, or depression, negatively impacting the family's experience (Polita, and Tacla., 2014).

A wide range of clinical conditions known as cerebral palsy impact the body's movement or can hinder motor function. This term refers to non-progressive brain damage or abnormalities that occur before birth, during labor or shortly after delivery.

Cerebral palsy can have various causes, including fetal infections during pregnancy (such as CMV), newborn jaundice, and oxygen deprivation to the brain after birth. There are 1.5 to 4 cases of CP per 1,000 live births. This disorder can be categorized into four distinct clinical groups: Athetoid (involuntary body movements), ataxic CP (problems with motor coordination), and spastic (unusual stiffness and rigidity in limb muscles). This disorder is a form of mixed media that combines multiple factors (Kumar et al., 2016). Despite variations in rates across different countries worldwide, a prevalence study in Turkey revealed an incidence rate of 4.4/1000. (Seyma et al., 2019).

Cerebral palsy (CP), with a prevalence rate of 2.83 per 1000 children between the ages of 0 and 19 years, was one of the most common types of disability in India. A child with CP faces a range of challenges, including digestive and eating issues, spastic paralysis, cognitive impairment, chronic pain, speech and visual impairment. Furthermore, they faced limitations in terms of mobility, dressing, feeding and other self-care tasks. These limitations can result in long-term care needs that are greater than those of typical children. The difficulties faced by parents of children with CP lead to higher levels of stress, which have a negative impact on their physical and social well-being. Nowadays, most children with CP are cared for at home by their families rather than being placed in institutions, thanks to changes in healthcare systems and societal attitudes. Western countries also prioritize family-centered care, which has proven to be highly effective and focuses on the entire family rather than just the child. After consulting with service providers, the family is able to determine what assistance and support the child and family will receive. In order to establish a family-centered care practice, it is essential to understand and address the psychological challenges faced by caregivers of affected children. While many studies have been conducted in western countries, there have been relatively few reported in India (Nimbalkar et al., 2014).

From 1998 to 2016, the observed occurrence of CP in the surveillance area was 3.4 per 1000 live births. Based on 68,680,562 live births in Bangladesh between 1998 and 2016, it calculated that there were 2, 33,514 children with CP in the country. Males were more prone to have CP than females; frequency varied by gender and region of residence. The occurrence of CP varied according to gestational age; the highest occurrence was 7.8 per 1000 live infants for those delivered very prematurely (28-31 weeks' gestation). Spastic motor type affected the majority of the children;

monoplegia/hemiplegia affected 198 (27.3%), diplegia affected 124(17.1%), triplegia affected 70 (9.6%) and quadriplegia affected 186 (25.6%). Of the children overall, 578 (79.6%) had at least one associated disability. 447 (61.6%) of children had prenatal and perinatal risk factors identified including infections, neonatal encephalopathy and newborn respiratory depression caused neonatal sepsis, pneumonia, central nervous system infection, such as meningitis and encephalitis. 44 (6.1%) of cases included post-neonatal causes, which included trauma, drowning, and infections such pneumonia and sepsis (Khandakar et al., 2019).

The subsequent five levels constitute the gross motor function classification system for cerebral palsy (Patel et al., 2020), in their article the subsequent classifications are applicable to cerebral palsy based on GMFCS level: Level I: Able to move around without any restrictions, but with sluggish coordination, gait, and equilibrium. Perform at Level II Walking with limitations both indoors and outdoors, including ascending steps while grasping a handrail. However, there are restrictions when it comes to walking on uneven terrain, descending, in crowded areas, or in confined spaces. Level III: Utilizes a handheld mobility aid to walk and can ascend stairs while holding onto the handrail can navigate outdoors or across challenging terrain with a self-propelled wheelchair. Level IV: Requires a motorized mobility aid for independent mobility due to substantial mobility limitations. Level V: There was no independent means of mobility and physical constraints hinder intentional control of movements. A manually-operated wheelchair.

One Turkish cross-sectional investigation enrolled 100 children with one-sided or two-sided spastic CP who were aged 5 to 15, enrolled daily in school resided in Istanbul, the country's most populous city. Each participant who took part in the study willingly gave their informed consent. This study aimed to assess the gross motor function, mobility, independence and engagement of a school-aged Turkish population with CP, as well as to examine parental stress. 100 school-aged children with CP between the ages of 5 and 15 were evaluated for mobility (Functional Mobility Scale; FMS), independence (Barthel Index; BI), motor function; gross motor function measurement; functional classification; gross motor function classification system; participation; and parents' stress (Parental Stress Scale; PSS). Also discussed were the difficulties and constraints associated with school. According to the reported findings of the 100 children with motor impairment, nearly half of them had autonomous mobility on all surfaces or on levels, as per the FMS and had scores for

PODCI Global Functioning (62.8%), BI (12 out of 20) and GMFM (72.8%) that were above average and relatively high (both at 72.8%). Strong to very strong correlations were found between each test battery. The GMFCS and the child's mobility distance according to family had a weak connection to parental stress with an average score of 42.3 9.92 out of 90 and a p-value of 0.05 (Alemdaruglu and Karakus., 2019).

In 2016, an Iranian investigation was conducted using a convenience sampling technique, involving 424 Iranian mothers with children who have cerebral palsy (CP). The researchers assessed the quality of life (QOL) of these mothers based on the severity of their child's gross motor function and type of CP. The evaluation was carried out using the 36-item Short Form Health Survey (SF-36) questionnaire, which has been validated in Persian. Additionally, demographic information and clinically relevant data were collected from rehabilitation centers affiliated with Tehran University of Medical Sciences in 2012. The results indicated that the mean scores of the study participants on the physical component summary (PCS) and mental component summary (MCS) were 39.21 and 41.23, respectively. This suggests that the participants perceived their QOL to be low. Significant differences were observed in the mean PCS scores of the SF-36 among mothers of CP children of different ages, with varying levels of motor function and different forms of CP. The findings highlight that mother of CP children experience poor physical and mental health. Therefore, rehabilitation specialists should prioritize the QOL of these mothers in order to enhance certain aspects of their well-being (Dehghan et ai., 2016).

Another research study conducted in 2013 examined the factors influencing the health-related quality of life (HRQoL) of mothers who have children with CP. In this particular study, the participants consisted of 137 mothers with children diagnosed with spastic-type CP, while the control group consisted of 140 mothers with children who did not have such conditions. The researchers used the Gross Motor Function Classification System to assess the functional abilities of the children with CP. The HRQoL of both the mothers of CP children and the control group was evaluated using the 36-Item Short-Form Health Survey (SF-36) and the Beck Depression Inventory. The findings revealed that compared to the control group, the mothers of CP children had lower scores in social functioning, mental health, emotional role limitations, and vitality on the mental subscale of the SF-36. Additionally, the BDI scores of CP mothers were higher compared to those of the control group. The study also found negative correlations between the BDI scores of

CP mothers and their SF-36 subscale scores, the age of the mothers, as well as the physical function, body pain, and physical component scale scores of the SF-36 (Yilmaz et al., 2013).

In a 2021 article in the Turkish Journal of Pediatrics, the associations between motor abilities, quality of life and maternal mental illness in children with CP of different levels of intelligence were investigated. A pediatric neurology outpatient clinic recruited 37 children and teenagers with CP, including 16 females and 21 males, aged between 4 and 18. Bimanual Fine Motor Function and the Gross Motor Function Classification System (GMFCS) were utilized to assess the children's motor skills. The Pediatric Quality of Life Inventory-Parent version was employed by the caregivers to assess the quality of life. Beck Anxiety Inventory and Beck Depression Inventory were used to gauge the levels of maternal anxiety and depression. This study compared groups with moderate-severe intellectual disability (ID) and normal intelligence-mild ID. In both groups, GMFCS level 2 was more prevalent. The majority of the severe-moderate ID group belonged to BFMF level 4, while the group with normal intelligence and mild ID belonged to BFMF level 2. The maternal BAI and BDI scores, as well as the PedsQL-P scores of children with CP, did not differ between the two groups. There was a moderately negative correlation between the psychosocial scores and the maternal BAI scores. Additionally, there was a slightly positive correlation between maternal BDI scores and child ages (Akcay et al., 2021).

In 2016, the British Journal of Occupational Therapy examined the relationship between the utilization of time by mothers and the ability of children with cerebral palsy to carry out large-scale physical activities. Furthermore, this study, which involved 60 mothers of children with cerebral palsy, utilized a convenient sampling method. Data was collected using the GMFCS and the Mothers' Time Use Questionnaire in Farsi. The Spearman correlation coefficient was calculated. The results indicated a significant correlation between the amount of time mothers dedicated to childcare activities and their children's proficiency in performing large-scale physical activities (Ahmadi Kahjoogh., 2016).

When people feel pressured to manage duties connected to finances, interpersonal relationships, the environment, work-related activities and other aspects of everyday life, they are said to be under stress. A person experiences stress when they recognize genuine or imagined issues with or threats to their own life and well-being. The word "stress" is occasionally substituted by individuals for "anxiety,"

"fear," "nervousness," "overwhelmed," "panic attack," and "stressed out" in any given circumstance. The three types of stress include acute stress, episodic acute stress and chronic stress, according to the American Psychological Association (APA). Each of these three types of stress has its own distinct features, traits, signs and symptoms, as well as a range of therapeutic options.

Disability has an impact on both the children and the adults in the family (Gardiner and Iarocci, 2012). More care and consideration must be given to children with special needs. The added stress of raising these challenged kids causes greater stress for their parents. Kulkarni and Karande (2009). According to a study, mothers of children with disabilities experience higher worry than fathers (Kayili, 2018). A study (Vadivelan et al. 2020) found that moms who responded to the interviews had a number of individual-level traits that made them stressed. Knowledge, awareness, physical prowess, beliefs, emotions, and feelings are examples of these individual-level traits. Mothers are the primary caregivers for all children, including those with CP, and they are also the ones who typically bear the bulk of the household's workload. Children with developmental problems or issues who are 13 tend to have mothers who carry a heavier burden and endure more difficulties than mothers of children who are typical. These physical demands occur while providing care, which includes transporting the child from one location to another, getting them dressed, feeding them, giving them physical therapy or other nurturing, playing with them, etc. In addition, mothers in our nation are expected to care for their other children and family members as well as perform household duties. The mother doesn't have enough time for herself and is unable to get enough sleep. Her lack of sleep makes her more prone to aches and pains, which impairs their capacity to care for the child well and increases their stress levels.

According to a study, moms of children with CP may suffer from bad quality of life, high levels of physical strain, high levels of stress, and depression (Ozkan, 2018). According to a survey, parents who are raising a child often face difficulties. Due to their failure to meet successive developmental milestones, children tend to rely too much on their moms, which is one of the challenges encountered. As a result of caring for their infant, those mothers claimed they were unable to sleep soundly. They were unable to give themselves the required amount of time or rest. As a result of their anxiety-inducing situation and lack of sleep, they became exhausted and inactive throughout the entire day's job. According to some women, undertaking repetitive

tasks like housework, child care, medication administration, managing family, friends, and others in the community might make you feel ill (Michael et al., 2019). The mother of a kid with cerebral palsy struggles with conflicting emotions; she has a very strong physical and emotional aversion to the child, which makes providing care and compassion for the child much more unpleasant. (Barbosa et al., 2008). A 2020 study in India discovered that mothers with disabled children felt guilty and blamed for their children, as well as concerned about the disability of their children. Mothers have a very strong sense of guilt. They believe that having a child with disabilities must be the result of a mistake they made during the pregnancy. Due to having a kid with a developmental handicap, many mothers also feel that the quality of their motherhood is in question. On the other hand, they were forced to shoulder the culpability of long-standing community practices (Vadivelan et al. 2020).

According to a comparative study published in 2018, a significant and negative correlation was found when comparing the Bakas Caregiving Outcomes Scale of mothers and the Classic Motor Development Level of children with cerebral palsy. There was a noteworthy difference in the stress experienced by mothers of children with cerebral palsy when comparing the Bakas Caregiving Outcomes Scale of mothers of children with CP and MR. Ultimately, it was found that mothers of children with CP faced higher levels of caregiving stress. In disabled children, a higher level of motor development leads to a decrease in caregiving stress and symptoms of depression for mothers (Kavlak et al., 2018).

When a child has functional limitations and may later become dependent, one of the most important responsibilities in raising young children is providing care. (Olawale et al., 2013). Parents' challenges to successfully manage their child's chronic health issues while also coping with the demands and necessities of daily life are examples of these changes in the caregiving role (krstic and Oros., 2012). Therefore, compared to parents of typically developing children, parents of children with disabilities tend to experience higher levels of stress, according to previous research (Parkes et al., 2011). The characteristics and challenges of CP, which impact individuals and their parents as primary caregivers, can help us better understand the sources of parenting stress. Childhood motor disorders like cerebral palsy (CP) commonly affect movement and posture. (Ribeiro et al., 2014). Children with this condition often exhibit sensory, linguistic, and intellectual deficits in addition to

motor function abnormalities, leading to complex limitations in self-care activities. (krstic and Oros., 2012; Olawale et al., 2013). High levels of parenting stress have been shown to significantly correlate with the intellectual and communication deficits in children (Parkes et al., 2011). Garip et al., (2016)'s recent study found that mothers of CP children had higher levels of exhaustion, which was directly linked to depression and a decline in quality of life. (Garip et al., 2016).

Several detrimental effects of stress and worry are left behind, which have an immediate negative impact on the physical and mental development of the mothers and newborns (Yilmaz et al., 2013). Worry, which has an impact on one's disposition and emotional state, is the most common mental disorder that often manifests. Emotional and mental issues serve as its catalyst. Worry disorders include, for instance, social fear, obsessive-compulsive disorder, acute stress disorder and post-traumatic stress disorder. In addition to illnesses caused by general medical problems and substance-induced worry disorders, adjustment disorders with worry symptoms also exist. Take a history going back at least six months to see if there was any type of persistent concern or difficulties managing the concern, and at the same time see if there were any three or more symptoms in particular. These include restlessness, changes in mental state, difficulty focusing or maintaining focus, impatience, and insomnia. Shortness of breath, excessive sweating, and other symptoms of panic disorder can also be confused with worry symptoms. The majority of individuals with worry disorders go through stressful life events; women always experience worry at a higher rate than males, but the underlying reason for this is completely unidentified. It is believed that male reproductive hormones work in a way that suppresses worry. Several studies have shown that women experience more stressful life events than males do, and this may be a contributing reason to women's worry (Adwas et al., 2019).

Similarly, Sajedi et al. (2010) confirmed the study's discovery that women with CP children are 2.26 times more likely to experience depression. Furthermore, the findings of a study demonstrated the strong associations between mother's evaluations and stress related to parenting, revealing that mothers' unfavorable evaluations and parenting stress were positively linked while mothers' positive evaluations were negatively correlated with parenting stress. Parenting stress and perceived social support were found to be negatively correlated in a comparable manner. Clearly, the results indicate that parental assessment significantly impacts

parenting stress in mothers of children with cerebral palsy. Negative evaluation in particular was identified as the most reliable indicator of maternal parenting stress (En and Juhari., 2017).

This was the initial survey on caregiver psychological well-being using a population database of caregivers of teenagers with CP in Bangladesh, and one of the scarce investigations from low- and middle-income countries. This investigation validated previous discoveries that caregivers of teenagers with cerebral palsy (CP) were significantly more prone to feelings of unhappiness and pressure compared to caregivers of teenagers without CP. The study affirmed some but not all other outcomes, detecting no variance in unease between caregivers of teenagers with CP and caregivers of teenagers without disability (Power et al., 2019).

A total of 203 primary caregivers (mothers) of children with CP were the focus of an observational cross-sectional investigation in India. The child's gross motor function level was determined using the Gross Motor Functional Classification System. There was a significant association between the level of GMFCS-ER and the rating scales for depression. Around 68.42% of mothers of children with GMFCS-ER levels 1 and 5 exhibited no indications of depression, in contrast to 65.96% of mothers of children with levels 5 and above (Sonune et al., 2021).

A non-probabilistic sample of 204 Jordanian caregivers was utilized in a Jordanian cross-sectional descriptive, correlational design. From Jordanian healthcare facilities that provided comprehensive care for children with cerebral palsy, both mothers and fathers were chosen for individual interviews instead of in pairs. Caregivers were requested to complete the Gross Motor Function Classification System, Perceived Stress Scale (PSS), Beck Depression Inventory, Strengths and Difficulties Questionnaire and Multidimensional Scale of Perceived Social Support This analysis employed statistical measures to describe the data. To explore the relationships between the variables, bivariate correlation analysis was employed. Ah, I understand. More than 60% of caregivers experienced parental anxiety and stress. The caregiver's significant emotional distress and lack of support from friends were both associated with the child's severe disability. There was a significant negative correlation between parental stress, depression and social support. The least supported caregivers were those with the highest emotional discomfort (Al-Gamal and Long., 2013).

Three tertiary medical facilities in the Nigerian state of Osun underwent a descriptive cross-sectional study conducted within the hospital setting. To assess the level of stress and burden experienced by caregivers, a total of 239 caregivers were interviewed and administered the Parental Stress Scale and Caregiver Difficulty Scale. The data was collected and analyzed using the Statistical Program for Social Sciences for Windows version 22, with a significance level set at p 0.05. Multivariate linear regression was performed to examine the relationships between clinical, socio-demographic factors, and levels of stress and burden experienced by caregivers. The most influential factors predicting caregiver burden were the severity of cerebral palsy, the caregiver's level of education and having a male child. Similarly, the most influential factors predicting stress were the severity of cerebral palsy, the caregiver's level of education and their own stress levels. It is well-known that stress and burden experienced by caregivers can have detrimental effects (Omale et al., 2019).

According to the World Health Organization (WHO), depression is a relatively common psychological condition that impacts the desire for food, visions during sleep, ability to concentrate, and overall mood, as well as feelings of sadness, disinterest, guilt, and loss of pleasure (Mehmedinovic et al., 2012). A wide range of depressive illnesses that can afflict mothers collectively go under the umbrella term "maternal depression." It has long-lasting or even permanent impacts on a kid's growth and wellbeing and can result in major health hazards for both the mother and the child. An individual's life can be negatively impacted by maternal depression, which can then have an impact on his or her work, family, and the health and development of his or her unborn child (National Institute for Health Care Management, 2010). Maternal depression is becoming recognized as a global public health concern. Some typical indicators and manifestations of depression include the following: Decreased mobility, reduced sexual desire, fatigue, difficulty focusing, constant uncertainty, excessive sleep or disrupted sleep patterns, changes in appetite or excessive eating, suicidal thoughts, crying, difficulty forming a bond with the baby, disinterest in the baby, and fluctuations in mood are just a few symptoms of persistent unease and sorrow (Bembnowska and Josko-Ochojska., 2015).

The reasons for depression may vary depending on a range of factors. If a member of the family develops depression, there is an immediate increase in the likelihood that another family member will also be affected. The age range of 20 to 40 is considered to be the most susceptible to developing depression. Women are more

inclined than men to experience depression throughout their lifetimes, and they also make more frequent and on average more attempts at suicide. Women often deliberately commit suicide. Most women who attempt suicide do so without success. In Western countries, the rate of depression in men is half that of women, and men are diagnosed with depression at a lower rate than women. According to experts, men are less likely than women to express concerns about their mental health and seek professional help, which leads to lower rates of depression in men. Surprisingly, the suicide rate for men is three times higher than that for women. The contradictory relationship between men's low rates of diagnosed depression and high suicide rates is believed to be caused by the stigma surrounding mental illness, which may deter men from seeking help, adhering to therapy, and/or disclosing symptoms of depression and/or thoughts of suicide. Depression is worsened by job loss, divorce, the loss of a close friend, and other traumatic life experiences. Research shows that individuals who have been unemployed for six months or more in the past five years have a depression rate that is nearly three times higher than that of the general population (Oliffe et al., 2016).

According to the expanded and updated Gross Motor Function Classification Scale, CP was identified in a relatively recent Australian cross-sectional study published in 2021. The Depression, Anxiety and Stress Scale, a 21-item tool, was used to evaluate the psychological well-being of caregivers. This measure was selected because it does not include a sleep item, unlike some other measures of depression. Seven items, each rated on a 4-point scale from "did not apply to me at all" to "applied to me very much," comprise each subscale. Scores are standardized and categorized into five levels of severity: mild, moderate, severe, and extremely severe. Internal consistency in the current study was strong to excellent, with values of 0.94 for depression, 0.81 for anxiety and 0.90 for stress. Furthermore, it was demonstrated that caregivers of children with more severe motor impairments reported higher levels of depression symptoms. Children who required more nighttime supervision reported more symptoms of depression, increased stress, and lower levels of well-being (Lang et al., 2021).

Parents who have children with different developmental disorders, like cerebral palsy are prone to experiencing increased feelings of sadness. Caregivers of children with cerebral palsy often experience elevated levels of stress, worry and melancholy (Lee et al., 2018; Barreto et al., 2020).

CHAPTER – III: METHODOLOGY

3.1: Study design:

It was a cross sectional type of descriptive study carried out with the objective of assessing the level of depression, anxiety and stress.

3.2: Study Place:

Data were collected from the mothers of children with cerebral palsy attending at Protibondhi Sheba-o-Sahajjo Kendra (PSOSK), Disability schools, Bangladesh Shishu Kalyan Parishad, Private Rehabilitation center in Dhaka city, Bangladesh.

3.3: Study period:

The duration of the study period was 12 months from 1st july 2022 to 30th June 2023.

3.4: Study population:

Mothers who has children with cerebral palsy and who were receiving treatment and rehabilitation in Protibondhi Sheba-o-Sahajjo Kendra(PSOSK), Disability schools, Bangladesh Shishu Kalyan Parishad, Private Rehabilitation centre in Dhaka city, constituted the study population for the present study.

3.5: Sample size:

The required sample size of the study was calculated by using the following statistical formula.

$n=z^2pq/d^2$

Here,

N= Sample size

Z= 1.96 (Z-value) (e.g, 1.96 for 95 percent confidence level)

P= 0.71 (Soliman, et al., 2019).

d=0.05 (Level of Significance/ margin of error)

Expected Sample was 317 but 228 data was collected from 228 sample because time limitation and that number was easy for me to collect and to analyzed the data. So I selected those number, in additionally it was better for the study to compare with other study.

3.6: Sampling technique:

The convenient sampling technique was adopted to select the children with cp from different rehabilitation center.

3.7: Eligibility criteria:

3.7.1: Inclusion criteria:

- Mother who has at least one CP children which age within 1-18 years.
- Mothers who were full time career.
- Mothers who were voluntarily agreed to participate in the study.

3.7.2: Exclusion criteria:

- Psychologically disable mothers
- Mothers of children with Autism, Down syndrome, spinal bifida etc.
- Any chronic disorders of mothers as Arthritis, diabetic mellitus, Hypertension

3.8: Method of data collection:

Self-administered questionnaire method was adopted to collect data from the participants.

3.9: Instrument and tools of data collection:

A questionnaire was prepared according to the objectives and variables of the present study. The questionnaire contained both open and closed ended questions. The questionnaire had three parts. First part contains questions on socio-demographic information of both mother and their children's. The second part included question about gross motor function of the children by Gross motor functional classification system and third part contain depression, anxiety and stress related questionnaire by Depression, Anxiety and Stress scale-21.

3.10: Procedure of data collection:

Data from the participants were collected from different rehabilitation center. Before data collection, permission was taken from the head of the rehabilitation center. The mothers of cp child were selected as sample unit. The aims and objectives of the study were explained to the participants. The mothers who agreed to participate in the study were included in the sample. Obtaining verbal inform consent, the pre-tested questionnaire was handed over to the participants. The researcher himself gave instructions to the participants about writing their responses accordingly into the questionnaires. The participants returned the questionnaires after completion.

3.11: Data management:

3.11.1: Data editing:

After collection of the questionnaire from the participants, these were checked for any error inconsistency in the responses. Necessary corrections were done accordingly. The responses were coded for the entry into the computer program**.**

3.11.2: Data entry:

Data from the questionnaire were entered into statistical package for social science (SPSS)-25 versions by the researcher himself.

3.11.3: Data analysis:

Analysis of data was carried out according to the objectives of the study. Mean and percentage were two measurements of descriptive statistics used in the most of the cases. Relationship was assessed between dependent and independent variable.

3.12: Data presentation:

The findings of the study have been presented by frequency tabulation of the characteristics. The result was presented by various charts, graphs and description of the variable.

3.13: Ethical consideration:

The researcher submitted a research proposal to the department of physiotherapy for approval and obtained written permission from the ethical review board of Saic College of Medical Science and Technology (SCMST). No physical examination or any invasive technique was used in the present research. There was no direct benefit to respondents; however, the study findings might be beneficial among the undergraduate medical students. The purpose of the study was explained to every participant and asked for their response. The respondents who also gave informed verbal consent was included in the study. The participants were also informed of her right to discontinue at any point of interview. Refusal to participate involved no loss of benefits which she was otherwise entitled.

Data of the participants were maintained with strict confidentiality. Every participant was assigned a unique code number for this study. The documents for these code numbers linking subjects were kept in a locked cabinet under the direct supervision of the researcher.

Chapter: Ⅳ Result

The objective of the present study was to determine the level of depression, anxiety and stress among the mothers of children with cerebral palsy attending different rehabilitation centers in Dhaka city. Data were collected from 228 participants by interview using a pre tested questionnaire and DASS-21questionnaire. Data were analyzed by SPSS program. The findings of the study have been presented in the following sections.

The study showed that the socio-demographic picture including age of the children, gender of the children, age of the mother, Number of children, Religion of the parents, Marital status, educational qualification, Occupation of the mother, Monthly household income, Current residency type, Permanent address, Cousin marriage, Healthy baby, Birth injury of all participants. The study was conducted among 228 participants where all of them were mother of children with CP.

Age of the Children: About age of the children, 147 (64.5%) belonged to the age group of 1-6 years and 64 (28.1%) belonged to the age group of 7-12 years, 17(7.5%) were in the age group of 13-18 years. The mean age of children was 5.91 years and standard deviation was 3.71 [Table no.1].

Gender of the child: Regarding gender of the children, 136 (59.6%) were male and 92(40.4 %) were female [Table no.1].

Age of the mother: About frequency distribution of the mothers by age, it was found that 91(39.9%) mothers belonged to the age group of 26-30 years. It was also found 68(29.8%) mothers were in the age group of 15-25 years. [Table no.1].

Number of children: The study showed that 114(50.0%) family had 1 child and 64(36.8%) had 2 children [Table no.1].

Religion of the parents: In this study, recorded 217(95.2%) were Muslim and 11(4.8%) were Hindu [Table no.1].

Marital status: In this study, the majority participants 223 (97.8 %) were married and 5(2.2%) were divorced or widow [Table no.1].

Educational qualification: The majority SSC or lower-level participants were recorded to be 120 (52.6%), HSC level recorded to be 75 (32.9%) participants,

24(10.5%) were Graduate and 9(3.9%) had education level up to post-graduate or above [Table no.1].

Occupation of the mother: It was found that most of the participants 92.1%(n=210) were housewife, 12(5.3%) Service, 2(0.9%) were Business and 2 (1.8%) were Heath care [Table no.1].

Monthly household income: In this study, participants household monthly income 19(8.3%) were <15000 or lower economic status, 66(28.9%) were 15000-30000 or lower middle, 64(28.1%) were 31000-45000 or higher middle and 79(34.6%) were >45000 or higher [Table no.1].

Current residency type: Among the entire participants current residency type 65 (28.5 %) were own, 133 (58.3 %) were rented and 30 (13.2%) were others [Table no.1].

Permanent address: Among the participants 65 (28.5 %) came from Village, 55(24.1 %) came from semi city and 108 (47.4%) came from City [Table no.1].

Cousin Marriage: All participants from 46 (20.2%) got cousin marriage and 182 (79.8 %) weren't married to cousin [Table no.1].

Healthy baby: Among them 102 (44.7%) participants had healthy baby and 126 (55.3 %) had unhealthy baby [Table no.1].

Birth injury: From total participants 145(63.6 %) were only birth injured baby and 83(36.4%) weren't birth injured baby [Table no.1].

Table no-1: Socio-demographic information of the participants

n=228

Socio-demographic characteristics		Frequency	
		N	%
Age of the children in years	1-6	147	64.5
	7-12	64	28.1
	13-18	17	7.5
Gender of the child	Male	136	59.6
	Female	92	40.4
Age of the mother	15-25	68	29.8
	26-30	91	39.9
	31-35	45	19.7
	>35	24	10.5
Number of children	1	114	50
	2	84	36.8
	3 or more	30	13.2
Religion of the parents	Muslim	217	95.2
	Hindu	11	4.8
Marital status	Married	223	97.8
	Divorced/widow	5	2.2
Educational qualification	SSC or lower	120	52.6
	HSC	75	32.9
	Graduate	24	10.5
	Post-graduate	9	3.9
Occupation of the mother	House wife	210	92.1
	Service	12	5.3
	Business	2	0.9
	Health care	4	1.8

Monthly household income	<15000	19	8.3
	15000-30000	66	28.9
	31000-45000	64	28.1
	>45000	79	34.6
Current residency type	Own	65	28.5
	Rented	133	58.3
	Others	30	13.2
Permanent address	Village	65	28.5
	Semi city	55	24.1
	City	108	47.4
Cousin marriage	Yes	46	20.2
	No	182	79.8
Healthy baby	Yes	102	44.7
	Yes	126	55.3
Birth injury	Yes	145	63.6
	No	83	36.4

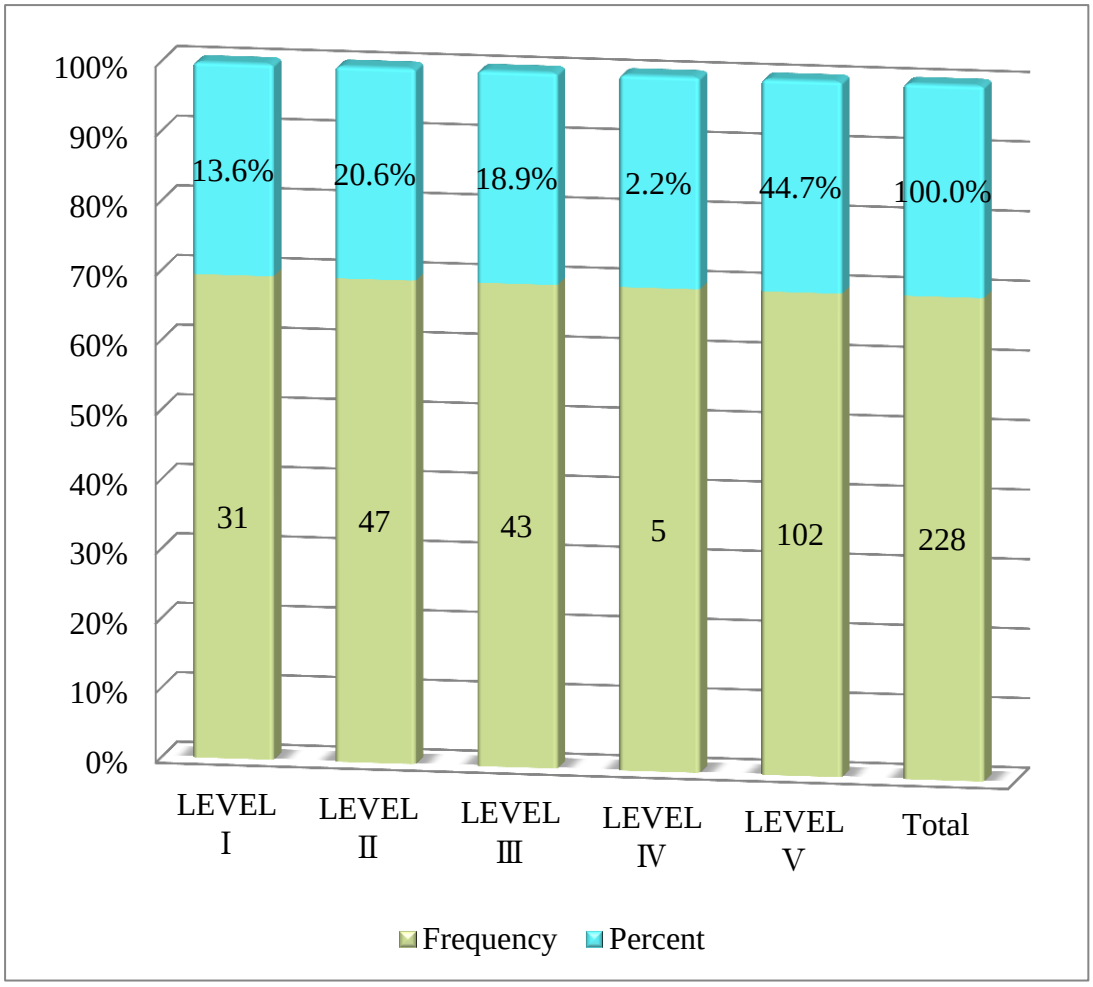


Figure no-1: Level of gross motor function of the CP children.

Among 228 participants 228 was CP children. In gross motor function of the CP children, 31 (13.6%) were in level- Ⅰ (Walks without limitations), 47 (20.6%) were in level- Ⅱ (Walks with limitations), 43 (18.9%) were in level-Ⅲ (Walks using a hand-held mobility device), 5 (2.2%) were in level-Ⅳ (Self mobility with limitations; may use powered mobility) and 102 (44.7%) were in level- Ⅴ (Transport in a manual Wheelchair). From this it was clear that most of the children were in Level- Ⅴ. The mean gross motor function level of the children was 3.44 and SD was 1.543 [Figure no-1].

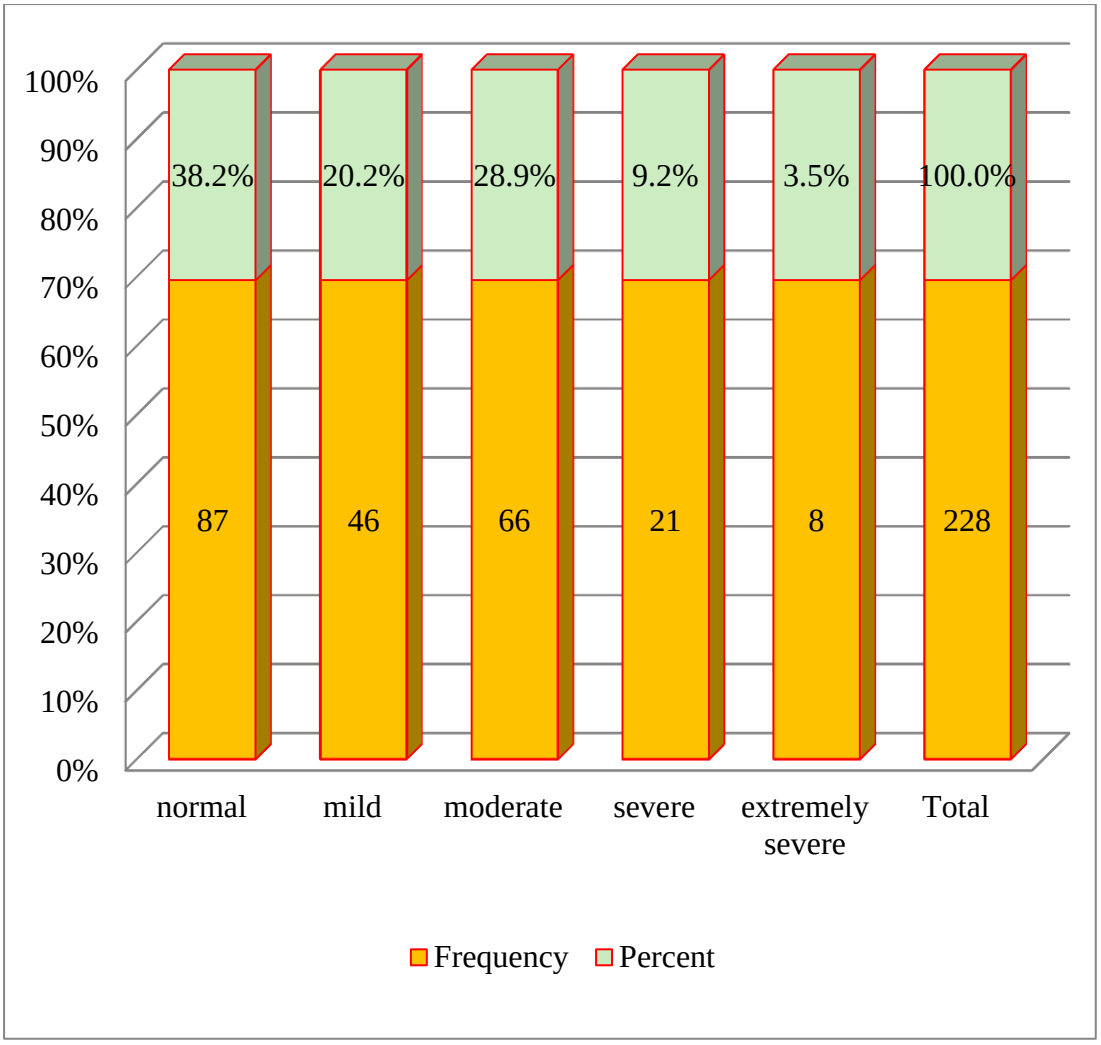


Figure-2: Level of depression of the mothers

The study displayed that among the participants of this study out of 228 mothers of CP, 87 (38.2%) had normal depression, 46 (20.2%) had mild depression, 66 (28.9%) had moderate depression, 21 (9.2%) had severe depression and 8 (3.5%) had extremely severe depression. The mean depression level was 2.20 and SD was 1.150 [Figure no-2].

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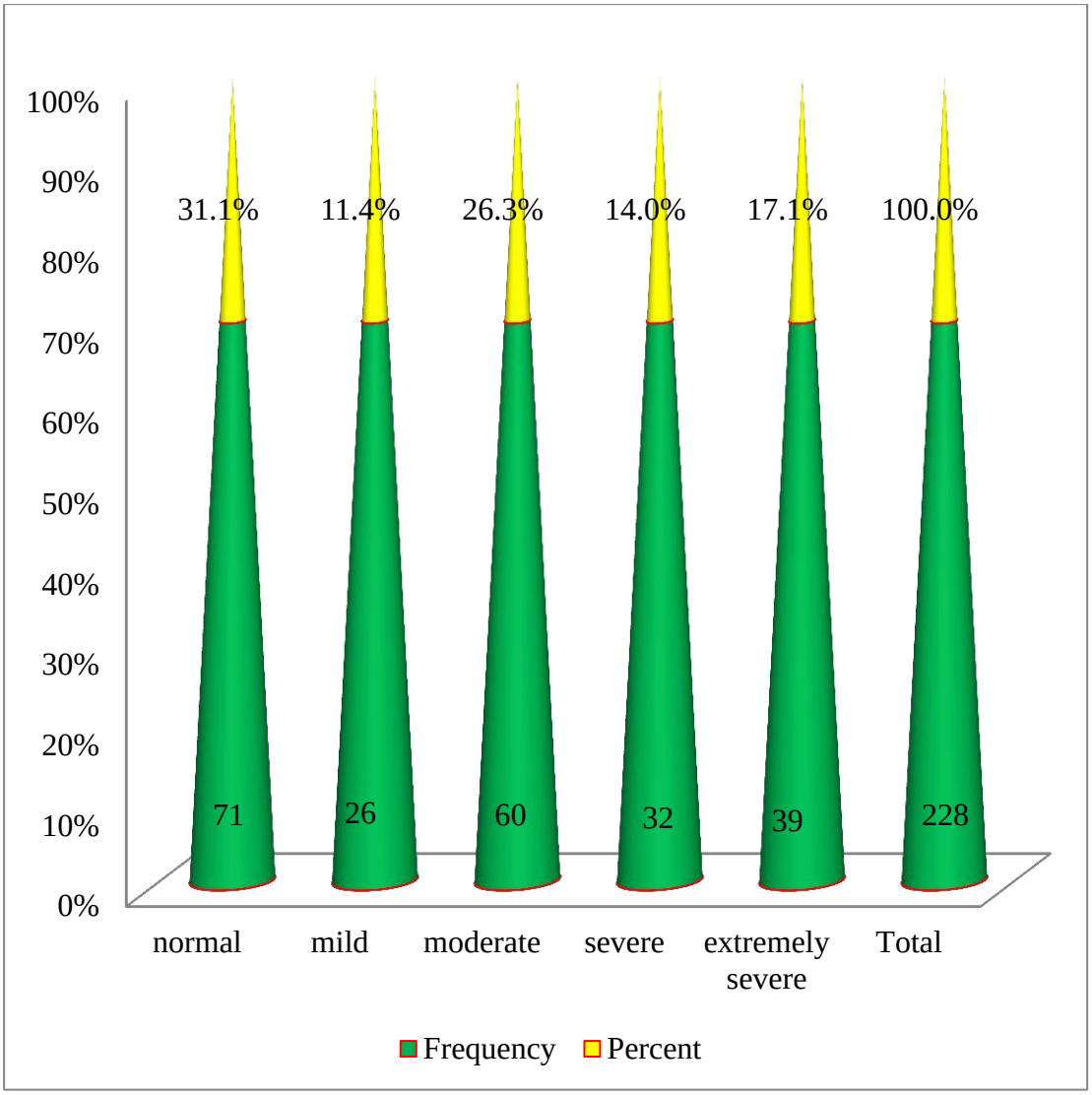

Figure-3: Level of anxiety of the mothers

The study revealed that out of 228 participants, 71 (31.1%) had normal anxiety, 26 (11.4%) had mild anxiety, 60 (26.3%) had moderate anxiety, 32 (14.0%) had severe anxiety and 39 (17.1%) had extremely severe anxiety. The mean anxiety level was 2.75 and SD was 1.459 [Figure no -3].

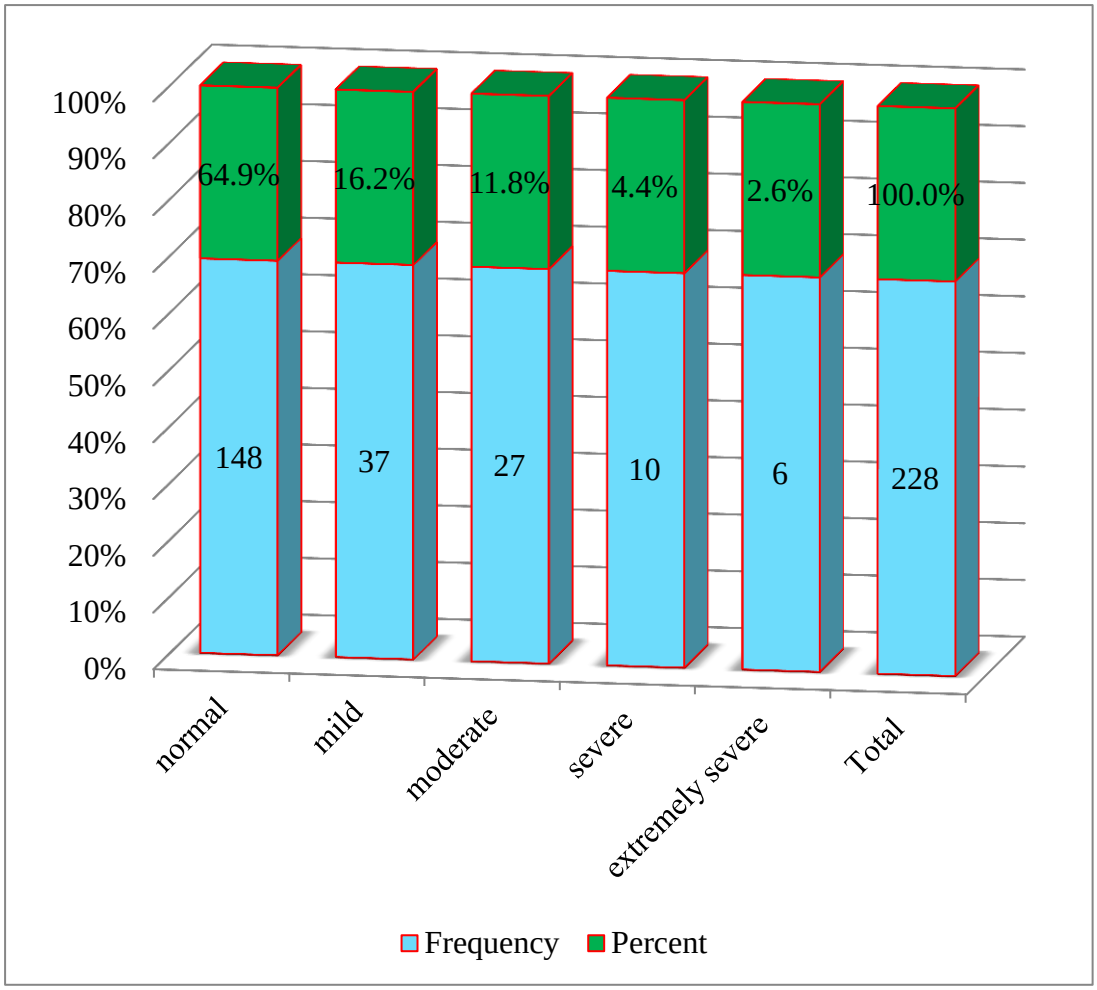

Figure-4: Level of Stress of the mothers

The survey represented that, 148 (64.9%) participants had normal stress, 37 (16.2%) participants had mild stress, 27 (11.8%) participants had moderate stress, 10 (4.4%) participants had severe stress and 6 (2.6%) participants had extremely severe stress. The mean stress level was 1.64 and SD was 1.026 [Figure no - 4].

Table no-2: Grand table for level of depression, anxiety and stress of the mothers according to DASS-21 scale.

Variables	Level	Frequency		Mean	Std.Deviation
		N	%		
Depression	Normal	87	38.2	2.20	1.150
	Mild	46	20.2		
	Moderate	66	28.9		
	Severe	21	9.2		
	Extremely severe	8	3.5		
Anxiety	Normal	71	31.1	2.75	1.459
	Mild	26	11.4		
	Moderate	60	26.3		
	Severe	32	14		
	Extremely severe	39	17.1		
Stress	Normal	148	64.9	1.64	1.026
	Mild	37	16.2		
	Moderate	27	11.8		
	Severe	10	4.4		
	Extremely severe	6	2.6		

Table no -3: Frequency distribution of the mothers by depression and gross motor function of the children.

Gross motor function of the children	Depression of the mothers					Total
	Normal	Mild	Moderate	Severe	Extremely severe	
LEVEL Ⅰ	15 (48.40%)	5 (16.1%)	7 ((22.6%)	2 (6.5%)	2 (6.5%)	31 (13.60 %)
LEVEL Ⅱ	13 (27.7%)	13 (27.7%)	13 (27.7%)	6 (12.8%)	2 (4.3)	47 (20.61 %)
LEVEL Ⅲ	20 (46.5%)	9 (20.9%)	13 (30.2%)	0 (0.0%)	1 (2.3%)	43 (18.86 %)
LEVEL Ⅳ	2 (40.0%)	1 (20.0%)	1 (20.0%)	0 (0.0%)	1 (20.0%)	5 (2.20%)
LEVEL Ⅴ	37 (36.3%)	18 (17.6%)	32 (31.4%)	13 (12.7%)	2 (2.0%)	102 (44.74 %)
Total	87 (38.2%)	46 (20.20%)	66 (28.9%)	21 (9.2%)	8 (3.5%)	228 (100.0 %)

x^2 =18.105, *df*=16, *p*=0.318

The study discovered that, frequency distribution of the mothers by depression and gross motor function of the children. It was found that, association between level of depression of the mothers and gross motor function of the children is not statistically significant (x^2 =18.105, *df*=16, *p*=0.318) [Table no-3].

Table no-4: Frequency distribution of the mothers by anxiety and gross motor function of the children.

Gross motor function of the children	Anxiety of the mothers					Total
	Normal	Mild	Moderate	Severe	Extremely severe	
LEVEL Ⅰ	13 (41.9%)	5 (16.1%)	5 (16.1%)	5 (16.1%)	3 (9.7%)	31 (13.60%)
LEVEL Ⅱ	13 (27.7%)	3 (6.4%)	11 (23.4%)	9 (19.1%)	11 (23.4%)	47 (20.61%)
LEVEL Ⅲ	12 (27.9%)	7 (16.3%)	11 (25.6%)	7 (16.3%)	6 (14.0%)	43 (18.86%)
LEVEL Ⅳ	1 (20.0%)	2 (40.0%)	1 (20.0%)	1 (20.0%)	0 (0.0%)	5 (2.20%)
LEVEL Ⅴ	32 (31.4%)	9 (8.8%)	32 (31.4%)	10 (9.8%)	19 (18.6%)	102 (44.74%)
Total	71 (31.1%)	26 (11.4%)	60 (26.3%)	32 (14.0%)	39 (17.1%)	228 (100.00)

x^2 =16.749, *df*=16, *p*=0.402

The study showed that frequency distribution of the mothers by anxiety and gross motor function of the children. It was found that ssociation between level of anxiety of the mothers and gross motor function of the children is not statistically significant (x^2 =16.749, *df*=16, *p*=0.402) [Table no-4].

Table no -5: Frequency distribution of the mothers by stress and gross motor function of the children.

Gross motor function of the children	Stress of the mothers					Total
	Normal	Mild	Moderate	Severe	Extremely severe	
LEVEL Ⅰ	21 (67.7%)	3 (9.7%)	4 (12.9%)	3 (9.7%)	0 (0.0%)	31 (13.60 %)
LEVEL Ⅱ	28 (59.6%)	10 (21.3%)	5 (10.6%)	1 (2.1%)	3(6.4%)	47 (20.61 %)
LEVEL Ⅲ	28 (65.1%)	5 (11.6%)	8 (1`8.6%)	2 (4.7%)	0 (0.0%)	43 (18.86 %)
LEVEL Ⅳ	2 (40.0%)	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	5(2.20 %)
LEVEL Ⅴ	69 (67.6%)	19 (18.6%)	10 (9.8%)	3 (2.9%)	1 (1.0%)	102(44. 74%)
Total	148 (64.9%)	37 (16.2%)	27 (11.8%)	10 (4.4%)	6 (2.6%)	228 (100.0 %)

x^2 =44.67, *df*=16, *p*=0.00

About frequency distribution of the mothers by stress and gross motor function of the children. It was revealed that association between level of stress of the mothers and level of gross motor function of the children is statistically highly significant (x^2 =44.67, *df*=16, *p*=0.00) [Table no-5].

Table no-6: Association between socio-demographic variables and depression.

Association between socio-demographic variables and Depression of the mothers					
Variables		Depression			
		Chi-value(r2)	p-value	df	Significance
Socio-demographic variables	Age of child	9.419	0.308	8	No
	Gender of child	1.949	0.745	4	No
	Age of mother	18.170	0.111	12	No
	Number of children	12.280	0.139	8	No
	Religion of mother	8.844	0.065	4	No
	Marital status	4.169	0.384	4	No
	Education qualification	9.556	0.655	12	No
	Occupation of mother	11.329	0.501	12	No
	Monthly Income	26.843	0.008*	12	Yes
	Residency	5.043	0.753	8	No
	Permanent address	6.632	0.577	8	No
	Cousin marriage	3.492	0.479	4	No
	Healthy baby	9.459	0.051	4	No
	Birth injury	9.170	0.057	4	No

The table showed that, association between all socio-demographic variables and depression. But it was strong significant association found between depression of the mothers and monthly income, where $P<0.008$ and chi-value 26.843 [Table no- 6]

Table no-7: Association between socio-demographic variables and Anxiety.

Association between socio-demographic variables and anxiety of the mothers					
Variables		Anxiety			
		Chi-value(r2)	p-value	df	Significance
Socio-demographic variables	Age of child	8.175	0.417	8	No
	Gender of child	6.582	0.160	4	No
	Age of mother	20.209	0.063	12	No
	Number of children	8.613	0.376	8	No
	Religion of mother	0.735	0.947	4	No
	Marital status	5.135	0.274	4	No
	Education qualification	19.263	0.082	12	No
	Occupation of mother	15.190	0.231	12	No
	Monthly Income	21.027	0.050*	12	Yes
	Residency	7.165	0.519	8	No
	permanent address	5.596	0.692	8	No
	Cousin marriage	2.041	0.728	4	No
	Healthy baby	4.182	0.382	4	No
	Birth injury	12.896	0.012*	4	Yes

The survey revealed that, Association between all socio-demographic variables and the anxiety. Among them significant association found between monthly income and anxiety where P<0.050 and chi-value 21.027. And also strong association found between birth injury and anxiety where P<0.012 and chi-value 12.896 [Table no-7].

Table no-8: Association between socio-demographic variables and Stress of the mothers

Association between socio-demographic variables and Stress of the mothers					
Variables		Stress of the mothers			
		Chi-value	*p*-value	*df*	Significance
Socio-demographic variables	Age of child	10.217	0.25	8	No
	Gender of child	6.64	0.156	4	No
	Age of mother	17.35	0.137	12	No
	Number of child	6.024	0.644	8	No
	Religion of mother	1.021	0.907	4	No
	Marital status	1.188	0.88	4	No
	Education qualification	8.593	0.737	12	No
	Occupation of mother	13.448	0.337	12	No
	Monthly Income	16.936	0.152	12	No
	Residency	7.525	0.781	8	No
	Permanent address	10.116	0.257	8	No
	Cousin marriage	2.446	0.654	4	No
	Healthy baby	4.338	0.362	4	No
	Birth injury	8.257	0.083	4	No

The study showed that association between all Socio-demographic variables and stress of the mothers. It was not significant association found between socio-demographic variables and stress of the mothers [Table no.-8].

Table no- 9: Frequency distribution of the respondents by depression, anxiety and stress scale 1:

Hard to wind down of the participant	Frequency	
	N	%
Not applicable	127	55.7%
Applicable some of degree	90	39.5%
Applicable a considerable degree	6	2.6%
Applicable most of the time	5	2.2%
Total	228	100.0%

The study showed that 127 (55.7%) participants told that it was not hard to wind down for them. It was also found 90(39.5%) participants told that it is hard to wind down to some of degree [Table no-9].

Table no-10: Frequency distribution of the respondents by depression, anxiety and stress scale 2

Aware of dryness of participant's mouth	Frequency	
	N	%
Not applicable	84	36.8%
Applicable some of degree	110	48.2%
Applicable a considerable degree	31	13.6%
Applicable most of the time	3	1.3%
Total	228	100.0%

The study showed that 110 (48.2%) participants was aware of dryness of their mouth to some of degree and 84 (36.8%) participants was not aware of dryness of their mouth [Table no-10].

Table no-11: Frequency distribution of the respondents by depression, anxiety and stress scale 3

The participants couldn't seem to experience any positive feeling at all	Frequency	
	N	%
Not applicable	93	40.8%
Applicable some of degree	95	41.7%
Applicable a considerable degree	36	15.8%
Applicable most of the time	4	1.8%
Total	228	100.0%

The study displayed those 93(40.8%) participants couldn't seem to experience any positive feeling at all and 95(41.7%) participants couldn't seem to experience any positive feeling at all for some of degree [Table no -11].

Table no-12: Frequency distribution of the respondents by depression, anxiety and stress scale 4

Participant experienced breathing difficulty	Frequency	
	N	%
Not applicable	110	48.2%
Applicable some of degree	71	31.1%
Applicable a considerable degree	35	15.4%
Applicable most of the time	12	5.35
Total	228	100.0%

The research informed that 110 (48.3%) participants was not experienced breathing difficulty and 71 (31.1%) participants was breathing difficulty for some of degree [Table no-12].

Table no-13: Frequency distribution of the respondents by depression, anxiety and stress scale 5

Difficult to work up the initiative of the participants	Frequency	
	N	%
Not applicable	105	46.1%
Applicable some of degree	91	39.9%
Applicable a considerable degree	27	11.8%
Applicable most of the time	5	2.2%
Total	228	100.0%

The study displayed that, 105 (46.1 %) participants was not difficult to work up the initiation and 91(39.9 %) participants was difficult to work up the initiation to some of degree [Table no-13].

Table no-14: Frequency distribution of the respondents by depression, anxiety and stress scale 6

Participant tended to over react to situation	Frequency	
	N	%
Not applicable	103	45.2%
Applicable some of degree	85	37.3%
Applicable a considerable degree	33	14.5%
Applicable most of the time	7	3.15
Total	228	100.0%

About this study, 102(45.2%) participants were not tended to over react to situation and 85(37.3%) participants tended to over react to situation was some of degree [Table no.14].

Table no.15: Frequency distribution of the respondents by depression, anxiety and stress scale 7

Experienced trembling	Frequency	
	N	%
Not applicable	96	42.1%
Applicable some of degree	85	37.3%
Applicable a considerable degree	38	16.7%
Applicable most of the time	9	3.9%
Total	228	100.0%

About frequency distribution of the respondents by depression, anxiety and stress scale 7. It was showed that 96 (42.1%) participants was not trembling experienced and 85 (37.3%) participants was trembling experienced to some of degree [Table no. 15]

Table no- 16: Frequency distribution of the respondents by depression, anxiety and stress scale 8

Nervous energy of the participants	Frequency	
	N	%
Not applicable	60	26.3%
Applicable some of degree	93	40.8%
Applicable a considerable degree	56	24.6%
Applicable most of the time	19	8.3%
Total	228	100.0%

The study represented those 60 (26.3%) participants was not felt using her lot of nervous energy and 93 (40.8%) participants was felt using her lot of nervous energy to some of degree [Table no. 16].

Table no-17: Frequency distribution of the respondents by depression, anxiety and stress scale 9

Participant Worried about panic and make a fool	Frequency	
	N	%
Not applicable	111	48.7%
Applicable some of degree	83	36.4%
Applicable a considerable degree	23	10.1%
Applicable most of the time	11	4.8%
Total	228	100.0%

The study informed that 111(48.7%) participants was not worried about situation in which she might panic and make a fool of herself and 83(36.4%) participants was worried about situation in which she might panic and make a fool of herself to some of degree [Table no. 17].

Table no-18: Frequency distribution of the respondents by depression, anxiety and stress scale 10.

Participant had nothing to look forward	Frequency	
	N	%
Not applicable	100	43.9%
Applicable some of degree	98	43.0%
Applicable a considerable degree	23	10.1%
Applicable most of the time	7	3.1%
Total	228	100.0%

About frequency distribution of the respondents by depression, anxiety and stress scale 10. The study displayed those 100 (43.9%) participants felt that she had nothing it look forward to not applicable and 98(43.0%) participants felt that she had nothing it look forward to applicable some of degree [Table no. 18].

Table no-19: Frequency distribution of the respondents by depression, anxiety and stress scale 11

Participant getting agitated	Frequency	
	N	%
Not applicable	86	37.7%
Applicable some of degree	108	47.4%
Applicable a considerable degree	28	12.3%
Applicable most of the time	6	2.6%
Total	228	100.0%

The study showed that, 86 (37.7%) participants getting agitated to not applicable and 108(47.4%) participants getting agitated to some of degree [Table no. 19].

Table no- 20: Frequency distribution of the respondents by depression, anxiety and stress scale 12

Participants are Difficult to relax	Frequency	
	N	%
Not applicable	99	43.4%
Applicable some of degree	80	35.1%
Applicable a considerable degree	37	16.2%
Applicable most of the time	12	5.3%
Total	228	100.0%

The study displayed those 99 (43.4%) participants was difficult to relax and 80(35.1%) participants was some of degree of difficult to relax [Table no. 20].

Table no- 21: Frequency distribution of the respondents by depression, anxiety and stress scale 13

Participant felt down hearted and blue	Frequency	
	N	%
Not applicable	81	35.5%
Applicable some of degree	98	43.0%
Applicable a considerable degree	39	17.1%
Applicable most of the time	10	4.4%
Total	228	100.0%

The theses showed that, 81 (35.5%) participants was not felt down hearted and blue and 98 (43,0%) participants was felt down hearted and blue to some of degree [Table no. 21].

Table no- 22: Frequency distribution of the respondents by depression, anxiety and stress scale 14

Intolerant of anything	Frequency	
	N	%
Not applicable	119	52.2%
Applicable some of degree	76	33.3%
Applicable a considerable degree	21	9.2%
Applicable most of the time	12	5.3%
Total	228	100.0%

The paper represented those 119 (52.2%) participants was Intolerant of anything that kept her from getting on with what doing to not applicable and 76 (33.3%) participants was intolerant of anything that kept her from getting on with what doing to some of degree [Table no. 22].

Table no-23: Frequency distribution of the respondents by depression, anxiety and stress scale 15

Participant felt close to panic	Frequency	
	N	%
Not applicable	123	53.9%
Applicable some of degree	79	34.6%
Applicable a considerable degree	21	9.2%
Applicable most of the time	5	2.2%
Total	228	100.0%

The showed that, 123 (53.9%) participants was not applicable for felt close to panic and 79 (34.6%) participants was applicable some of degree for felt close to panic [Table no. 22].

Table no-24: Frequency distribution of the respondents by depression, anxiety and stress scale 16.

Participant Unable to become enthusiastic about anything	Frequency	
	N	%
Not applicable	91	39.9%
Applicable some of degree	99	43.4%
Applicable a considerable degree	31	13.6%
Applicable most of the time	7	3.1%
Total	228	100.0%

The study showed that, 91 (39.9%) participants was unable to become enthusiastic anything for not applicable and 99 (43.4%) participants was unable to become enthusiastic anything for applicable some of degree [Table no. 24].

Table no- 25: Frequency distribution of the respondents by depression, anxiety and stress scale 17

Participant Felt wasn't worth much as a person	Frequency	
	N	%
Not applicable	94	41.2%
Applicable some of degree	89	39.0%
Applicable a considerable degree	39	17.1%
Applicable most of the time	6	2.6%
Total	228	100.0%

The study showed that, 94 (41.2%) participants felt wasn't worth much as a person for not applicable and 89 (39.0%) participants felt wasn't worth much as a person for applicable some of degree [Table no. 25].

Table no- 26: Frequency distribution of the respondents by depression, anxiety and stress scale 18

Participant Felt rather touchy	Frequency	
	N	%
Not applicable	73	32.0%
Applicable some of degree	101	44.3%
Applicable a considerable degree	45	19.7%
Applicable most of the time	9	3.9%
Total	228	100.0%

The study showed that, 73 (32.0%) participants was not felt rather touchy and it was also found that 101 (44.3%) participants felt some of degree of rather touchy [Table no. 26].

Table no-27: Frequency distribution of the respondents by depression, anxiety and stress scale 19

Participant was aware of action of heart in the absence of physical exertion	Frequency	
	N	%
Not applicable	64	28.1%
Applicable some of degree	92	40.4%
Applicable a considerable degree	61	26.8%
Applicable most of the time	11	4.8%
Total	228	100.0%

The study showed that, 64 (28.1%) participants was aware of action of heart in the absence of physical exertion for not applicable and it was also found that 92 (40.4%) participants was aware of action of heart in the absence of physical exertion for applicable some of degree [Table no. 27].

Table no- 28: Frequency distribution of the respondents by depression, anxiety and stress scale 20

Participant Felt scared without any good reason	Frequency	
	N	%
Not applicable	125	54.8%
Applicable some of degree	62	27.2%
Applicable a considerable degree	33	14.5%
Applicable most of the time	8	3.5%
Total	228	100.0%

The study showed that 125 (54.8%) Participants felt scared without any good reason to not applicable and 62(27.2%) Participants felt scared without any good reason to applicable some of degree [Table no. 28].

Table no- 29: Frequency distribution of the respondents by depression, anxiety and stress scale 21

Participant Felt that life was meaningless	Frequency	
	N	%
Not applicable	96	42.1%
Applicable some of degree	83	36.4%
Applicable a considerable degree	36	15.8%
Applicable most of the time	13	5.7%
Total	228	100.0%

The study showed that, 96 (42.1%) Participants Felt that life was meaningless to not applicable and 83 (36.4%) Participants Felt that life was meaningless to application some of degree [Table no. 29].

CHAPTER-Ⅴ : DISCUSSION

The objective of the study was to determine depression, anxiety and stress among the mothers of children with cerebral palsy. Data were collected from 228 mothers by using a questionnaire and DASS-21 scale. The collected data were analyzed by SPSS 25 program. The discussion part of the research has been presented in the following section.

About age of the children, majority (64.5%) belonged to the age group of 1- 6 years. The mean age of the children was 5.91 years and standard deviation was 3.71 and About frequency distribution of the mothers by age, it was found that majority (39.9%) mothers belonged to the age group of 26-30 years. [Table no.1]. Soliman et al conducted a study on 332 mothers of children with CP where the mean age of the CP children was 10.23 years and standard deviation was 3.26 (Soliman et al., 2019). Another Bangladeshi study, Ahmed et al (2021) conducted on 70 mothers with cp children where children aged 2-12 years and Mothers' mean age ± standard deviation was 29.79 ± 4.02 years (Ahmed et al., 2021). Similarly, Also Garip et al. (2016) conducted a study on 90 participants where Mean age was 34.266 years and standard deviation was 8.47 and aged group (20–58) years for the mothers of CP children. Mean age of the children was 9.746 and standard deviation was 5.53, aged grouped was (2–18) years (Garip et al. 2016).

Regarding gender of the children, 136 (59.6%) were male and 92(40.4 %) were female [Table no.1]. A recent Bangladeshi study, Sultana et al (2022) stated that most of the cp children (53.1 %) were girl.

The study showed that (50.0%) family had 1 child, (95.2%) were Muslim, the majority participants (97.8 %) were married, the majority SSC or lower-level participants were recorded to be 120(52.6%), majority of the participants (92.1%) were housewife, (34.6%) were >45000 or higher economic status and among the entire participants current residency type (58.3 %) were rented. A case control study Gugala et al (2019) stated that majority of the children, (35.2 %) were two in family. A Bangladeshi cross sectional study, Sultana et al (2022) stated that among the 324 study participants (85.5%) were Muslims, (52.5%) had up to HSC level of education, (67.0%) were homemakers, In addition, over half of the participants (52.8%) had a family income of ≥ 50,000 BDT and the majority 266(82.1%) of participants lived in

the nuclear family.

All participants from (79.8 %) weren't married to cousin. The union between two people genetically related by descent from a common ancestor is called consanguineous marriage and any marriage between relatives less close than siblings (brothers and sisters) or parents and offspring are not necessarily outlawed but the dividing line between legal and illegal is vague and varies between countries. Consanguineous marriage is still high in Egypt (35.3%), especially among first cousins (86%) and however the frequency varies by region, On the other hand first cousin marriage is also risk for developing cerebral palsy, include birth after fewer than 32 weeks gestation, birth weight of less than 5 lb with intrauterine growth retardation, intracranial hemorrhage and trauma and about 10 to 20% patients (Chen et al., 2013).

This survey revealed that, majority (55.3 %) participants had unhealthy baby and majority **(**63.6 %) were only birth injured baby [Table no.1]. In India, one study showed that during birth 26.3% children had birth asphyxia (Souza et al., 2006). In addition, another study in Netherland showed that 17.3% children had birth asphyxia during birth (Toorn et al., 2007). Their birth injury is less than birth asphyxia and this is risk for developing CP children.

The study showed that 228 participants had 228 CP child. About gross motor function of the children (13.6%) were Level- Ⅰ (Walks without limitations), (20.6%) were in Level-Ⅱ (Walks with limitations), (18.9%) were in Level-Ⅲ(Walks using a hand held mobility device), (2.2%) were in level-Ⅳ(Self mobility with limitations; may use powered mobility) and (44.7%) were in level-Ⅴ(Transport in a manual Wheelchair). From this it is clear that majority of the children were in Level-Ⅴ. The mean gross motor function level of the children was 3.44 and SD was 1.543 (Figure-1). So, the highest number of CP children had GMFCS level- V and lowest number had level-IV in comparing with other study where another study found the highest number of children had level – V and lowest number in level- Ⅲ. So there was a similarity because both study show the highest number in level – V. When the gross motor function level of children with CP increased, the mothers' parenting stress decreased and When the gross motor function level of children with CP increased, the mothers self-control increased (Park, E.Y., 2021). Also Park and Kim (2020) in their

study they showed that the highest number in level – V and demands arising from greater activity limitation in children with CP lead to greater stress and depressive moods among their mothers.

In this study, DASS-21 scale was used to find out the level of depression, anxiety and stress in mothers of children with CP. By using this scale, it was found that majority of the participants (64.9%) had normal level of stress, (38.2%) had normal level of depression and (31.1%) had normal level of anxiety [Table no-2].

A similar study done by Lang et al (2021) found that 44% of caregivers reported poor psychological health with 17% reporting depression, 19% anxiety and 24% stress at moderate or severe levels. Ibrahim et al, (2018) used DASS21 in their study and found that 12.2%, 9.5% and 3.4% of parents with disable child had a mild, moderate and severe depression respectively. Soliman, et al., (2019) reported that among the 232 studied mothers, 55.1% of them showed that 24.1% mild, 25% moderate, and 6% severe depression. Another case-control study done by GOHEIR et al., (2022) reported depression of some severity, 17(80.95%) had minimal depression, 3(14.28%) had mild depression and 1(4.76%) had moderate depression.

At the present study significant association was found between level of Stress in mothers and gross motor function of the cp children (x^2 =44.67, df=16, p=0.00) [Table no.5].

Whereas, Park and Kim, (2020) determined causal relationships between activity limitations in children with CP and their mother's depression, self-esteem and parenting stress. The activity limitations of the children with CP influenced parenting stress in their mothers both directly and indirectly. Also found relatively strong direct and indirect effects mediated by depression and self-esteem. Lang et al., (2021) stated about those caregivers of children with more severe motor impairment reported greater depressive symptoms. Park (2021) was investigated, the relationship between the gross motor function level of children with CP and parenting stress and found that when the gross motor function level of children with CP increased, the mothers' parenting stress decreased and when the gross motor function level of children with CP increased, the mothers' self-control increased. Similar study found that, A poor association exists between parental stress and the child's GMFCS level, and the child's mobility distance according to the parent (gurbuz and Karakus., 2019). Similar another study conducted by Sonune et al., (2021) found that the higher the functional

limitation of the child higher was the depression level among the caregivers.

In current theses, there were significant association found between monthly income and the depression where P<0.008 and chi-value 26.843, Monthly income and anxiety where P<0.05 and chi-value 21.027 and Also strong association found between birth injury and anxiety where P<0.012 and chi-value 12.896. A study found a strong relationship between caregiver load and low income and rural living. While poverty makes life more difficult for people in both urban and rural locations (Wijesinghe et al., 2015). According to a study (Ramanandi & Rao, 2015), the amount of parental stress that parents of children with cerebral palsy face is related to their employment or financial situation. According to Kayili (2018), the amount of stress experienced by parents of handicapped children varies depending on their income.

CHAPTER -Ⅵ: LIMITATIONS

This research had some restrictions:

1) Sample size was small of this study, so only four significant associations found. If the sample size was larger then association with more variables might be founded.
2) Although the researcher was able to access relevant literature, they were all investigated in the context of different nations; hence no statistically significant results for Bangladesh were included in this analysis.
3) Some difficult questions and complex procedure to answering the DASS-21 questionnaire for the illiterate mothers. So there were some limitations to data collections.
4) Due to the cross-sectional nature of this study, it was not possible to determine the long-term relationships between the variables.
5) Given that the study's primary participants were mothers of children with CP, it was quite probable that the features of motor impairment in CP were represented.

CHAPTER – VII CONCLUSION AND RECOMMENDATION

7.1: Conclusion:

Cerebral Palsy (CP) is one of the most prevalent congenital disorders in childhood across the globe. The lack of awareness is leading to an increasing number of cerebral palsy patients every day. This condition affects a significant number of individuals, causing devastating effects on families, societies and entire countries. As Bangladesh is a developing nation with a large population living in poverty, the number of children with cerebral palsy is significant. In our society, mothers bear the responsibility of raising children. However, when a child with special needs is born, it shatters a mother's sense of capability, leaving a slow and deep wound that is difficult to heal. Mothers face numerous challenges in their lives caring for a child with CP, which can lead to depression, anxiety and stress. So, it is important to understand the everyday problems that mothers of children with CP face.

The present study was a cross sectional type of descriptive one carried out with the objective to determine the level of depression, anxiety and stress among the mothers of children with cerebral palsy. The information was collected by using the DASS-21 questionnaire to assess the level of depression, anxiety and stress among the mothers of children with CP, to describe socio-demographic information of the mothers and their children by using self-administered socio-demographic informative questionnaire, to find out the level of gross motor function of children with cerebral palsy by using GMFCS. The information was collected from a sample size 228 mothers and their CP children.

The study showed that about frequency distribution of the mothers by age, it was found that majority (39.9%) mothers belonged to the age group of 26-30 years. About age of the children, majority (64.5%) belonged to the age group of 1- 6 years. The mean age of the children was 5.91 years and standard deviation was 3.71. Regarding gender of the children, majority 136 (59.6%) was male. The study showed that (50.0%) family had 1 child, (95.2%) were Muslim, the majority participants (97.8 %) were married, the majority SSC or lower-level participants were recorded to be 120(52.6%), majority of the participants (92.1%) were housewife, (34.6%) were >45000 or higher economic status and among the entire participants current residency type (58.3 %) were rented. All participants from (79.8 %) weren’t married to cousin.

This survey revealed that, majority (55.3 %) participants had unhealthy baby and majority **(**63.6 %) were only birth injured baby. The study discovered that level of gross motor function of the CP children. About gross motor function of the CP children majority (44.7%) were in level-Ⅴ (Transport in a manual Wheelchair). In this study, DASS-21 scale was used to find out the level of depression, anxiety and stress in mothers of children with CP. By using this scale, it was found that majority of the participants (64.9%) had normal level of stress, (38.2%) had normal level of depression and (31.1%) had normal level of anxiety. The survey revealed that strong significant association between level of stress in mothers and gross motor function of the CP children (x^2 =44.67, *df*=16, *p*=0.00).The study found significant association between monthly income and the depression of the mothers, where P<0.008 and chi-value 26.843. The study more significant association found between monthly income and anxiety where P<0.05 and chi-value 21.027 and Also strong association found between birth injury and anxiety where P<0.012 and chi-value 12.896.

Children with CP require more assistance with self-care tasks than typical kids do. Complex gross motor restrictions in self-care activities in children with CP might be harmful to their mother's psychological health. According to this study, mothers who were illiterate, unmarried, cousin marriage, birth injury and housewives as well as those from semi-rural and poor socioeconomic backgrounds had depression, anxiety and stress in forms of normal, mild, moderate, severe and extremely severe level than other mothers. According to the findings, mother's psychological health associated with the gross motor function of the children and socio-demographic factors. Mothers frequently take the lead in the care and rehabilitation of children with CP. It will be challenging for them to participate in their children's rehabilitation process if they experience depressed, anxiety and stress symptoms for an extended period of time.

In order to enhance the rehabilitation process of the Cp children and produce better results for these children, health providers should take the psychological status of mothers into consideration. Avoidance of maternal depression by treatment is also advised.

7.2: Recommendation:

The following recommendations have been on the basis of the findings of the study:

1. It is advised that the participant count be increased if any additional researchers choose to conduct this study.
2. It is also advised that include various factors, such as the child's age, speech difficulties, epilepsy, and intellectual level as these factors may contribute to the mothers psychological health.
3. To ensure that children with CP are successfully rehabilitated, health care practitioners are advised to identify mothers who are at risk of poor mental health early on and offer psychological assistance.
4. It will be important to examine the long-term link between factors through intervention in future studies.
5. It also advised for a comparative study to find out psychological status and quality of life of the mothers.
6. More that additional researchers could be used the Brief Psychiatric Rating Scale (BPRS), Montgomery-Asberg Depression Rating Scale (MADRS), Major Depression Inventory (MDI), Primary Care Evaluation of Mental Disorders (PRIME-MD), Perceive stress scale.

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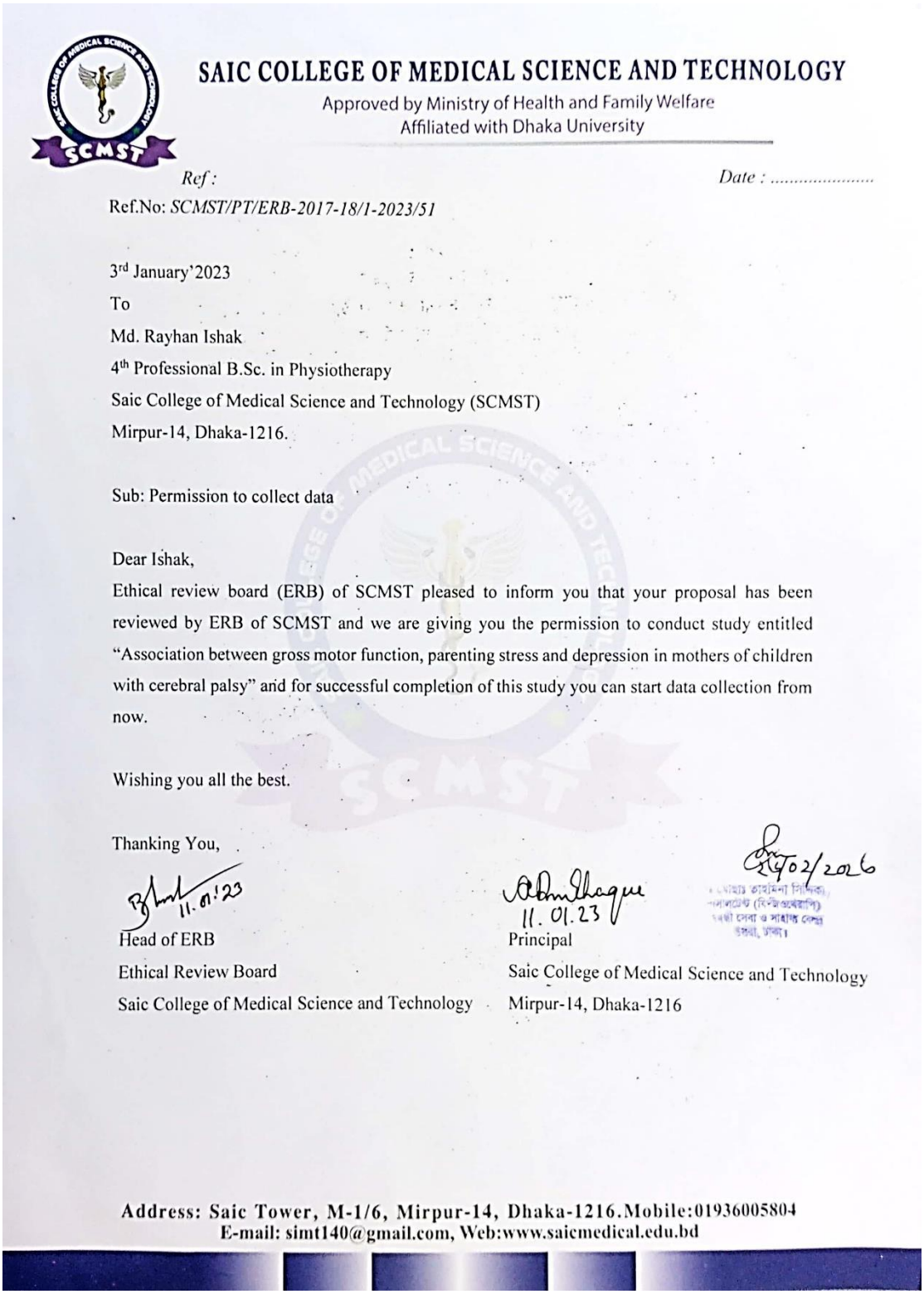
APPENDIX-A



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref : *Date :* .....

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/51*

3rd January'2023

To

Md. Rayhan Ishak

4th Professional B.Sc. in Physiotherapy

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Ishak,

Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving you the permission to conduct study entitled "Association between gross motor function, parenting stress and depression in mothers of children with cerebral palsy" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

11.01.23

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology

11.01.23

Principal

Saic College of Medical Science and Technology

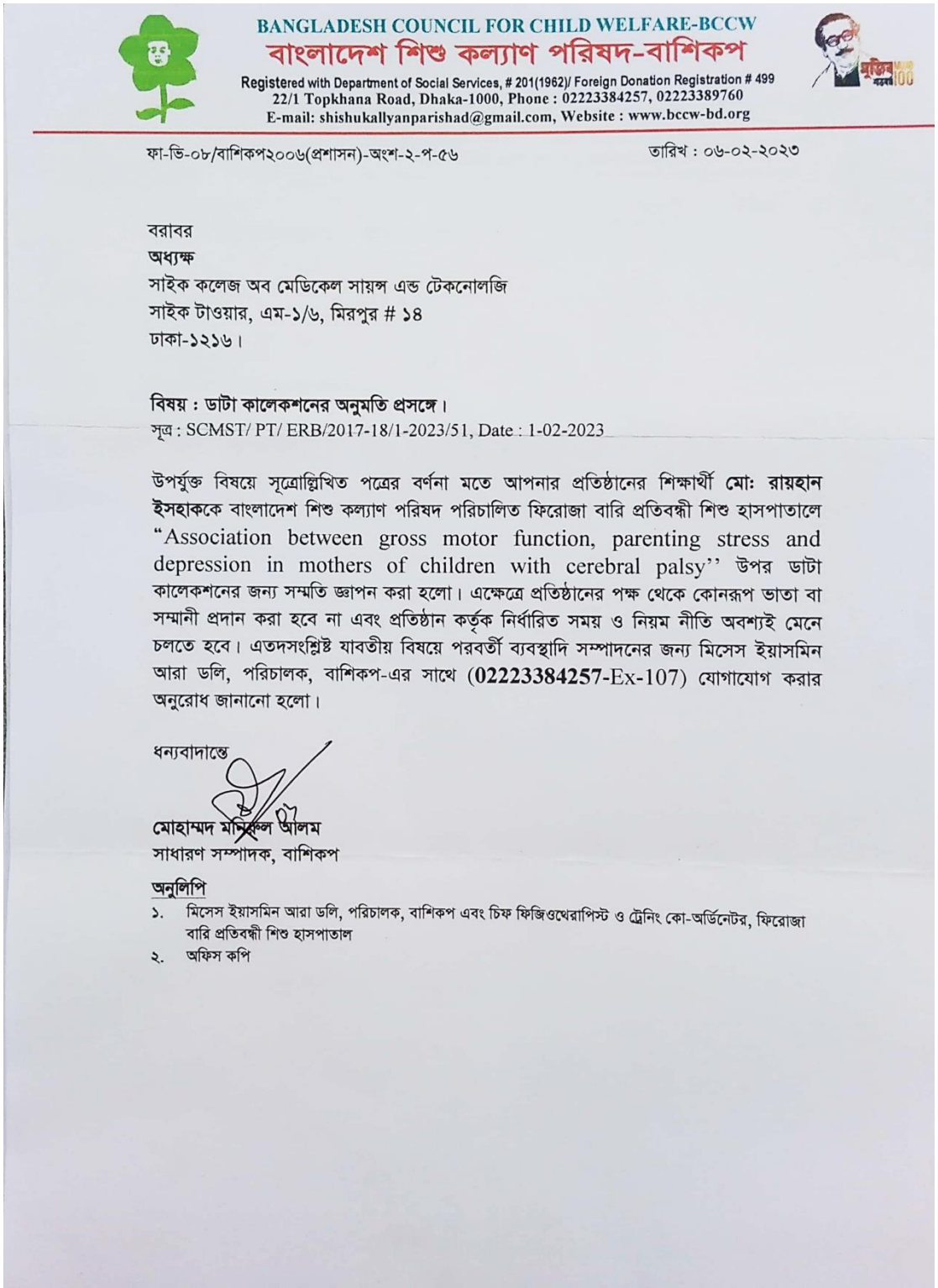
Mirpur-14, Dhaka-1216

02/2026

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216.Mobile:01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

Permission letter from IRB (SCMST) and Granted inside by PSOSK,Uttara,Dhaka

APPENDIX-B



BANGLADESH COUNCIL FOR CHILD WELFARE-BCCW
বাংলাদেশ শিশু কল্যাণ পরিষদ-বাশিকপ
Registered with Department of Social Services, # 201(1962)/ Foreign Donation Registration # 499
22/1 Topkhana Road, Dhaka-1000, Phone : 02223384257, 02223389760
E-mail: shishukallyanparishad@gmail.com, Website : www.bccw-bd.org

ফা-ভি-০৮/বাশিকপ২০০৬(প্রশাসন)-অংশ-২-প-৫৬ তারিখ : ০৬-০২-২০২৩

বরাবর
অধ্যক্ষ
সাইক কলেজ অব মেডিকেল সায়ন্স এন্ড টেকনোলজি
সাইক টাওয়ার, এম-১/৬, মিরপুর # ১৪
ঢাকা-১২১৬।

বিষয় : ডাটা কালেকশনের অনুমতি প্রসঙ্গে।
সূত্র : SCMST/ PT/ ERB/2017-18/1-2023/51, Date : 1-02-2023

উপর্যুক্ত বিষয়ে সূত্রোল্লিখিত পত্রের বর্ণনা মতে আপনার প্রতিষ্ঠানের শিক্ষার্থী **মো: রায়হান ইসহাক**কে বাংলাদেশ শিশু কল্যাণ পরিষদ পরিচালিত ফিরোজা বারি প্রতিবন্ধী শিশু হাসপাতালে "Association between gross motor function, parenting stress and depression in mothers of children with cerebral palsy'' উপর ডাটা কালেকশনের জন্য সম্মতি জ্ঞাপন করা হলো। এক্ষেত্রে প্রতিষ্ঠানের পক্ষ থেকে কোনরূপ ভাতা বা সম্মানী প্রদান করা হবে না এবং প্রতিষ্ঠান কর্তৃক নির্ধারিত সময় ও নিয়ম নীতি অবশ্যই মেনে চলতে হবে। এতদসংশ্লিষ্ট যাবতীয় বিষয়ে পরবর্তী ব্যবস্থাদি সম্পাদনের জন্য মিসেস ইয়াসমিন আরা ডলি, পরিচালক, বাশিকপ-এর সাথে (**02223384257**-Ex-107) যোগাযোগ করার অনুরোধ জানানো হলো।

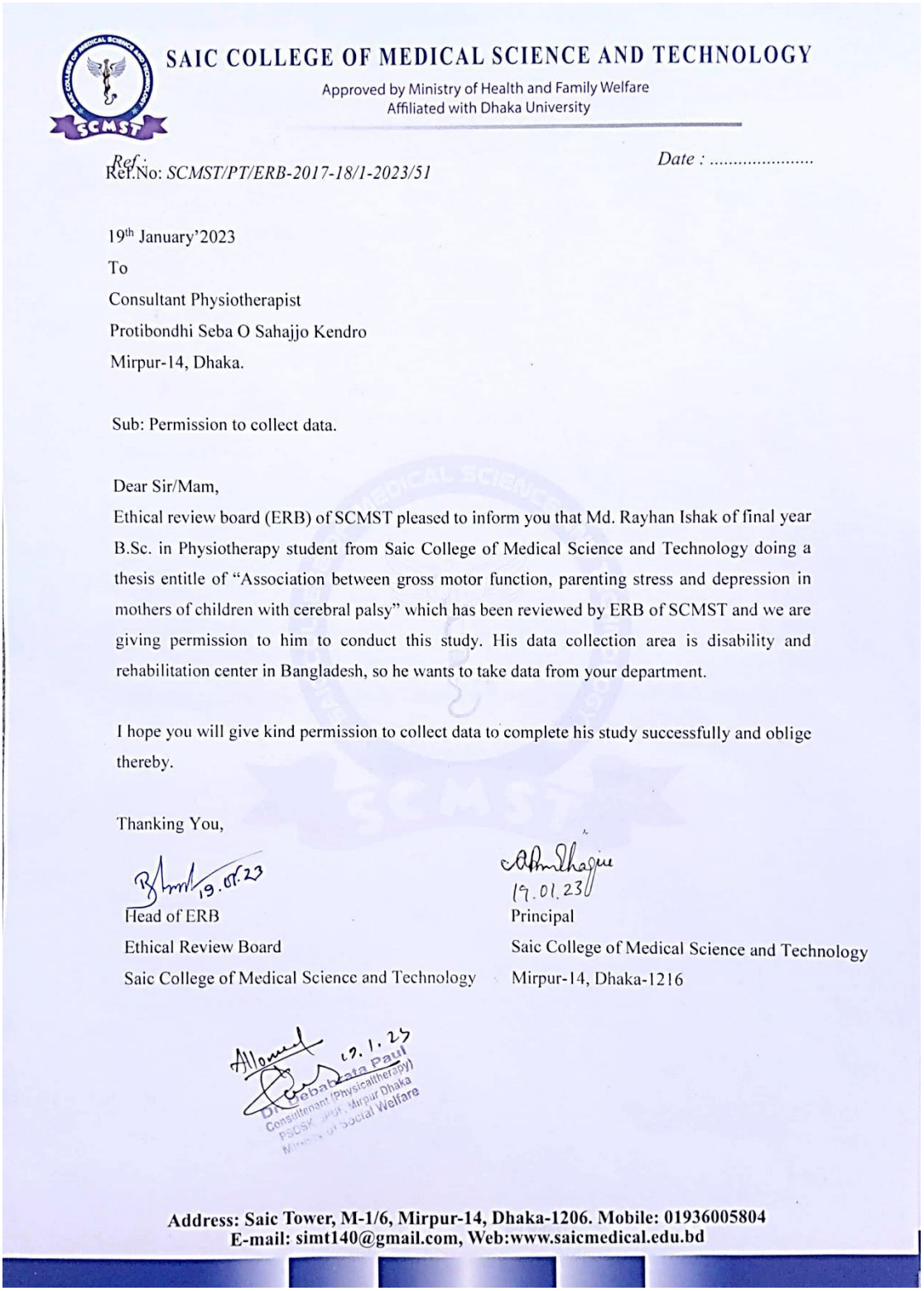
ধন্যবাদান্তে

মোহাম্মদ মমিনুল আলম
সাধারণ সম্পাদক, বাশিকপ

অনুলিপি
১. মিসেস ইয়াসমিন আরা ডলি, পরিচালক, বাশিকপ এবং চিফ ফিজিওথেরাপিস্ট ও ট্রেনিং কো-অর্ডিনেটর, ফিরোজা বারি প্রতিবন্ধী শিশু হাসপাতাল
২. অফিস কপি

Permission letter from BCCW, Topkhana, Dhaka

APPENDIX-C



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/51*

Date : .....

19th January'2023

To

Consultant Physiotherapist

Protibondhi Seba O Sahajjo Kendro

Mirpur-14, Dhaka.

Sub: Permission to collect data.

Dear Sir/Mam,

Ethical review board (ERB) of SCMST pleased to inform you that Md. Rayhan Ishak of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Association between gross motor function, parenting stress and depression in mothers of children with cerebral palsy" which has been reviewed by ERB of SCMST and we are giving permission to him to conduct this study. His data collection area is disability and rehabilitation center in Bangladesh, so he wants to take data from your department.

I hope you will give kind permission to collect data to complete his study successfully and oblige thereby.

Thanking You,

19.01.23

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology

19.01.23

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216

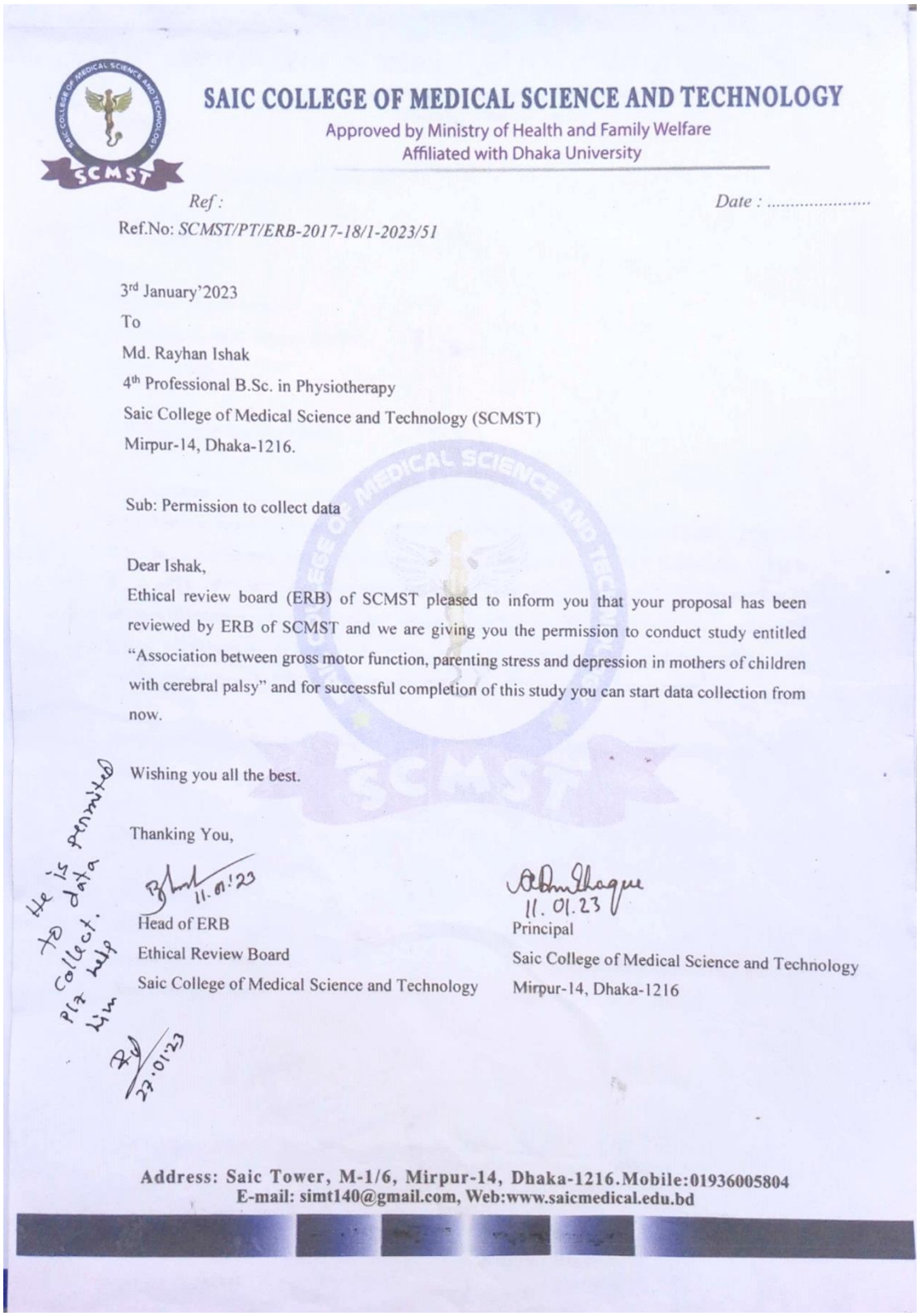
19.1.23

Dr. Debabrata Paul
Consultenant (Physicaltherapy)
PSOSK, HQ, Mirpur Dhaka
Ministry of Social Welfare

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206. Mobile: 01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

Permission letter from PSOSK, Mirpur-14, Dhaka (Head office).

APPENDIX-D



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref : *Date :* .....

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/51*

3rd January'2023

To

Md. Rayhan Ishak

4th Professional B.Sc. in Physiotherapy

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Ishak,

Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving you the permission to conduct study entitled "Association between gross motor function, parenting stress and depression in mothers of children with cerebral palsy" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

11.01.23

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology

11.01.23

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216

He is permitted to data collect. Plz help him

23.01.23

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216.Mobile:01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

Permission letter from PSOSK, Lalbag, Dhaka.

APPENDIX-E

সম্মতি পত্র

প্রিয় অংশগ্রহণকারী, উত্তরদাতার আইডি নং: | | | |

আমি মো: রায়হান ইসহাক, ঢাকা বিশ্ববিদ্যালয়ের মেডিসিন অনুষদের অধীনে সাইক কলেজ অফ মেডিক্যাল সাইন্স এন্ড টেকনোলজি বি.এস.সি ইন ফিজিওথেরাপি বিভাগের শেষ বর্ষের ছাত্র।আমার কোর্সটি শেষ করার জন্য আমি একটি গবেষণা করছি যার শিরোনাম " **সিরিব্রাল পালসি বাচ্চার মায়েদের এবং বিষন্নতা, উদ্বেগ এবং চাপ** " এখানে একটি ফর্ম রয়েছে যেটি আপনাকে পূরণ করতে হবে। আমি আমার অধ্যয়ন সংক্রান্ত কিছু তথ্য জানতে চাই। এটি আনুমানিক ১০-১৫ মিনিট সময় নেবে। আমি আপনাকে জানাতে চাই যে এটি একটি সম্পূর্ণরূপে একাডেমিক অধ্যয়ন এবং প্রাপ্ত তথ্য অন্য কোন কাজে ব্যবহার করা হবে না। আপনার দেয়া সমস্ত তথ্য গোপন রাখা হবে এবং তথ্যের উৎস বেনামি থাকবে। এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছায় এছাড়াও স্বাক্ষাৎকারের সময় আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন একটা নির্দিষ্ট প্রশ্নের উত্তর না দেওয়ার অধিকার রয়েছে। আপনি আপনার ফর্মটি পূরণের জন্য গবেষণার বিষয়ে গবেষককে যে কোন প্রশ্ন করতে পারেন অথবা আমার গবেষণা অধীক্ষক, ফাহাদ বিন হালিম, প্রভাষক, ফিজিওথেরাপি বিভাগ, সাইক কলেজ অফ মেডিকেল সাইন্স এন্ড টেকনোলজি মিরপুর -১৪ ঢাকা -১২১৬। । আপনার সদয় সহযোগিতা একান্ত কাম্য ।

অংশগ্রহণকারীর ঘোষণা ,

আমাকে এই জরিপে অংশগ্রহণের জন্য আমন্ত্রণ জানানো হয়েছে । উপরের তথ্যগুলো আমি পড়েছি । এখানে এটা স্পষ্ট যে এই সাক্ষাৎকারে আমি স্বেচ্ছায় অংশগ্রহণ করতে পারবো এবং যেকোনো সময় এটি প্রত্যাহার করতে পারব । আমই এই গবেষনায় অংশগ্রহণকারী হতে সম্মতি প্রদান করছি ।

অংশগ্রহণকারীর নাম :

অংশগ্রহণকারীর স্বাক্ষর এবং তারিখ :

মোবাইল নাম্বার:

গবেষকের স্বাক্ষর:

সাক্ষীর স্বাক্ষর:

ঠিকানা:

APENDIX-F

Consent form

Dear participant, Respondent ID no: | | | |

I am Md. Rayhan Ishak student of B.sc in physiotherapy program in the Department of Physiotherapy at SAIC College of Medical Science and Technology (SCMST) which is affiliated by Dhaka University conducting the study entitled **"Parenting Stress and Depression among Mothers of Children with Cerebral Palsy"** as a part my thesis work for the partial fulfillment of Bachelor degree. There is a list of question you need to fill up which include socio-demographic and musculoskeletal problem. For spending your time to participate in this self-administered interview which will take around 10-15 minutes. There is list of questionnaires and you need to fill up each answer. The information gained from this questionnaire will be used for academic purpose and will be kept confidential. Your participation in this study is totally voluntarily and you have the right to withdraw from the interview without any clarification at any moment. You can ask any question to the researcher and/or my research supervisor, Zakia Rahman, Lecturer, Department of physiotherapy, Saic College of Medical Science and Technology, Mirpur-14, Dhaka-1216 regarding the study to meet up your quarry. Looking forward your kind cooperation.

Declaration of the participants,

I have been invited to participate in this survey. The foregoing information has been read to me and that have been answered to my satisfaction. I have noticed that my participation in this study is totally voluntary and I have the right to withdraw from the interview at any clarification. I give my consent voluntarily to be participants in this study.

Respondent name: …… Signature of the researcher: ……

Signature and date: ……. Signature of the witness: ……

Mobile no: ……

APENDIX-G

প্রশ্নপত্র (বাংলা)

শিরোনাম:

" সিব্রিবাল পালসি বাচ্চার মায়েদের পরিচর্যা জনিত চাপ এবং বিষন্নতা "

আইডি নম্বর:

বাচ্চার নাম :

ঠিকানা :

মোবাইল নাম্বার:

ক্রমি নং	প্রশ্ন	উত্তর	
বিভাগ- এ : সামাজিক-জনতাত্ত্বিক তথ্য: (বাচ্চা)			
১	বাচ্চার বয়স		
২	সন্তানের লিঙ্গ	ছেলে	
		মেয়ে	
সামাজিক-জনতাত্ত্বিক তথ্য: (মা)			
৩	বয়স:	১৫-২৫	
		২৬-৩০	
		৩১-৩৫	
		>৩৫	
৪	আপনার সন্তান কতজন	১	
		২	
		৩ অথবা আরও	

৫	ধর্ম	ইসলাম	
		হিন্দু	
		বৌদ্ধ	
		খ্রিস্টান	
		অন্যান্য	
৬	বিবাহ সম্পর্কিত	বিবাহিত	
		তালাকপ্রাপ্ত/বিধবা	
৭	শিক্ষাগত যোগ্যতা	এসএসসি বা তার নিচে	
		এইচএসসি	
		স্নাতক	
		স্নাতকোত্তর	
৮	পেশা	ঘরের বউ	
		চাকরি	
		ব্যবসা	
		স্বাস্থ্য পরিচর্যা	
৯	মাসিক পারিবারিক আয়	<১৫০০০	
		১৫০০০-৩০০০০	
		৩১০০০-৪৫০০০	
		>৪৫০০০	

১০	বর্তমান বসবাসের ধরন	নিজের	
		ভাড়া	
		অন্যান্য	
১১	বর্তমান ঠিকানা	গ্রাম	
		আধা শহর	
		শহর	
১২	আপনার কি চাচাতো ভাইয়ের সাথে বিয়ে হয়েছে?	হ্যাঁ	
		না	
১৩	এই বাচ্চা ছাড়া আপনার কি আর কোন সুস্থ বাচ্চা আছে?	হ্যাঁ	
		না	

বিভাগ- বি : গ্রস মটর ফাংশনাল ক্লাসিফিকেশন সিস্টেম (বচ্চা)

১৪	সীমাবদ্ধতা ছাড়াই চলে।	১
	সীমাবদ্ধতা নিয়ে চলে।	২
	হাতে একটি ব্যবহার্য মোবিলিটি ডিভাইস ব্যবহার করে হাঁটা।	৩
	সীমাবদ্ধতার সাথে স্ব-গতিশীলতা; চালিত গতিশীলতা ব্যবহার করতে পারে।	৪
	একটি ম্যানুয়াল হুইলচেয়ারে পরিবহন।	৫

বিভাগ-সি: ডিএএসএস- ২১

অনুগ্রহ করে নিচের প্রতিটি বিবৃতি পড়ুন এবং ০, ১, ২ অথবা ৩ এর মধ্যে গত সপ্তাহ ব্যাপী আপনার জন্য প্রযোজ্য যে কোন একটি সংখ্যায় গোল চিহ্ন দিন। এখানে কোন সঠিক বা ভুল উত্তর নেই। কোন বিবৃতির জন্য বেশী সময় ব্যয় করবেন না।

মানদন্ডটি (রেটিং স্কেল) নিম্নরূপ:

০ আমার জন্য একেবারেই প্রযোজ্য নয়

১ আমার জন্য অল্পমাত্রায় বা কখনো কখনো প্রযোজ্য

২ আমার জন্য বেশ কিছুমাত্রায় বা বেশখানিকটা সময়ের জন্য প্রযোজ্য

৩ আমার জন্য খুব বেশী বা বেশীরভাগ সময়ের জন্য প্রযোজ্য

সিরিয়াল নাম্বার	প্রশ্ন	০	১	২	৩
১	কোন উৎকণ্ঠা বা উত্তেজনামূলক কাজের পর আরামদায়ক অবস্থায় ফিরে আসা আমার জন্য কঠিন ছিল।	০	১	২	৩
২	আমি বুঝতে পারতাম যে আমার গলা শুকিয়ে আসছে।	০	১	২	৩
৩	ইতিবাচক কোন অনুভূতিই আমার মধ্যে কাজ করত না।	০	১	২	৩
৪	আমার শ্বাসকষ্টের অনুভূতি হত (যেমন অতিদ্রুত শ্বাসপ্রশ্বাস, শারীরিক পরিশ্রম ছাড়াই নিঃশ্বাস বন্ধ হয়ে আসা)	০	১	২	৩
৫	নিজে উদ্যোগী হয়ে কোন কাজ শুরু করা আমার জন্য কঠিন হত।	০	১	২	৩
৬	আমার মধ্যে বিভিন্ন পরিস্থিতিতে অতিরিক্ত প্রতিক্রিয়া করার প্রবনতা ছিল।	০	১	২	৩
৭	আমার শরীর কাঁপার অভিজ্ঞতা হয়েছিল (যেমন হাত কাঁপা)।	০	১	২	৩
৮	আমার মনে হতো যে আমি খুব বেশী স্নায়ু চাপে ভুগছি।	০	১	২	৩
৯	আমি এমন পরিস্থিতি সম্পর্কে দুশ্চিন্তাগ্রস্ত ছিলাম যেখানে আমি তীব্রভাবে আতঙ্কিত হতে পারি এবং এমন কোন কাজ করতে পারি যাতে অন্যরা আমাকে বোকা মনে করবে।	০	১	২	৩
১০	আমার মনে হচ্ছিল , ভবিষ্যতে আমার ভালো কিছুরই আশা নাই।	০	১	২	৩
১১	আমি অনুভব করতাম যে আমি খুব অস্থির হয়ে যাচ্ছি।	০	১	২	৩

১২	আরাম বোধ করা আমার জন্য কঠিন হত।	০	১	২	৩
১৩	আমি মনমরা এবং বিষণ্ন অনুভব করতাম।	০	১	২	৩
১৪	আমার কাজে বাধা হয় এমন যে কোন জিনিসই আমার কাছে অসহ্য লাগত।	০	১	২	৩
১৫	আমার মনে হত এই বুঝি আমি হঠাৎ তীব্রভাবে আতঙ্কগ্রস্ত হচ্ছি।	০	১	২	৩
১৬	কোন কিছুতেই আমি বেশী আগ্রহী হতে পারতাম না।	০	১	২	৩
১৭	আমি অনুভব করতাম ব্যক্তি হিসেবে আমার বিশেষ কোন মূল্য নেই।	০	১	২	৩
১৮	আমি অনুভব করতাম আমি একটুতেই মনে ব্যাথা পাই।	০	১	২	৩
১৯	শারীরিক পরিশ্রম না করলেও আমি হৃদপিন্ডের কাজ করা বুঝতে পারতাম (যেমন: হৃদস্পন্দন বৃদ্ধির অনুভূতি বা বুক ধড়ফড় করা, হৃদপিন্ডের স্পন্দনে ব্যাঘাত)।	০	১	২	৩
২০	যথাযথ কারন ছাড়াই আমি ভীত-সন্ত্রস্ত বোধ করতাম।	০	১	২	৩
২১	জীবনটা অর্থহীন বলে মনে হত।	০	১	২	৩

APENDIX-H

QUESTIONNIRE (English)

Title

Depression, Anxiety and Stress among the Mothers of Children with Cerebral Palsy.

ID No:
Child's Name:
Address:
Contact No:

S.N	Question	Answer	
Section A : Socio-demographic information (Child)			
1	Age of the child		
2	Gender of the child	Boy	
		Girl	
Demographic information (Mother's)			
3	Age group	15-25	
		26-30	
		31-35	
		>35	
4	How many children do you have	1	
		2	
		3 or more	
5	Religion	Islam	
		Hindu	
		Buddha	
		Christen	
		Others	
6	Marital status	Married	
		Divorced/widow	
7	Educational qualification	SSC or lower	
		HSC	
		Graduate	

		Post-graduate	
8	Occupation	House wife	
		Service	
		Business	
		Health care	
9	Monthly household income	<15000	
		15000-30000	
		31000-45000	
		>45000	
10	Current residency type	Own	
		Rented	
		Others	
11	Permanent address	Village	
		Semi city	
		City	
12	Have you got cousin marriage?	Yes	
		No	
13	Do you have any healthy baby other than this child	Yes	
		No	
Section B : Gross Motor Functional Classification System (Child)			
14	Walks without Limitations.	Ⅰ	
	Walks with Limitations.	Ⅱ	
	Walks Using a Hand-Held Mobility Device.	Ⅲ	
	Self-Mobility with Limitations; May Use Powered Mobility.	Ⅳ	
	Transport in a Manual Wheelchair.	Ⅴ	

Section C: DASS-21

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There is no right or wrong answers. Do not spend too much time on any statement. The rating scale is as follows:

0 Did not apply to me at all.

1 Applied to me to some degree, or some of time.

2 Applied to me to a considerable degree or a good part of time.

3 Applied to me very much or most of the time.

Q.N	**Question**	**0**	**1**	**2**	**3**
1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion).	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experience trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3

12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing.	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18(s)	I felt that I was rather touchy	0	1	2	3
19(a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20(a)	I felt scared without any good reason	0	1	2	3
21(d)	I felt that life was meaningless	0	1	2	3

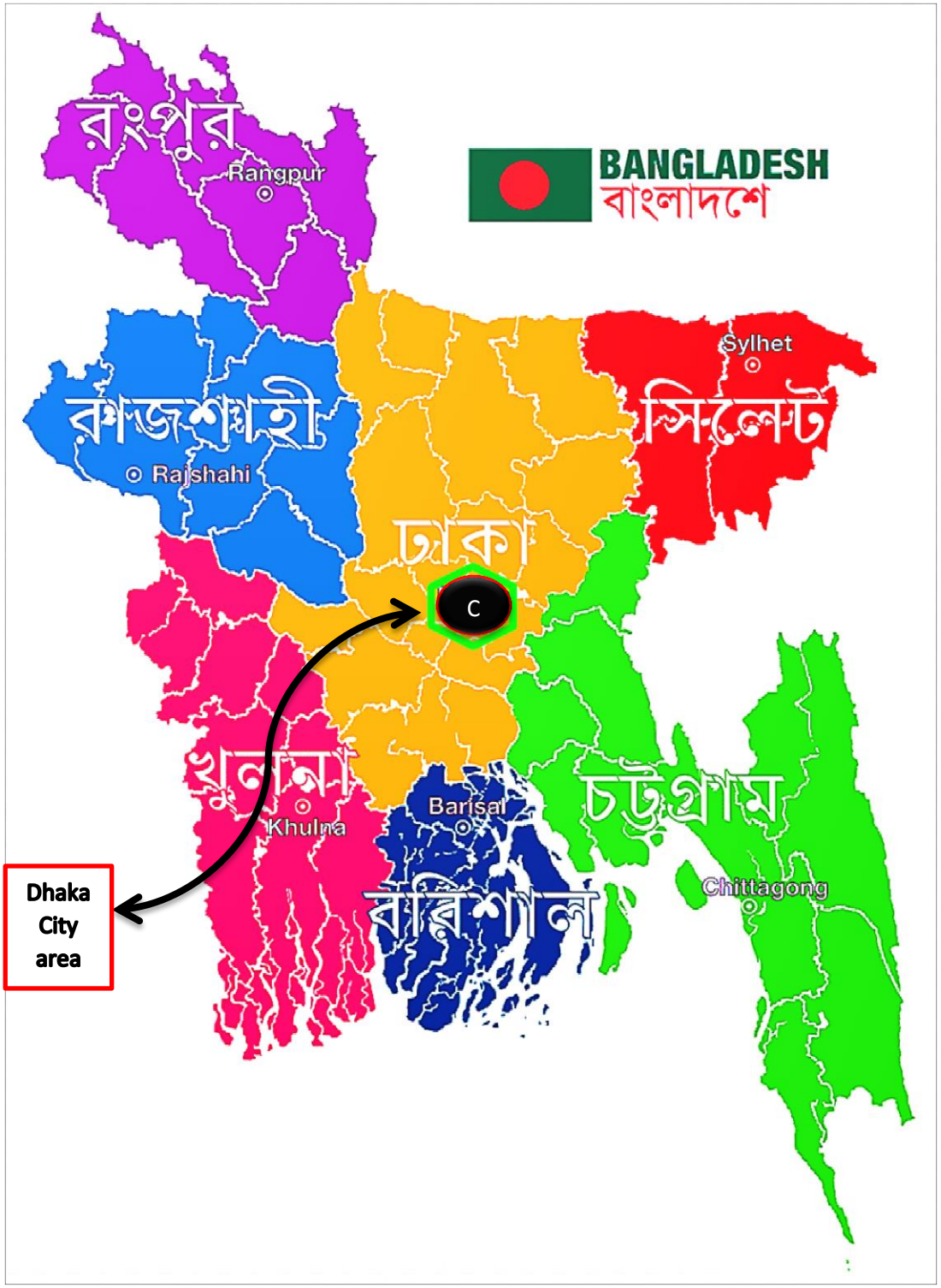
DASS Severity Ratings (Multiply summed scores by 2)			
Severity	**Depression**	**Anxiety**	**Stress**
Normal	0-9	0-7	0-14
Mild	13-Oct	9-Aug	15-18
Moderate	14-20	14-Oct	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

APPENDIX-I

Grand Chart

Activities Month	Jul 22	Aug 22	Sep 22	OCT 22	Nov 23	Dec 23	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 20
Proposal Presentation													
Introduction													
Literature Review													
Methodology													
Data Collection													
Data Analysis													
Result													
1st progress Presentation													
Discussion													
Conclusion Recommendation													
2nd progress Presentation													
Communication with supervisor													
Final Submission													

APPENDIX-J



Map of Area of Data collection