“Behavioral and Emotional Dysregulation and Its Associated Factors in Children with Neurodevelopmental Disorder: A Cross-Sectional Study”

By

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Student's Declaration

- This research has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.
- This dissertation is being submitted in partial fulfilment of the requirements for the MSc in Occupational Therapy.
- This research results from my independent work/investigation, except where otherwise stated. Other sources are acknowledged by giving explicit references. A Bibliography is appended.
- I confirm that if anything is identified in my work that I have done is plagiarism or any form of cheating that will directly award me a failure. I am subject to disciplinary actions of authority.

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Thesis Supervisor's Statement

As supervisor of Piyas Saha M.Sc thesis in Occupational Therapy, I am confirming that he acknowledges his thesis. **"Behavioral and Emotional Dysregulation and Its Associated Factors in Children with Neurodevelopmental Disorder: A Cross-Sectional Study"** is suitable for examination.

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List of Abbreviations

ADHD	Attention Deficit Hyperactivity Disorder
ASD	Autism Spectrum Disorder
CP	Cerebral Palsy
ID	Intellectual Disability
NDD	Neurodevelopmental Disorder
SCD	Social Communication Disorder
SD	Standard Deviation

Abstract

Background: Children with neurodevelopmental disorders (NDDs) frequently experience emotional and behavioral regulation difficulties that limit learning, participation, and daily functioning. In Bangladesh, limited context-specific evidence exists, highlighting the need for research to inform effective, culturally responsive interventions.

Aim: The study aimed to assess the level of behavioral and emotional dysregulation among children with neurodevelopmental disorders and to explore the factors associated with these difficulties.

Methods and Materials: A cross-sectional study was conducted with 160 children diagnosed with Autism Spectrum Disorder, ADHD, Cerebral Palsy, and Intellectual Disability, recruited from special schools and therapy centers through purposive sampling. Caregivers completed a validated Behavioral and Emotional Checklist. Data were analyzed using descriptive statistics and Fisher's Exact Test to explore associations with age, gender, parental education, family structure, and screen time.

Results: Among the 160 children with neurodevelopmental disorders, 67.5% exhibited poor behavioral regulation**,** whereas 58.8% demonstrated poor emotional regulation**.** Behavioral dysregulation was significantly associated with parental education (P = .001), family structure (P=.001), daily screen time (P=.001), constipation (P =.013), regular playtime (P=.001), and diagnostic category (P =.001). Emotional dysregulation was significantly related to excessive screen exposure (P =.001) and parental education (P < .05).Behavioral regulation difficulties were slightly more prevalent than emotional challenges, highlighting the strong influence of environmental and caregiving contexts.

Conclusion: Children with NDDs often face serious emotional and behavioral regulation problems that reduce their participation and quality of life. The findings highlight the need for early, family-centered occupational therapy that focuses on structured routines, caregiver education, and reducing excessive screen time. From a humanitarian perspective, stronger public awareness, inclusive education, and early identification programs are essential to reduce stigma, support families, and ensure equal access to services. Collaboration among occupational therapists, educators, healthcare professionals, and policymakers is crucial to promote inclusion, resilience, and better developmental outcomes for children with NDDs.

Key Words: Neurodevelopmental disorders; Behavioral regulation; Emotional regulation; Occupational therapy; Parental education; Screen time; Family-centered intervention.

CHAPTER I: INTRODUCTION

1.1 Background

Neurodevelopmental Disorders (NDDs) represent a diverse group of conditions with onset in the developmental period, typically early childhood, and are characterized by impairments in brain development These disorders, including Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), Cerebral Palsy (CP), Intellectual Disability (ID), and Specific Learning Disorder (SLD), significantly impact cognitive, emotional, and behavioral functioning (American Psychiatric Association, 2013). Globally, the prevalence of NDDs is increasing, with studies estimating that approximately 15% of children are affected by one or more neurodevelopmental disorders (Gidziela et al., 2023). Globally, NDDs are a significant public health concern. According to the Global Burden of Disease Study, approximately 53 million children under the age of five were affected by developmental disabilities in 2016, representing 8.4% of the global population in that age group (Olusanya et al., 2018).The impact of these disorders is profound, often leading to lifelong impairments and long-term difficulties in communication, behavior, cognition, socialization, academic achievement, daily living and adaptive skills (Thapar et al., 2012).

Behavioral and emotional regulation is fundamental constructs in developmental psychology, representing the processes through which individuals manage their actions and emotional experiences. Behavioral regulation encompasses the ability to control and modulate one's actions, impulses, and responses to environmental demands, allowing for goal-directed behavior and adaptation to situational contexts (Diamond & Lee, 2011). This includes skills such

as inhibitory control, working memory, and cognitive flexibility, which are critical for navigating daily tasks and social interactions.

Emotional regulation, on the other hand, refers to the capacity to monitor, evaluate, and modify emotional reactions to achieve desired goals (Gross, 2015). It involves a range of strategies, including the ability to initiate, inhibit, or modulate the intensity and duration of emotional responses. Effective emotional regulation enables individuals to adapt to emotional challenges, maintain positive interpersonal relationships, and manage stress (Aldao et al., 2015). Emotional and behavioral problems are common psychological deviations during childhood, affecting approximately 10-20% of children and adolescents worldwide. These issues contribute significantly to the global burden of childhood diseases, with long-term implications on health and quality of life extending into adulthood (Kieling et al., 2011). Factors such as nighttime sleep duration, physical activity levels, and screen time (ST) have been identified as critical determinants of children's mental health (Hale & Guan et al., 2015).

The development of these regulatory skills is crucial for optimal child development and daily functioning. Deficits in behavioral and emotional regulation are associated with a range of negative outcomes, including academic difficulties, social maladjustment, and mental health problems (Blair & Raver et al., 2016). Children who struggle with regulation may exhibit impulsive behaviors, emotional outbursts, and difficulty managing frustration, which can impede their ability to learn and form healthy relationships.

Children with neurodevelopmental disorders (NDDs) frequently exhibit significant challenges in behavioral and emotional regulation, representing a core feature that often contributes to the clinical presentation and functional impairments associated with these conditions (Mazefsky et al., 2017). The atypical brain development inherent in NDDs, affecting

neural circuits critical for self-control and emotional processing, often underlies these regulatory difficulties (Siegel et al., 2021). This intricate relationship is particularly evident across a range of NDDs.

For instance, in autism spectrum disorder (ASD), individuals commonly experience heightened sensory sensitivities and difficulties in understanding and expressing emotions, which can manifest as emotional dysregulation, including heightened anxiety, irritability, and meltdowns (Samson et al., 2015). Similarly, children with Attention-Deficit/Hyperactivity Disorder (ADHD) often struggle with inhibitory control and sustained attention, leading to impulsivity, difficulty following rules, and challenges in managing frustration and emotions (Barkley et al., 2014). Intellectual Disabilities (ID) can also be associated with deficits in adaptive behavior, including difficulties in self-regulation and managing emotional responses in socially appropriate ways (Dykense et al., 2018).

The impact of these co-occurring difficulties is substantial. Poor behavioral and emotional regulation can exacerbate social interaction deficits, hinder academic progress, and increase the risk of secondary mental health issues in children with NDDs (Lecavalier et al., 2014). These challenges also place significant stress on families and caregivers, impacting their well-being and the overall family functioning (Brookman-Frazee et al., 2016). While the association between NDDs and regulation difficulties is well-documented in international literature, research specifically exploring this relationship within the context of Bangladesh remains limited. Understanding the unique presentation and associated factors of these challenges in the Bangladeshi cultural and socioeconomic context is crucial for developing culturally sensitive and effective interventions. Factors such as family structure, access to

specialized services, and cultural norms surrounding emotional expression may influence the manifestation and management of regulatory difficulties in children with NDDs.

This study holds significant implications for therapists, special educators, and parents in managing children with neurodevelopmental disorders (NDDs) and their associated behavioral and emotional regulation difficulties within home-based settings. By identifying the specific levels of these regulatory challenges and the factors that contribute to them within the Bangladeshi context, therapists and special educators can gain a more nuanced understanding of the unique needs of these children, leading to the development of more targeted and culturally relevant intervention strategies. This information can inform the tailoring of therapeutic approaches and educational plans to address specific regulatory deficits and associated factors like sensory sensitivities or family dynamics. For parents, the study's findings can provide valuable insights into the underlying reasons for their child's behavioral and emotional struggles, fostering greater empathy and informing the implementation of more effective home-based management techniques. Understanding the identified associated factors can empower parents to modify their parenting strategies, seek appropriate support systems, and create a more supportive home environment that promotes better regulation. Furthermore, for researchers, this study contributes crucial data from a context where such information is currently limited, addressing a significant gap in the existing literature. The findings can serve as a foundation for future longitudinal studies, intervention research, and cross-cultural comparisons, ultimately advancing the understanding of behavioral and emotional regulation in children with NDDs in diverse settings and informing the development of evidence-based practices globally.

1.2 Rationale of the study

Understanding the levels of behavioral and emotional regulation in children with neurodevelopmental disorders (NDDs) is essential for improving their functional outcomes and quality of life (American Psychiatric Association, 2022). Behavioral regulation refers to the ability to manage actions, inhibit inappropriate responses, and follow social norms, while emotional regulation involves managing emotional arousal to respond appropriately to environmental demands (Unyte Integrated Listening, n.d.). Children with NDDs, such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and Intellectual Disabilities (ID), often struggle with these areas, leading to difficulties in social participation, academic performance, and everyday activities (Barkley et al., 2015). Identifying their regulatory levels can guide occupational therapists in tailoring interventions that address these specific challenges, ultimately fostering greater independence and improved participation in daily life. Occupational therapy interventions can target key regulatory issues, such as teaching coping mechanisms, improving emotional awareness, and creating structured routines that enhance adaptive responses.

Moreover, identifying factors that negatively influence behavioral and emotional regulation, such as sensory processing difficulties, parental stress, and inconsistent caregiving styles, is crucial for developing holistic intervention strategies (American Psychiatric Association, 2022).For instance, sensory hypersensitivities often trigger emotional dysregulation, while high parental stress may exacerbate behavioral challenges in children. By understanding these factors, professionals can design interventions that mitigate their impact, such as sensory integration therapy to address sensory processing challenges or parent-training programs to improve caregiving practices. This research will help delineate these underlying factors, enabling

the creation of multifaceted approaches that address both the child's needs and the broader caregiving environment.

In the context of Bangladesh, this research is both urgent and necessary. NDDs are becoming increasingly recognized in the country, yet there is a lack of context-specific data on behavioral and emotional regulation among affected children. Most studies on these topics originate from high-income countries, where resources, cultural norms, and systemic support differ significantly from those in Bangladesh. In a resource-limited setting, families and professionals often face barriers such as limited access to therapy, lack of awareness, and societal stigma, which exacerbate the challenges associated with NDDs. Conducting this research in Bangladesh will fill a critical gap in the literature and provide culturally relevant insights into the regulatory difficulties faced by children with NDDs and the factors contributing to these challenges. The findings will also highlight the need for improved therapeutic and policy frameworks tailored to the local context.

This study will have significant implications for health professionals, parents, and future researchers. For professionals working with children with NDDs, such as occupational therapists and special educators, the findings will offer evidence-based insights into the specific regulatory difficulties and associated factors, guiding the development of individualized treatment plans. For example, therapists can use this information to create interventions that address sensory processing challenges or incorporate parent-mediated strategies that improve emotional regulation at home. Parents will benefit from understanding the nature of their child's difficulties and receiving practical, culturally relevant strategies to manage these challenges in daily life. This empowerment can reduce caregiver stress, improve parent-child interactions, and enhance the overall family dynamic.

Finally, the research will provide a foundation for future studies by identifying critical areas for further investigation, such as the longitudinal effects of regulatory interventions or the role of cultural factors in shaping self-regulation outcomes. It will also inform policymakers and public health initiatives aimed at improving inclusive education, therapeutic services, and support systems for families of children with NDDs in Bangladesh. In summary, this study is a vital step toward improving the lives of children with NDDs, their families, and the professionals who support them, while contributing to the global effort to create inclusive and supportive environments for individuals with developmental challenges.

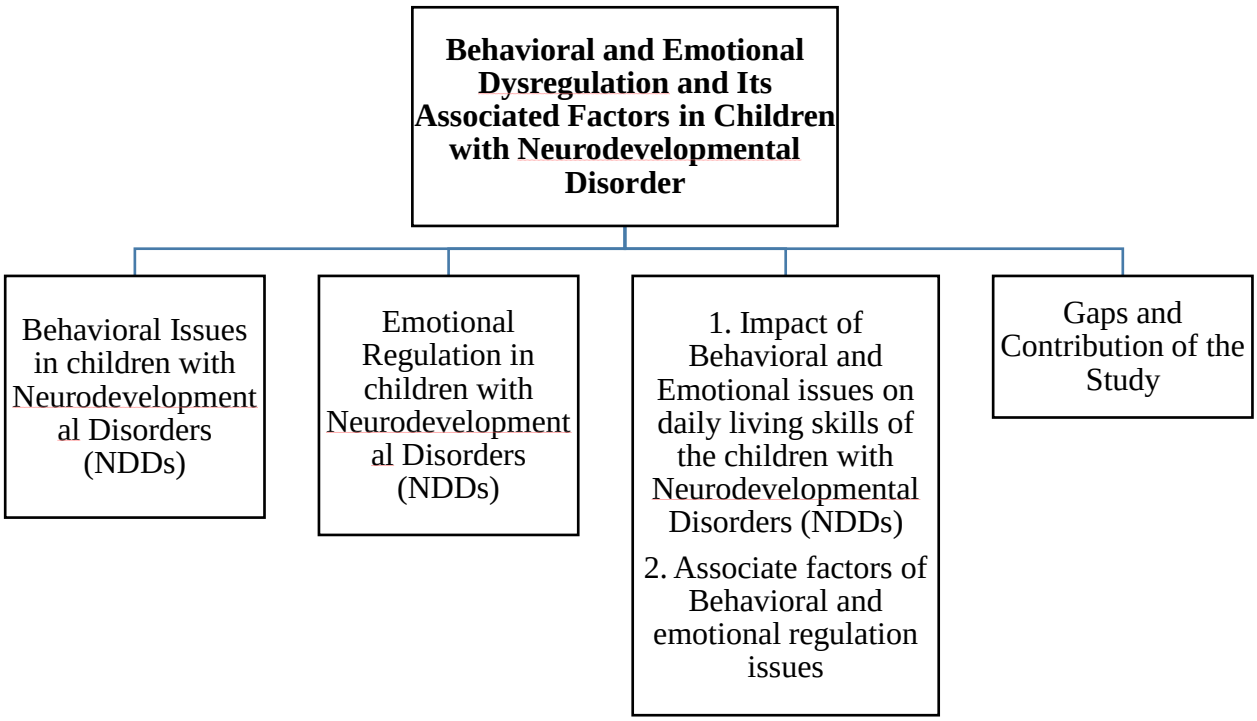
CHAPTER II: LITERATURE REVIEW

This section will explore the behavioral and emotional regulation characteristics of children with neurodevelopmental disorders (NDDs), as well as the potential factors contributing to these challenges, based on existing research and articles. It will highlight the patterns of behavior and emotional regulation commonly observed in children with NDDs, such as difficulties with impulse control, frustration tolerance, and managing social interactions. Additionally, this chapter will examine evidence-based factors influencing these issues, including sensory processing difficulties, parental stress, inconsistent caregiving styles, and environmental stressors.

The review will also critically analyze findings from previous studies to identify gaps in the literature, particularly in the context of low- and middle-income countries (LMICs) like Bangladesh, where limited research exists on this subject. By addressing these gaps, this study aims to strengthen the overall research framework, provide a clearer understanding of the challenges faced by children with NDDs, and contribute to the development of culturally relevant interventions. This comprehensive review will enhance the standard and rigor of the research while establishing its unique contribution to the existing body of knowledge.

Figure 2.1:

Overview of literature findings



2.1 Behavioral and Emotional Issues in children with Neurodevelopmental Disorders (NDDs)

Children with ASD may exhibit emotional problems (e.g., anxiety, depression, sleep problems), social and peer problems (including withdrawal), and behavioral problems (e.g., aggressive behavior, hyperactivity, attention difficulties) (Goodman et al., 2010). Many parents of children with ASD complain of breathing difficulties, palpitations, over thinking, sweating palms, being pessimistic, having a gloomy mood, and having reduced initiative, which are all manifestations of anxiety and depression (Al-Farsi et al., 2020). The prevalence of anxiety and depression among parents of children with ASD is specifically related to their children's disorder (Bebko et al., 1987; Lecavalier et al., 2006). In a study involving toddlers with ASD, it was reported that behavior problems contributed to parental stress and psychological distress, even at higher levels compared to parents of children with other developmental disabilities (Estes et al., 2013). Another study demonstrated that emotional and behavioral problems in children with ASD resulted in stress of mothers and psychological distress of both parents (Herring et al., 2006). Examining whether there was a greater impact of more versus less severe ASD symptoms on parents' psychological distress, Junior et al. (2016) found that severe behavioral problems were associated with severe parental anxiety and depression.

Population-based studies suggest that up to 40-50% of children with ASD have emotional and behavioural problems at a level of clinical concern (Totsika et al. 2011). In addition, approximately 41% of young people with ASD may meet the criteria for two or more mental health disorders (Simonoff et al. 2008).

Children and young people with ASD are also increasingly included within mainstream school provision both in the UK (Humphrey and Lewis 2008, Osborne and Reed 2011, Dillon et al. 2016) and internationally (Lindsay et al. 2013 and Saggers 2015), and difficulties have been highlighted for young people with ASD in this setting. For example, parents and teachers reported significant problems with social skills (cooperation, assertion, self-control), and more problem behaviours (hyperactivity and internalizing) in a mainstream and pre-school group of children with High Functioning Autism or Autism Spectrum Disorder aged 4 to 10 years (Macintosh and Dissanayake et al. 2006). Ashburner et al. (2010) found that children aged 6-10 years, diagnosed with ASD were rated by their teachers as exhibiting significantly higher levels of behavioral and emotional difficulties than their typically developing peers. These difficulties included emotional lability and regulation (53%), oppositional behavior (39%) and aggressive behavior (14%). Fifty four percent of students with ASD were also underachieving academically compared to 8% of typically developing peers (Ashburner et al. 2010).

Teacher perceptions of difficulties in the secondary school setting suggest that behavioral and emotional problems for young people with ASD continue into adolescence. For example, Hebron and Humphrey (2014) profiled the mental health of adolescents aged 11-17 in mainstream school comparing students with ASD to a group with Special Educational Needs (SEN- dyslexia) and a group with none (non-SEN). The ASD group were found to have significantly greater anxiety, depression and anger, and lower self-concept than the non-SEN group; and significantly greater anxiety and anger than the dyslexia group. Qualitative interviews identified difficulties with social relationships, poor understanding of ASD, and lack of predictability and routine as contributory factors to poor mental health.

2.1.1 Emotional Symptoms

Children with NDDs, such as Autism spectrum disorder (ASD) and Attention-deficit/hyperactivity disorder (ADHD), exhibit higher rates of emotional difficulties, including anxiety and depression. A UK study conducted during the COVID-19 pandemic reported that 42% of children with NDDs experienced emotional symptoms, compared to 15% of neurotypical children.

2.1.2 Conduct Problems

Disruptive behaviors, such as aggression and irritability, are prevalent among children with NDDs. The same UK study found that 28% of children with NDDs displayed conduct problems, in contrast to 9% of their neurotypical peers. Additionally, research from Yale University linked these behavioral disorders in children with autism to reduced connectivity between the amygdala and ventrolateral prefrontal cortex, areas critical for emotion regulation

2.1.3 Reduced Prosocial Behaviors

Children with NDDs often exhibit fewer prosocial behaviors, such as sharing and empathy. The UK study noted that 54% of children with NDDs had reduced prosocial behaviors, compared to 22% of neurotypical children. PMC

2.1.4 Emotional Dysregulation

Tantrums and difficulty managing emotions are common in young children with NDDs and may be early indicators of ADHD. Research from the University of Edinburgh highlighted that children aged three to seven who struggle with emotion regulation are more likely to show symptoms of ADHD.

2.1.5 Internalizing and Externalizing Problems

A study published in the Journal of Affective Disorders found that over one-third of children attending developmental assessment services had mental health needs, with females reporting increased internalizing symptoms (e.g., anxiety, depression) compared to males. Children with multiple NDDs exhibited more significant behavioral issues than those with a single diagnosis (Boulton et al., 2023)

2.2 Common Behavioral Issues in children with NDDS

Prevalence and Treatment of Mental, Behavioral, and Developmental Disorders in Children with Co-occurring Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder: A Population-Based Study-This study, conducted by Myriam Casseus, Wun Jung Kim, and Daniel B. Horton in the United States, analyzed data from 102,341 children using the 2016-2018 National Survey of Children's Health. It aimed to understand the prevalence and treatment of comorbid disorders in children with both ASD and ADHD. The research revealed that these children were significantly more likely to experience anxiety, depression, and conduct problems compared to children with only ASD. The findings highlight the need for targeted mental health interventions in children with co-occurring neurodevelopmental conditions. The cross-sectional design provided a broad population-based understanding of these issues (Casseus et al., 2023).

Comorbidities of Autism: Dhaka Shishu (Children) Hospital-Based Study: In this prospective hospital-based study conducted at Dhaka Shishu (Children) Hospital in Bangladesh, Razia Sultana and colleagues examined 224 children aged 18 months to 16 years. The research focused on identifying the prevalence of comorbidities in children with autism. The results showed that psychological comorbidities, such as minor behavior problems (56.1%) and feeding problems (20.5%), were more common than medical issues. This study highlights the importance of

addressing behavioral concerns alongside medical care in children with autism in low-resource settings (Sultana et al., 2023).

Behavioral Problems and Academics of Children in Inclusive Education: A Cross-Sectional Survey- this study is conducted in Pakistan, this cross-sectional survey investigated the impact of behavioral problems on academic performance among children in inclusive education settings. The study included 150 children, 12 with special needs and 138 from mainstream education. The findings revealed significant behavioral challenges in children with special needs, which negatively affected their academic performance compared to their mainstream peers. This study underscores the necessity of implementing behavioral support strategies in inclusive classrooms to foster better learning outcomes for children with special needs (Zahid et al., 2023).

Table 2.1

Common Behavioral Issues across Neurodevelopment Disorders

Conditions	**Common Behavioral issues**
ASD, ADHD	Aggressive and Disruptive
ASD	Anxiety Mood disorders
ASD, ADHD	Impulsivity and Hyperactivity
ASD	Poor social engagement, ritualistic behavior
SPD, ASD, ADHD	Maladaptive Behavior

2.3 Common Emotional Regulation Difficulties in children with NDDs

2.3.1 Prevalence of children with ADHD

This study aimed to investigate the prevalence and nature of emotional dysregulation in children with ADHD in the United Kingdom. Conducted on a population of 6,000 children from the Adolescent Brain Cognitive Development (ABCD) Study, it identified 350 children with high ADHD symptom scores. Results revealed that 51.4% of these children exhibited significant emotional dysregulation, including symptoms of depression, anxiety, and explosive outbursts. Brain imaging data highlighted a smaller pars orbitalis region, a critical area for emotion processing and communication. Additionally, conventional ADHD medications, such as Ritalin, were found less effective in addressing emotional dysregulation. This underscores the need for targeted interventions, including cognitive-behavioral therapy, to manage emotional issues in children with ADHD effectively (Cambridge University Study et al., 2025)

2.3.2 Mental Health Concerns in Children with Neurodevelopmental Conditions Attending a Developmental Assessment Service

This Australian study profiled mental health symptoms in children with neurodevelopmental disorders (NDDs) during their initial diagnostic assessment. The study involved 232 children aged 1.96 to 17.51 years. Findings showed that 61% of school-aged children and 48% of preschoolers exhibited subclinical or clinically elevated internalizing and externalizing symptoms. Gender differences were noted, with girls reporting higher internalizing issues (67%) compared to boys (48%). Children diagnosed with multiple NDDs demonstrated significantly greater mental health challenges than those with a single diagnosis, highlighting the necessity for early identification and comprehensive care (Boulton et al., 2023).

2.3.3 Common Childhood Behavior Could Be Linked to ADHD – and 6 Other Signs to Watch

A United Kingdom-based study explored the connection between early emotional and behavioral regulation difficulties and the development of ADHD. Using data from approximately 19,000 children in the UK Millennium Cohort Study, it found that children aged 3 to 7 years who struggled with emotional regulation were more likely to exhibit ADHD symptoms by age seven. Emotional dysregulation, characterized by disproportionate emotional responses and difficulties in calming down, emerged as a significant early marker for ADHD. The study emphasizes the importance of early behavioral interventions to address these issues effectively (The Sun, 2025; UK Millennium Cohort Study, 2025).

2.3.4 Disruptive Mood Dysregulation Disorder (DMDD) in Children

This study examined Disruptive Mood Dysregulation Disorder (DMDD) and its impact on children's emotional regulation in the United States. Focusing on children diagnosed with DMDD, the research identified severe and frequent emotional outbursts disproportionate to the situation as hallmark symptoms. Persistent irritability and anger were also significant concerns, leading to impairments in social, educational, and family environments. The study emphasized cognitive-behavioral therapy, family support strategies, and medication as effective treatment options, reinforcing the need for early intervention and structured routines to mitigate the disorder's effects (Verywell Mind et al., 2025).

2.4 Impact of Behavioral and Emotional issues on daily living skills of the children with Neurodevelopmental Disorders (NDDs)

The study titled The Impact of Behavioral and Emotional Problems on Daily Living Skills in Children with Neurodevelopmental Disorders aimed to explore how behavioral and emotional challenges affect daily living skills in children with neurodevelopmental disorders (NDDs). Conducted in the United States with a mixed-method design, the research included 200 children aged 4-12 years diagnosed with Autism Spectrum Disorder (ASD), Attention-Deficit/Hyperactivity Disorder (ADHD), and related conditions. The findings revealed that 68% of the participants had moderate-to-severe difficulties in performing daily tasks like dressing, eating, and maintaining hygiene. Behavioral issues such as aggression and hyperactivity were strongly associated with lower adaptive skill scores, while emotional challenges like anxiety and mood dysregulation hindered routine-following and task completion. Qualitative interviews with parents highlighted caregiver stress and barriers posed by emotional outbursts and rigidity, though strategies like positive reinforcement and sensory integration therapy showed promise in addressing these challenges. This underscores the importance of targeted interventions to enhance daily living skills in children with NDDs (Smith, R & Jones, T et al., 2023).

2.5 Associate factors of Behavioral and emotional regulation issues

2.5.1 Early Childhood Screen Time and Behavioral Problems in China

A longitudinal study titled Early Childhood Screen Time as a Predictor of Emotional and Behavioral Problems in Children at 4 Years: A Birth Cohort Study in China investigated the impact of screen time on young children's behavioral and emotional health. Conducted in China with 2,490 children from the Ma'anshan Birth Cohort, it revealed that excessive screen time from infancy to age four significantly increased emotional symptoms, conduct problems, and hyperactivity/inattention. The study emphasizes the detrimental effects of prolonged screen exposure on early childhood development (Zhao et al., 2020).

2.5.2 Parental Educational Background and Socioeconomic Status of ASD Children in Bangladesh

A cross-sectional study in Bangladesh titled Parental Educational Background and Socioeconomic Status of ASD Children in Bangladesh examined how parental education and family income influence children with autism spectrum disorder (ASD). The study, involving 100 ASD children aged 2-8 years, highlighted that lower maternal education and limited family income adversely affected child management and support. The findings underscore the importance of socioeconomic and educational resources in caregiving (Afrin et al., 2021).

2.5.3 Screen Time and Child Behavior: Effect of Family Context in Australia

The study Screen Time and Child behavior and Health-Related Quality of Life: Effect of Family Context examined 4,010 Australian children aged 2-12 years. It found that higher average screen time was linked to poorer behavior and lower quality of life, particularly in families where all children had high screen exposure. This research highlights the role of family context in moderating the adverse effects of screen time on child development (Hinkley et al., 2021).

2.5.4 Correlations between Screen Time and Parent-Child Relationships in Children with Special Needs

Research titled Correlations between the Screen Time of Children with Special Needs and Their Parent-Child Relationships, Home Participation, and Occupational Performance investigated the effects of screen time on 150 children aged 4-6 years with developmental risks, including ASD and ADHD, in Turkey. It revealed that higher screen time negatively impacted parent-child relationships, home participation, and occupational performance, suggesting the importance of minimizing screen exposure in this population. (Yılmaz & Yıldız et al., 2023).

CHAPTER III: METHODS

3.1 Study Question, Aim, Objectives

3.1.1 Study Question:

What are the levels of behavioral and emotional dysregulation and its associated factors in children with neurodevelopmental disorders in Bangladesh?

3.1.2 Aim of the study:

The study aims to comprehensively investigate the levels of behavioral and emotional dysregulation and its associated factors in children with neurodevelopmental disorders.

3.1.3 Objectives of the study:

- To assess the level of behavioral regulation in children with neurodevelopmental disorders.
- To evaluate the level of emotional regulation in children with neurodevelopmental disorders.
- To explore factors associated with behavioral and emotional regulation in children with neurodevelopmental disorders.

3.2 Study Design

3.2.1 Study Method:

The researcher selected quantitative methodology for this research. Quantitative methodology is an approach recognized for its effectiveness in assessing the prevalence and associations of variables within a defined population at a single point in time (Creswell et al., 2018). This methodology was specifically chosen to investigate behavioral and emotional issues in children with Neurodevelopmental Disorders (NDD), along with the potential factors influencing these issues, such as screen time and environmental contexts. The structured nature of quantitative research allows for the generation of objective, measurable data, minimizing subjective biases and enabling rigorous statistical analysis. This design eliminates the need for follow-up sessions, reducing participant burden and addressing practical challenges such as resource constraints and time limitations, which are often encountered in studies involving children with special needs.

3.2.2 Study Approach:

The researcher used a cross-sectional study approach to conduct the study. The most common type of research in the health field is observational study design. Cross-sectional designs are used for population-based surveys. These studies can usually be conducted relatively faster and are inexpensive. In this study, the researcher conducted a cross-sectional approach to determine the activity participation and satisfaction among the beneficiaries' mothers living in the community. A cross-sectional study is a form of observational study that assesses data from variables collected across a sample population at one point in time (Setia, 2016).The cross-sectional design enables the collection of comprehensive data on these variables, capturing a snapshot of their current state. This is particularly important in the context of NDD, where rapid insights into existing patterns and relationships can inform therapeutic and educational strategies.

Furthermore, the cross-sectional approach supports the study's aim of identifying trends and associations in a way that is both time-efficient and methodologically sound, ensuring that findings are immediately actionable. This approach is particularly relevant for NDD populations, where time-efficient and low-burden methodologies are essential to ensure participation and accurate data collection (Portney & Watkins, 2020).

3.3 Study Setting and Period

3.3.1 Study Setting

This study was conducted across six specialized schools for children with neurodevelopmental disorders (NDDs) .Data was collected from the following sites: Prottasha Special School (Savar), Kiddie Rocks Ltd. (Dhaka), SAND (Uttara), Tara Special School (Mirpur), the Centre for the Rehabilitation of the Paralysed (CRP, Savar), and CRP Mymensingh. These centers provide comprehensive therapeutic services for children diagnosed with neurodevelopmental disorders, and the parents or primary caregivers of children receiving ongoing therapy at these facilities were recruited as study participants.

3.3.2 Study Period

The study was conducted over an 11-month period, from January 2025 to November 2025. Data collection was carried out continuously across this timeframe in the selected study sites.

3.4 Study Participants

3.4.1 Study Population:

Children aged 3-12 years with Neurodevelopmental Disorders (NDDs).

3.4.2 Sample Size:

Prevalence (p): 7.1% prevalence of NDD in the population (Sayed et al., 2019). Confidence level: 95% (commonly used, corresponding to a Z value of 1.96).Margin of error (E): Let's assume you want a margin of error of 5% (0.05), which is typical in such studies.

Formula for Sample Size Calculation:

The sample size for a cross-sectional study can be estimated using the following formula:

$$n = \frac{Z^2 \mathrm{p}(1-p)}{E^2}$$

Where:

n = sample size

Z = Z-score (1.96 for 95% confidence level)

p = estimated prevalence of NDDs 0.15 as 15% prevalence is given

E= margin of error (0.05)

Step-by-step Calculation:

1. Z = 1.96 (for 95% confidence level).
2. p = 0.071(prevalence of NDD).
3. E = 0.05 (desired margin of error).

Now, plugging these values into the formulate

$$n = \frac{(1.96)^2 . 0.071 . (1-0.071)}{0.05^2}$$

$$n = \frac{3.84160.0.071 . (0.929)}{0.0025}$$

$$n = 101.35$$

$$n = 102$$

If non-response rate 10%

$$n = \frac{102}{1 - \text{non response rate}}$$

$$n = \frac{102}{1-0.10} = 113$$

Result: For a study with margin of error of 5%, and a 95% confidence level and non-response rate 10%, the sample size required is 113 participants.

3.4.3 Sampling Technique:

Purposive sampling is used in this study to ensure the inclusion of children with Neurodevelopmental Disorder (NDD) who meet specific criteria relevant to exploring the level of behavioral and emotional regulation and its associated factors in children with Neurodevelopmental Disorder This technique allows researchers to intentionally select participants based on their diagnosis and characteristics, ensuring data is directly aligned with the study's objectives.

Purposive sampling is ideal when researchers need to focus on particular groups to address the research question effectively (Creswell et al., 2014).This method ensures the selection of participants who are most knowledgeable or experienced regarding the phenomenon under study (Polit and Beck et al., 2021). For this study, purposive sampling helps gather meaningful data from children with NDD, leading to more accurate and relevant findings.

3.4.4 Inclusion Criteria:

- Age Range: Children aged 3-12 years. (This age range was selected because early and middle childhood are critical periods for the development of behavioral and emotional regulation)(Fatima Malik et al., 2022).
- Diagnosis: Children with a confirmed diagnosis of neurodevelopmental disorders (NDDs) such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), Intellectual Disability (ID), or Sensory Processing Disorder (SPD), Social Communication Disorder (SCD) diagnosed by a qualified professional (including pediatricians, occupational therapists, speech-language therapists, or clinical psychologists).
- Parents or legal guardians provide written informed consent for participation.
- Children who are currently enrolled in any form of therapeutic intervention (e.g., occupational therapy, behavioral therapy) for at least 3 months. (A minimum of three months of therapeutic intervention was used as an inclusion criterion to ensure participants had adequate exposure to treatment, allowing for the observation and measurement of potential changes in behavioral and emotional outcomes. This duration reflects a commonly used benchmark in previous research on neurodevelopmental disorders, where three months of consistent intervention have been shown to produce clinically meaningful improvements in functional domains. Roy et al. (2015) demonstrated significant enhancements in gross motor function in children with cerebral palsy following a three-month neurodevelopmental therapy program. Likewise, in a study conducted in South Asia, Sarkar et al. (2022) reported positive developmental outcomes in children with disabilities after a minimum of three months of home-based early

intervention. Additionally, structured interventions like Parent–Child Interaction Therapy (PCIT) and Cognitive Behavioral Therapy (CBT) are often delivered over 10 to 14 sessions-typically spanning approximately three months-to facilitate measurable behavioral progress.)

3.4.5 Exclusion Criteria:

- Children with severe medical or genetic conditions (e.g., uncontrolled epilepsy, cerebral palsy with severe motor impairment) that might interfere with behavioral or emotional regulation assessment.
- Children on medications that significantly affect behavior or emotional regulation, such as antipsychotics or sedatives, within the last 6 months.
- Children without a formal diagnosis of NDD by a qualified professional.
- Children with severe vision or hearing impairments that limit participation in assessments or observations. (The presence of severe vision or hearing impairment in children was ensured through parental reports and available medical documentation from ophthalmologists or audiologists. Children with significant vision or hearing limitations that affected task participation were excluded to reduce the influence of confounding variables).

3.5 Ethical Consideration

The ethical approval was obtained from the Institutional Ethical Review Board of Bangladesh Health Professions Institute (BHPI) through the Department of Occupational Therapy, BHPI. Ethical clearance number of this research, CRP-BHPI / IRB/05/2025/1077. As a statement of ethical principles for medical research, the World Medical Association (WMA) created the Declaration of Helsinki (World Medical Association Declaration of Helsinki, 2022).

3.5.1 Informed consent

Informed consent of the participants was ensured by the means of an information sheet, consent form, and withdrawal form. First of all, an information sheet that has detailed information about the nature of the study, rights of the participants, possible risks, and beneficences was provided to the participants before taking the consent form. The contents of the information sheet were clearly explained and checked through a checklist that they understood all the significant components of the consent form. It was ensured that the participants must completely understand the study and gave their full permission to participate and the researcher never forced the participants to give consent. The study-related information and contact detail were provided to allow the participants they could leave the study at any time of the research without any kind of explanation. All rights of the participant were reserved and the investigator was accountable to the participant to answer any type of study-related question. All participants were informed properly about how their data will he used in the future and also had the right to access all information regarding the research. During the interview, permission was taken from each participant who was interested to participate with a signature on a written consent form as well as the signature of the witness was taken before data collection.

3.5.2 Unequal relationship

There was no power or unequal relationship in this study as the investigator and his supervisor is not involved in the therapeutic process and care pathway of the participants.

3.5.3 Risk and beneficence

It was ensured that there is no physical, emotional, or economical risk or hazard for the participants of this study but will be benefited in the future from the study findings as it will be utilized in the clinical setting. Investigator took every precaution to protect the privacy of research participants and the confidentiality of their personal information by ensuring all the recordings of the interview of the participants remain confidential and will be stored securely and properly by using a password on the mobile phone. The printed copy was kept in a locked drawer of the supervisor.

3.5.4. Confidentiality

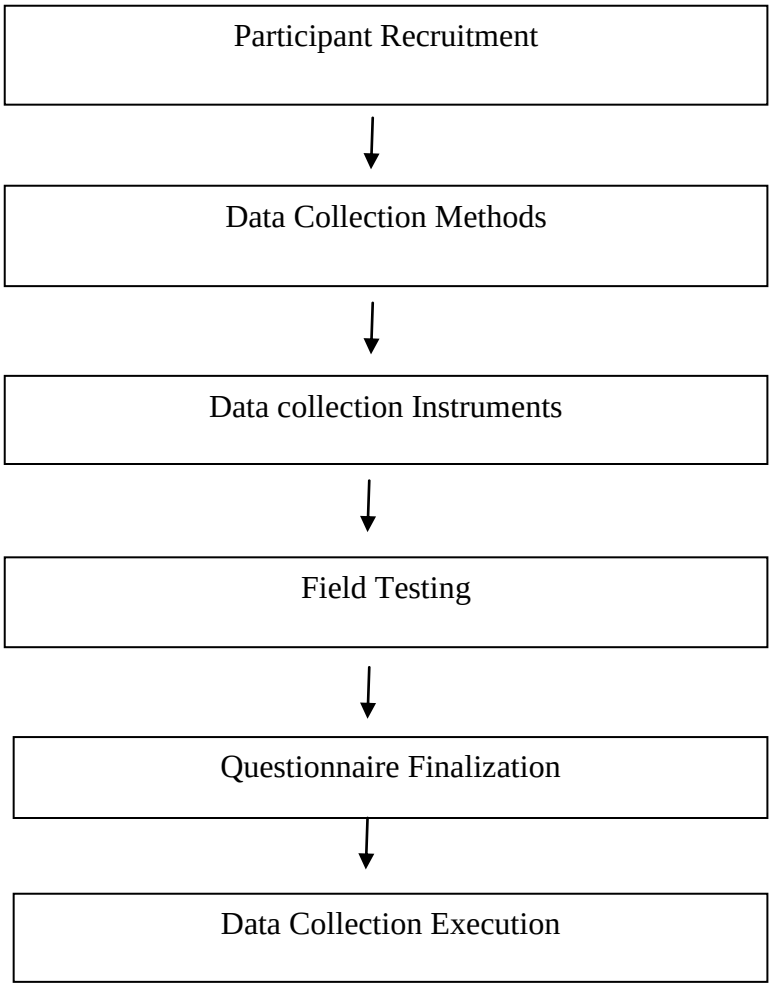
The researcher-maintained confidentiality regarding all the participants throughout the research procedure. The investigator ensured and maintained the confidentiality of participants. Only the investigator and responsible supervisor had access to the data, and that information was clearly stated in the information sheet and provided before collecting the data.

3.6 Data Collection Process

The data collection process for this study was designed to ensure accuracy, reliability, and relevance while maintaining ethical and humanitarian considerations. Face-to-face interviews were chosen as the primary method of data collection. This section details the participant recruitment, data collection methods, instruments, field testing, and data analysis procedures.

Figure 3.1

Data Collection process



3.6.1 Participant Recruitment Process

Participants were recruited from a special school setting, targeting children diagnosed with NDDs and their primary caregivers. Inclusion criteria were clearly defined to ensure the study sample was representative of the population of interest. Caregivers were approached in person, and the purpose of the study, its procedures, and ethical considerations were explained. Informed consent was obtained from all participants, emphasizing voluntary participation, confidentiality, and the right to withdraw at any time. Recruitment efforts aimed to minimize selection bias while ensuring the inclusion of children with diverse behavioral and emotional profiles.

3.6.2 Data Collection Methods

Face-to-face interviews were employed due to their advantages in collecting nuanced and sensitive information. This method allows interviewers to clarify questions immediately, reducing misinterpretation, which is particularly important when discussing complex topics such as screen time, sensory sensitivities, behavioral challenges, and emotional regulation (Kvale et al., 2007). Moreover, interviewers could observe non-verbal cues-such as hesitations, emotional reactions, and engagement levels-which provided richer insights into the child's condition (Opdenakker et al., 2006). The interactive nature of these interviews also fostered trust and rapport with caregivers, encouraging honest and detailed responses (Creswell & Poth, 2016).

Additionally, face-to-face interviews helped mitigate non-response bias by achieving higher participation rates than remote methods like phone or online surveys (De Leeuw et al., 2008). This approach also allowed for effective guidance in completing standardized assessment tools, ensuring accurate and comprehensive data collection.

3.6.3 Data Collection Instruments

The study utilized self-developed checklists to assess behavioral and emotional regulation in children with neurodevelopmental disorders (NDDs). The scoring system is designed to provide clear guidance on interpreting the child's level of behavioral and emotional functioning. Instruments included:

Behavioral Checklist (self-developed): Designed to capture specific behavioral challenges relevant to the local context.

Items: 21 behavioral items reflecting common challenges observed in children with NDDs.

Scoring: 5-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always).

Total Score: 105 points.

Interpretation:

Scores ranging from 64 to 105 indicate poor behavioral regulation, reflecting frequent or severe behavioral difficulties that may require structured interventions and close monitoring. A score of 63 represents moderate behavioral regulation, suggesting the presence of some behavioral challenges that are generally manageable and may benefit from targeted support or intervention strategies. Scores between 0 and 62 indicate good behavioral regulation, reflecting minimal behavioral difficulties and an overall ability to regulate behavior independently. Higher scores denote greater levels of behavioral problems. This scoring framework enables caregivers and professionals to efficiently identify children who may require additional behavioral support, prioritize intervention planning, and monitor behavioral changes over time. Additionally, the scale provides a quantitative approach for comparing behavioral regulation across individuals and evaluating outcomes following interventions.

2. Emotional Checklist: A standardized measure evaluating children's emotional responses and regulation strategies. Items: 10 items assessing emotional regulation, such as the child's ability to manage frustration, anxiety, or mood fluctuations.

- Scoring: Same 5-point Likert scale.
- Total Score: 50 points.

Interpretation:

Scores ranging from 31 to 50 indicate poor emotional regulation, reflecting significant difficulties in managing emotions and a need for focused emotional support, coping strategies, or therapeutic intervention. A score of 30 represents moderate emotional regulation, indicating the presence of some emotional challenges that may be addressed through monitoring, guidance, and support from caregivers or professionals. Scores between 0 and 29 indicate good emotional regulation, reflecting effective emotional control and adaptive coping skills. Higher scores denote greater emotional challenges. This scoring system assists in identifying children who experience difficulties with emotional responses in daily activities and social interactions, and provides an evidence-based framework for guiding interventions, monitoring progress, and evaluating therapeutic outcomes.

3.6.4 Instrument Development and Cultural Adaptation

The development and cultural adaptation of the behavioral and emotional regulation checklist followed the standardized guidelines proposed by Sousa and Rojjanasrirat (2011) for translation, adaptation, and validation of instruments in cross-cultural health research. This systematic approach ensured that the instrument was scientifically robust, culturally appropriate, linguistically clear, and practically applicable in both research and clinical contexts. The overall objective of this process was to ensure that the checklist items were meaningful, comprehensible, and conceptually equivalent in both Bengali and English, thereby enhancing the reliability and applicability of the instrument for assessing children with neurodevelopmental disorders (NDDs) in Bangladesh.

The initial phase involved an extensive review of peer-reviewed literature retrieved from databases such as PubMed, Scopus, and Google Scholar, focusing on behavioral and emotional regulation in children with NDDs. Key constructs identified included self-regulation, emotional responsiveness, attention regulation, social interaction difficulties, and adaptive behavior. These constructs served as the conceptual foundation for defining the domains and criteria to be measured by the checklist, ensuring alignment with existing scientific evidence and widely accepted theoretical frameworks in pediatric neurodevelopment.

Based on the findings from the literature review and the researcher’s extensive clinical experience working directly with children with NDDs, preliminary checklist items were generated. Each item was designed to reflect commonly observed behavioral and emotional challenges, including both internalizing and externalizing behaviors, emotional dysregulation, and difficulties in adaptive functioning. Integrating empirical evidence with real-world clinical

observations ensured that the items were both evidence-based and contextually relevant to the target population.

To maximize cultural relevance and linguistic clarity, the initial version of the checklist was developed in Bengali, the primary language of the study population. This step ensured that the items were culturally sensitive, easily understood by caregivers and professionals, and reflective of the lived experiences of children with NDDs in the Bangladeshi context. Developing the checklist in the local language facilitated accurate comprehension and reduced the risk of misinterpretation during data collection.

The draft Bengali checklist was then subjected to expert review by a panel of five professionals with expertise in pediatric neurodevelopmental disorders, including occupational therapists and special educators. The experts evaluated each item for clarity, relevance, and comprehensiveness. Based on their feedback, several refinements were made, including rewording ambiguous items, incorporating missing behavioral constructs, and improving linguistic precision. The revised version was subsequently re-evaluated and approved by the expert panel, thereby establishing content validity.

Following expert validation, the finalized Bengali version was translated into English to support academic dissemination and potential cross-cultural research applications. To ensure semantic and conceptual equivalence between the Bengali and English versions, the translation was cross-checked by both a senior and a junior occupational therapist with experience in NDD care. This process ensured that the translated items accurately reflected the original meanings while maintaining cultural and contextual integrity.

The Bengali checklist was then pilot-tested with a sample of children with NDDs to assess clarity, feasibility, and ease of administration. Field testing focused on evaluating item comprehensibility, consistency of interpretation by caregivers and therapists, and practical usability in real-world settings. Feedback obtained during this phase informed final refinements to item wording, structure, and response formats, thereby enhancing face validity and usability.

Through this iterative process—encompassing literature review, clinical input, expert evaluation, translation, cross-checking, and field testing—the checklist achieved linguistic and cultural validity. The finalized instrument is clear, culturally appropriate, and semantically equivalent in both Bengali and English, making it suitable for accurate data collection. This rigorous development process ensures that the checklist is reliable, user-friendly, and applicable for both research and clinical assessment of behavioral and emotional regulation in children with neurodevelopmental disorders.

Academic and Humanitarian Significance

The rigorous linguistic validation of the checklist enhances its scientific credibility, ensuring that future studies using this tool can yield reliable and generalizable findings. Moreover, it has humanitarian relevance, as it provides caregivers, therapists, and educators with an accessible, culturally sensitive, and evidence-informed instrument for identifying behavioral and emotional challenges in children with NDDs. By integrating academic rigor with practical applicability, the checklist can guide early intervention strategies, improve individualized care, and ultimately contribute to the enhanced well-being and developmental outcomes of children with neurodevelopmental disorders.

3.6.5 Field Testing and Pretesting

Before initiating the main phase of data collection, the self-developed Behavior and Emotional Checklist was subjected to a detailed field testing and pretesting process to ensure its suitability for research use. The primary objectives of this phase were to evaluate the clarity of items, cultural relevance, linguistic appropriateness, feasibility of administration, and overall comprehension by caregivers. Initially, the preliminary Bengali version of the checklist was reviewed by the study supervisor to confirm conceptual consistency with the study objectives and alignment with existing evidence-based literature. Following this review, the instrument was pretested with 10 caregivers of children with neurodevelopmental disorders. Caregivers were encouraged to share their feedback regarding item wording, ease of understanding, and response options. In addition, the researcher observed participant responses to identify ambiguities, misunderstandings, and time-related issues. Based on this feedback, necessary revisions were made to improve item phrasing, structure, and response format. This iterative refinement process ensured that the finalized checklist was clear, user-friendly, culturally appropriate, and reliable for the target study population, while reflecting both empirical evidence and practical clinical experience.

3.6.6 Data Analysis

Collected data were systematically coded and analyzed using SPSS - 26 (Statistical Package for the Social Sciences-version 26). Descriptive statistics, such as frequencies and percentages, were used to summarize demographic and behavioral characteristics. To examine relationships between behavioral and emotional regulation and associated factors (e.g., screen time, sensory sensitivities), the Fisher's Exact Test was employed. This statistical test was selected because the sample size was small and some expected cell counts were less than five, making Fisher's Exact Test more appropriate than Chi-square tests. This approach ensured robust and valid statistical inferences while maintaining analytical rigor.

CHAPTER IV: RESULTS

This section presents the socio-demographic characteristics of the 160 children with neurodevelopmental disorders (NDDs) who participated in this study. The information summarized in Table 1 includes age, gender, number of siblings, parents' income and education, family structure, place of residence, lifestyle factors (screen time, sleeping hours, playtime, toileting habits), and diagnostic distribution. These variables provide an overview of the background context of the participants, which may have an influence on their behavioral and emotional regulation levels.

4.1 Sociodemographic Characteristics

Table 4. 1

Sociodemographic Characteristics of Children with Neurodevelopmental Disorders

Category	Variables	Frequency (n=160)	Percentage (%)
Age	3-6 years	105	65.6
	6-10 years	45	28.1
	10 years and above	10	6.3
	Mean= 5.85 years, SD± 2.274, Maximum=12, Minimum=3		
Gender of Child	Male	109	74.4
	Female	41	25.6
Number of Siblings	None	84	52.5
	1 Siblings	58	36.3
	2 Siblings	14	8.8
	More than 2 Siblings	4	2.5
Parents Monthly Income	15000-30000	28	17.5
	30000-50000	17	10.6
	50000 or above	115	71.9
	Median= 70000 IQR= 50000-80000 tk		
Family Structure	Nuclear	110	68.8
	Joint	41	25.6
	Extended	9	5.6
Place of Residence	Urban	133	83.1
	Rural	27	16.9

Daily Screen Time	Less than 1 Hours	60	37.5
	1-2 Hours	28	17.5
	2-4 Hours	23	14.4
	More than 4 Hours	49	30.6
	Mean= 3.09 hours, SD± 2.222, Maximum=8, Minimum=1		
Daily Sleeping Hours	Less than 6 hours	6	3.8
	6-8 Hours	61	38.1
	8-10 Hours	80	50
	More than 10 hours	13	8.1
	Mean= 8.04 hours, SD± 1.607, Maximum=12, Minimum=5		
Constipation Problem	Yes	93	45.6
	No	67	54.4
Regular Toilet	Yes	65	67.5
	No	95	32.5
Regular playtime or outing	Yes	66	41.3
	No	94	58.8
Carers Responsible for take care at home	Yes	49	30.6
	No	111	69.4
Fathers Education	Primary	5	3.1
	Secondary	14	8.8
	Higher Secondary	31	19.4
	Bachelor	79	49.4
	M Sc	31	19.4
Mothers Education	Primary	8	5
	Secondary	14	8.8
	Higher Secondary	32	20
	Bachelor	77	48.1
	M Sc	29	18.1
Mothers Occupation	Housewife	130	81.3
	Service Holder	30	18.8
Diagnosis	ASD	82	51.2
	ADHD	41	25.6
	ID	2	1.3
	CP	27	16.2
	SCD	2	1.3
	Down Syndrome	4	2.5
	GDD	2	1.3

Table 4.1 portrays an overview of the socio-demographic details of the neurodevelopmental disorder children's. The age of the participants ranged from 3 to 12 years**,** with a mean age of 5.85 years (SD ± 2.274)**.** The majority of children **(**65.6%**)** were between 3-6 years**,** followed by

28.1% aged 6–10 years**,** and 6.3% above 10 years**,** indicating that most participants were in early childhood. Regarding gender**,** 74.4**%** of the participants were male**,** while 25.6% were female**,** reflecting the well-established male predominance in neurodevelopmental disorders such as Autism Spectrum Disorder (ASD) and ADHD. In terms of family size**,** more than half of the children (52.5%) had no siblings, and 36.3% had one sibling, indicating that most children came from small families. Analysis of parental monthly income revealed that the majority (71.9%) earned above 50,000 BDT, with a median income of 70,000 BDT (IQR = 50,000–80,000 BDT), suggesting that most families belonged to the middle to upper-middle socioeconomic group. Regarding family structure, 68.8% of the families were nuclear, 25.6% were joint, and 5.6% were extended, indicating that the nuclear family system was predominant among the study population. Most of the participants (83.1%) resided in urban areas, while 16.9% lived in rural regions**,** showing greater representation of urban families, possibly due to better access to diagnostic and therapeutic facilities in cities. The average daily screen time was 3.09 hours (SD± 2.222), ranging from 1 to 8 hours. About 30.6% of children spent more than four hours per day on screens, while 37.5% had less than one hour, indicating notable variation in daily screen exposure. For daily sleeping hours, the mean duration was 8.04 hours (SD ± 1.607), with 50% of participants sleeping 8–10 hours and 38.1% sleeping 6–8 hours per night. Only 3.8% of the children slept less than six hours, suggesting that most participants had adequate sleep duration. A considerable number of children (58.1%) reported constipation problems (n = 93), while 41.9% (n = 67) did not experience such issues. Regarding toileting habits, 40.6% (n = 65) had regular toilet routines, whereas 59.4% (n = 95) did not. These findings indicate that gastrointestinal and toileting irregularities were relatively common among children with NDDs.

Concerning play and outdoor activities, only 41.3% of participants engaged in regular playtime or outings, while 58.8% did not, suggesting limited physical and social participation among many children. When considering caregiving arrangements, 30.6% of children had a dedicated caregiver at home, while 69.4% were cared for directly by parents or family members. Parental education data showed that nearly half of the fathers (49.4%) and mothers (48.1%) held Bachelor's degrees, while 19.4% of fathers and 18.1% of mothers completed Master's degrees, indicating a generally well-educated parent group. The majority of mothers (81.3%) were housewives, whereas 18.8% were service holders. Regarding diagnostic categories, more than half of the participants were diagnosed with Autism Spectrum Disorder (ASD) (51.2%), followed by ADHD (25.6%), Cerebral Palsy (16.2%), Down Syndrome (2.5%), Intellectual Disability (1.3%), Social (Pragmatic) Communication Disorder (1.3%), and Global Developmental Delay (1.3%).

Overall, the socio-demographic findings indicate that most participants were young male children with ASD, living in urban nuclear families with moderate to high socioeconomic backgrounds and well-educated parents. Moreover, lifestyle patterns such as excessive screen exposure, limited outdoor play, and digestive irregularities were observed, which may influence behavioral and emotional regulation among children with neurodevelopmental disorders.

Table 4.2 Frequency status of Behavioral Dysregulation

Table 4.2

Response Pattern of the Behavioral Dysregulation among Children with Neurodevelopmental Disorders

Questions	Never n(%)	Rarely n(%)	Sometimes n(%)	Often n(%)	Always n(%)
Child laughs, cries, or screams suddenly without reason	14 (8.8)	26 (16.3)	51 (31.9)	62 (38.8)	7 (4.4)
Child screams or shouts loudly when angry	13 (8.1)	34 (21.3)	32 (20.0)	67 (41.9)	14 (8.8)
Child shows aggressive behavior (hitting, pushing, pinching, biting)	28 (17.5)	42 (26.3)	35 (21.9)	46 (28.7)	9 (5.6)
Child hurts themselves (e.g., head banging, biting)	43 (26.9)	47 (29.4)	37 (23.1)	27 (16.9)	6 (3.8)
Child has frequent mood swings (sudden anger or calmness)	11 (6.9)	34 (21.3)	39 (24.4)	63 (39.4)	13 (8.1)
Child avoids interacting even with familiar people	27 (16.9)	16 (10.0)	34 (21.3)	62 (38.8)	21 (13.1)
Child shows little interest in playing with peers	14 (8.8)	15 (9.4)	18 (11.3)	79 (49.4)	34 (21.3)
Child does not respond when called by name/spoken to	17 (10.6)	25 (15.6)	54 (33.8)	45 (28.1)	19 (11.9)
Child loses interest in previously enjoyed activities	13 (8.1)	37 (23.1)	47 (29.4)	50 (31.3)	13 (8.1)
Child prefers to spend time alone	11 (6.9)	16 (10.0)	26 (16.3)	68 (42.5)	39 (24.4)
Child repeatedly engages in movements (flapping, rocking, jumping)	14 (8.8)	17 (10.6)	25 (15.6)	65 (40.6)	39 (24.4)
Child makes nonsensical sounds or speech	11 (6.9)	32 (20.0)	40 (25.0)	44 (27.5)	33 (20.6)
Child prefers strict rules; reacts strongly to routine changes	17 (10.6)	32 (20.0)	37 (23.1)	54 (33.8)	20 (12.5)
Child constantly moves/shouts when expected to stay calm	8 (5.0)	12 (7.5)	25 (15.6)	81 (50.6)	34 (21.3)
Child interrupts others / acts impulsively	11 (6.9)	36 (22.5)	55 (34.4)	40 (25.0)	18 (11.3)
Child struggles to focus on tasks for long period	8 (5.0)	13 (8.1)	21 (13.1)	88 (55.0)	30 (18.8)
Child refuses to follow parents'/teachers' instructions	10 (6.3)	22 (13.8)	38 (23.8)	72 (45.0)	18 (11.3)
Child repeats same thing without understanding others	12 (7.5)	37 (23.1)	44 (27.5)	53 (33.1)	14 (8.8)
Child uses meaningless/irrelevant words in conversation	20 (12.5)	31 (19.4)	52 (32.5)	44 (27.5)	13 (8.1)
Child uses inappropriate language in situations	23 (14.4)	37 (23.1)	42 (26.3)	42 (26.3)	16 (10.0)

The findings presented in Table 4.2 show the response patterns obtained from the Behavioral Dysregulation Checklist used with 160 children diagnosed with various neurodevelopmental disorders (NDDs). The results highlight that behavioral difficulties are commonly observed among these children, though the severity and nature of dysregulation varied across different behavioral domains.

A large proportion of children (38.8%) were often found to laugh, cry, or scream suddenly without clear reasons, suggesting emotional instability and impulsive behavioral reactions. Similarly, 41.9% of the children often screamed or shouted when angry, indicating a high level of emotional reactivity and poor frustration tolerance. Aggressive behaviors such as hitting, pushing, or biting were also relatively common, with 28.7% of children frequently showing such tendencies, while 5.6% always engaged in self-harming behaviors such as head banging or biting.

Frequent mood changes were observed in 39.4% of the children, reflecting inconsistent emotional control. Social withdrawal behaviors were also prominent; for example, 38.8% often avoided interaction even with familiar people, and 42.5% often preferred to stay alone, showing signs of poor social engagement and reduced social motivation. Additionally, 49.4% of children often showed little interest in playing with peers, further emphasizing challenges in social participation and joint play activities.

Stereotyped or repetitive behaviors were also prevalent. Approximately 40.6% of the children often engaged in repetitive movements such as hand flapping, rocking, or jumping, while 24.4% always performed these movements. Speech-related irregularities were also noted, with 27.5% often producing nonsensical sounds and 20.6% always doing so.

Regarding adaptability, 33.8% of children often reacted strongly to changes in routine, suggesting rigidity and difficulty coping with transitions. Similarly, 50.6% often displayed hyperactive behaviors such as shouting or moving constantly when expected to stay calm, which may be linked to sensory processing difficulties or attention deficits. Impulsivity was another concern, as 34.4% sometimes and 25.0% often interrupted others or acted without thinking.

Attention and task engagement were also challenging for many participants, with 55.0% often and 18.8% always struggling to focus on tasks for a long period. Moreover, 45.0% often refused to follow parents' or teachers' instructions, reflecting poor behavioral compliance. Repetitive verbal responses and communication challenges were also reported-33.1% often repeated the same thing without understanding others, and 32.5% sometimes used irrelevant words in conversation. Inappropriate language use was also noted, with 26.3% of children often using unsuitable words or phrases in specific social contexts.

Overall, these findings demonstrate that behavioral dysregulation is a significant concern among children with neurodevelopmental disorders. The most prevalent behavioral issues include emotional outbursts, hyperactivity, repetitive movements, poor attention, and social withdrawal. These patterns highlight the complexity of behavioral challenges faced by this population and underscore the importance of early, structured, and individualized occupational therapy interventions focusing on self-regulation, sensory processing, and social engagement to promote adaptive behavior and daily participation.

Table 4.3 Frequency status of Emotional Dysregulation

Table 4.3

Response Pattern of the Emotional Dysregulation among Children with Neurodevelopmental Disorders

Questions	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	Always n (%)
Child expresses emotions appropriately (laugh when happy, cry when sad)	8 (5.0)	48(30.0)	55 (34.4)	32 (20.0)	17 (10.6)
Child shows empathy/enthusiasm when others are sad or distressed	23 (14.4)	59 (36.9)	54 (33.8)	14 (8.8)	10 (6.3)
Child expresses emotions correctly through words/gestures	5 (3.1)	49 (30.6)	59 (36.9)	34 (21.3)	13 (8.1)
Child becomes frustrated/irritated over minor issues	7 (4.4)	20 (12.5)	43 (26.9)	74 (46.3)	16 (10.0)
Child becomes overly anxious/worried in new environments	8 (5.0)	53 (33.1)	32 (20.0)	50 (31.3)	17 (10.6)
Child feels scared/uncomfortable around unfamiliar people	18 (11.3)	45 (28.1)	28 (17.5)	53 (33.1)	16 (10.0)
Child experiences unnecessary worry before new activity	15 (9.4)	44 (27.5)	40 (25.0)	47 (29.4)	14 (8.8)
Child shows blank/emotionless expression (seems mentally absent)	11 (6.9)	11 (6.9)	35 (21.9)	86 (53.8)	16 (10.0)
Extremely difficult to calm child once angry	2 (1.3)	24 (15.0)	69 (43.1)	54 (33.8)	11 (6.9)
Child gets angry easily over minor issues	7 (4.4)	29 (18.1)	57 (35.6)	51 (31.9)	16 (10.0)

Table 4.3 presents the response patterns from the Emotional Dysregulation Checklist used among 160 children diagnosed with neurodevelopmental disorders. The findings indicate that many children experience noticeable difficulties in understanding, expressing, and managing their emotions appropriately in daily situations.

A large proportion of children (46.3%) were often frustrated or irritated over small issues, and 10.0% always became upset easily. This suggests that emotional impulsivity and low tolerance for frustration are common features among these children. Similarly, 33.8% of participants were often difficult to calm once angry, while 6.9% were always hard to soothe, reflecting challenges in emotional recovery and self-regulation after distress.

Emotional expression and empathy also appeared to be affected. Around 36.9% of children sometimes and 30.0% rarely expressed emotions appropriately (such as laughing when happy or crying when sad), indicating that emotional expression may not always match the situation. Additionally, 36.9% rarely showed empathy or enthusiasm when others were sad or distressed, suggesting limited understanding of others' emotional states or difficulties in responding to social-emotional cues.

When asked about expressing emotions through words or gestures, 36.9% sometimes and 21.3% often showed difficulties, indicating delayed or unclear emotional communication. Anxiety-related behaviors were also evident, as 33.1% of children rarely and 31.3% often became overly anxious or worried in new environments. Moreover, 33.1% often and 10.0% always felt scared or uncomfortable around unfamiliar people, which may indicate heightened emotional sensitivity and fearfulness in social settings.

The findings also show that 29.4% often and 8.8% always experienced unnecessary worry before starting new activities, suggesting anticipatory anxiety or overthinking. Additionally, a significant portion of children (53.8%) often appeared with blank or emotionless expressions, seeming mentally withdrawn or disconnected, which may indicate emotional blunting or internal distress.

Overall, these results demonstrate that emotional dysregulation is a major concern among children with neurodevelopmental disorders. Common difficulties include low frustration tolerance, poor emotional awareness, anxiety in unfamiliar environments, limited empathy, and difficulty calming down after anger or distress. Such emotional challenges can interfere with learning, communication, and relationships, affecting overall participation in daily life. These findings emphasize the importance of incorporating emotion-focused occupational therapy interventions that help children identify, express, and manage emotions more effectively. Activities promoting self-awareness, relaxation, sensory regulation, and social-emotional learning can play a key role in improving emotional stability and enhancing quality of life for these children.

Table 4.4 Level of Behavioral status

Table 4.4

Level of Behavioral dysregulation among the children's with Neurodevelopmental disorder

Category	Variables	Frequency n=160	Percentage (%)
Behavioral Regulation	Good	50	31.3
	Moderate	2	1.3
	Bad	108	67.5

The findings of the study showed that most of the children with neurodevelopmental disorders had problems in controlling their behavior. Out of 160 children, 67.5%(n=108) were found to have a poor level of behavioral regulation. This means they often faced difficulties in managing their behavior, controlling their impulses, and adjusting to changes or social situations. A smaller number of children, 31.3% (n=50), had a good level of behavioral regulation, meaning they could control their behavior better and respond properly in most situations. Only 1.3% (n=2) children were found to have a moderate level of behavioral regulation.

These results highlight that many children with neurodevelopmental disorders experience significant difficulties in behavioral control, which may affect their social interactions, learning participation, and overall daily functioning. This emphasizes the importance of early occupational therapy interventions focusing on self-regulation, emotional control, and behavior management to support these children in achieving better functional outcomes and improved quality of life.

Table 4.5 Level of Emotional status

Table 4.5

Level of Emotional dysregulation among the children with Neurodevelopmental disorder

Category	Variables	Frequency n=160	Percentage (%)
Emotional Regulation	Good	59	36.9
	Moderate	7	4.4
	Bad	94	58.8

The findings of the study showed that many children with neurodevelopmental disorders have difficulties in controlling and managing their emotions. Out of 160 participants, 58.8% (n=94) children were found to have a poor level of emotional regulation. This means they often struggled to express their emotions properly, became easily upset or frustrated, and had trouble calming themselves in stressful situations. A smaller group, 36.9% (n=59) children, showed a good level of emotional regulation, meaning they were better able to manage their feelings, stay calm, and respond appropriately to different situations. Only 4.4% (n=7) children had a moderate level of emotional regulation.

These findings indicate that a large number of children with neurodevelopmental disorders face challenges in emotional control, which can affect their relationships, learning, and social participation. Therefore, early and consistent occupational therapy intervention is important to help these children improve their emotional understanding and develop coping skills.

Table 4.6 Association between Behavioral Dysregulation and Factors

Table 4.6

Association between Behavioral Dysregulation and Factors among Children with Neurodevelopmental Disorders

Variables		Good	Moderate	Bad	Fisher's Exact	Asymptomic Significance (2 sided)
Age	3-6 years	35	2	68		
	6-10 years	11	0	34	2.885	.573
	10 years and above	4	0	6		
Gender of Child	Male	37	2	80	.353	1.000
	Female	13	0	28		
Number of Siblings	None	26	2	56		
	1 Siblings	15	0	43		
	2 Siblings	6	0	8	7.803	.254
	More than 2 Siblings	3	0	1		
Parents Monthly Income	15000-30000	15	0	13		
	30000-50000	9	0	8	13.911	.003
	50000 or above	26	2	87		
Family Structure	Nuclear	25	1	84		
	Joint	23	0	18	19.105	.001
	Extended	2	1	6		
Place of Residence	City	39	2	92	1.498	.493
	Village	11	0	16		
Daily Screen Time	Less than 1 Hours	25	0	35		
	1-2 Hours	14	1	13	32.459	.001
	2-4 Hours	9	0	14		
	More than 4 Hours	2	1	46		
Daily Sleeping Hours	Less than 6 Hours	3	0	3		
	6-8 Hours	14	2	45	7.394	.280
	8-10 Hours	29	0	51		
	More than 10 Hours	4	0	9		
Constipation Problem	Yes	16	0	57	7.257	.013
	No	34	2	51		
Regular Toilet	Yes	35	2	71	.850	.687

	No	15	0	37		
Regular playtime or outing	Yes	35	2	29		
	No	15	0	79	28.680	.001
Responsible for take care at home	Yes	13	0	36	1.328	.510
	No	37	2	72		
Father's Education	Primary	3	0	2		
	Secondary	7	0	7		
	Higher Secondary	12	0	19	35.368	.001
	Bachelor	9	2	68		
	M.Sc	19	0	12		
Mother's Education	Primary	4	0	4		
	Secondary	7	0	7		
	Higher Secondary	8	0	24	39.665	.001
	Bachelor	10	2	65		
	M.Sc	21	0	8		
Mother's Occupation	Housewife	40	2	88	.295	.888
	Service Holder	10	0	20		
Diagnosis	ASD	16	1	65		
	ADHD	7	0	34		
	ID	1	0	1		
	CP	23	0	4	60.860	.001
	SCD	2	0	0		
	Down Syndrome	1	0	3		
	GDD	0	1	1		

Note: Fisher's Exact Test

The study examined the relationship between behavioral regulation and several demographic and lifestyle factors among 160 children with neurodevelopmental disorders. The findings showed that behavioral regulation was significantly associated with some key factors, while others showed no meaningful relationship.

A significant association was found between behavioral regulation and parents' monthly income (P = .003). Children from families with higher income levels (above 50,000 BDT) were more likely to show better behavioral regulation than those from lower-income groups. This suggests that children from families with more financial stability may have greater access to

health care, therapy, and a supportive home environment that promotes better behavioral outcomes.

There was also a significant relationship between family structure and behavioral regulation (P = .001). Children living in nuclear families were more likely to have poor behavioral regulation compared to those from joint or extended families. This may be because children in joint families receive more emotional support, attention, and shared caregiving, which help in behavior management.

A strong and significant association was also observed between daily screen time and behavioral regulation (P = .001). Children who spent more than four hours daily on screens showed poorer behavioral control compared to those with limited screen exposure. This finding highlights the negative impact of excessive screen time on children's self-regulation, attention, and social interaction.

Constipation problems were also significantly related to behavioral regulation (P = .013). Children who experienced constipation tended to have poorer behavioral control. This may be due to discomfort, irritability, and difficulty in daily routines that affect mood and self-regulation.

Similarly, regular playtime or outdoor activities were significantly associated with better behavioral regulation (P=.001). Children who had regular opportunities for play and outdoor movement showed better behavior control and emotional balance than those who did not. Play helps children release energy, improve sensory regulation, and develop social skills that support positive behavior.

The study also found a significant link between father's education (*P* = .001) and mother's education (*P* = .001) with behavioral regulation. Children whose parents had higher educational levels were more likely to show good behavioral control. Educated parents may have better awareness of child development, use positive parenting techniques, and seek appropriate therapy services.

Finally, a significant association was found between diagnosis type and behavioral regulation (*P*= .001). Children with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD) showed more difficulties in behavior regulation compared to those with Cerebral Palsy (CP) or other developmental disorders. This is likely due to the social and executive functioning challenges common in ASD and ADHD.

On the other hand, age, gender, number of siblings, place of residence, daily sleeping hours, mother's occupation, regular toilet use, and caregiver type showed no significant relationship with behavioral regulation.

Overall, the results suggest that behavioral regulation among children with neurodevelopmental disorders is influenced by multiple environmental, educational, and health-related factors. Promoting healthy daily routines, reducing screen time, supporting parental education, and encouraging play-based occupational therapy interventions can help improve behavior regulation and overall well-being in these children.

Table 4.7 Association between Emotial Dysregulation and Factors

Table 4.7

Association between Emotial Dysregulation and Factors among Children with Neurodevelopmental Disorders

Variables		Good	Moderate	Bad	Fisher's Exact	Asymptotic Significance (2 sided)
Age	3-6 years	38	4	63		
	6-10 years	17	3	25	1.064	.911
	10 years and above	4	0	6		
Gender of Child	Male	45	6	68	.584	.772
	Female	14	1	26		
Number of Siblings	None	28	4	52		
	1 Siblings	21	3	34		
	2 Siblings	7	0	7	4.143	.639
	More than 2 Siblings	3	0	1		
Parents Monthly Income	15000-30000	11	1	16		
	30000-50000	9	0	8	2.378	.640
	50000 or above	39	6	70		
Family Structure	Nuclear	39	5	66		
	Joint	18	1	22	3.087	.523
	Extended	2	1	6		
Place of Residence	City	48	5	80	1.455	.462
	Village	11	2	14		
Daily Screen Time	Less than 1 Hours	25	3	32		
	1-2 Hours	13	0	15	6.334	.001
	2-4 Hours	8	0	15		
	More than 4 Hours	13	4	32		
Daily Sleeping Hours	Less than 6 hours	3	0	3		
	6-8 Hours	21	2	38	4.358	.594
	8-10 Hours	31	3	46		
	More than 10 hours	4	2	7		
Constipation Problem	Yes	22	4	47	2.793	.266
	No	37	3	47		
Regular Toilet	Yes	40	5	63	.098	1.000
	No	19	2	31		
Regular playtime or outing	Yes	27	3	36		
	No	32	4	58	.933	.640
Responsible	Yes	20	1	28	1.001	.603

for take care at home	No	39	6	66		
Fathers Education	Primary	4	0	1		
	Secondary	3	1	10		
	Higher Secondary	15	1	15	14.417	.041
	Bachelor	21	5	53		
	M Sc	16	0	15		
Mothers Education	Primary	5	0	3		
	Secondary	3	1	10		
	Higher Secondary	14	1	17	14.566	.039
	Bachelor	20	5	52		
	M Sc	17	0	12		
Mothers Occupation	Housewife	47	7	76	1.207	.600
	Service Holder	12	0	18		
Diagnosis	ASD	25	3	54		
	ADHD	14	3	24		
	ID	1	0	1		
	CP	16	1	10	15.111	.235
	SCD	2	0	0		
	Down Syndrome	0	0	4		
	GDD	1	0	1		

Note: Fisher's Exact Test

This table examined how emotional regulation was related to different personal, family, and lifestyle factors among 160 children with neurodevelopmental disorders. The results showed that emotional regulation had significant associations with a few factors, while most others did not show a meaningful relationship.

A significant association was found between daily screen time and emotional regulation (P = .001). Children who spent more than four hours daily on screens were more likely to have poor emotional control compared to those with less screen exposure. This suggests that long screen use may negatively affect children's emotional development, attention, and ability to manage frustration or stress.

There was also a significant relationship between father's education level (P = .041) and mother's education level (P= .039) with emotional regulation. Children whose parents had higher education-especially bachelors or master's degrees—were more likely to show better emotional control. Educated parents may have greater awareness of their child's developmental needs, use positive parenting approaches, and seek professional help when needed, all of which can support emotional growth.

However, no significant relationships were found between emotional regulation and other variables such as age, gender, number of siblings, family income, family structure, place of residence, sleeping hours, constipation problem, regular toilet habits, playtime or outing, mother's occupation, and diagnosis type. This indicates that emotional regulation difficulties are common across different demographic and social groups of children with neurodevelopmental disorders.

Overall, the findings suggest that excessive screen time and lower parental education levels may contribute to poorer emotional regulation in children with neurodevelopmental conditions. From a humanitarian and occupational therapy perspective, it is important to support families in promoting healthy routines, reducing screen exposure, and encouraging emotional expression through play, sensory activities, and parent–child interaction. These approaches can help children build stronger emotional control, improve participation in daily activities, and enhance their overall well-being.

CHAPTER V: DISCUSSION

The present study investigated behavioral and emotional dysregulation among children with neurodevelopmental disorders and examined the factors associated with these difficulties. The results revealed that both behavioral and emotional dysregulation are highly prevalent in this population. Specifically, 67.5% of children exhibited poor behavioral regulation, while 58.8% showed poor emotional regulation. This indicates that behavioral dysregulation was slightly more common than emotional dysregulation in this sample.

The high prevalence of behavioral and emotional challenges is consistent with previous studies, which have shown that children with neurodevelopmental disorders, including Autism Spectrum Disorder (ASD), Attention-Deficit/Hyperactivity Disorder (ADHD), and Intellectual Disability (ID), often face difficulties in controlling impulses, following social rules, and managing their emotions (Graziano et al., 2017; Mazefsky et al., 2019). These difficulties can significantly affect learning participation, peer interactions, and daily functioning, emphasizing the importance of early identification and intervention.

Patterns and Distribution of Dysregulation: Behavioral dysregulation in this study manifested as difficulties in controlling impulses, frequent outbursts, and challenges in following routines or instructions. Emotional dysregulation, while slightly less prevalent, was still substantial, with over half of the participants struggling to manage frustration, anger, or anxiety appropriately. These findings align with evidence suggesting that while behavioral problems may be more visible and disruptive in daily routines, emotional dysregulation can underlie many of these behaviors, contributing to social and academic difficulties (Operto et al., 2021).

Furthermore, the data indicated that children with ASD displayed the highest levels of both behavioral and emotional dysregulation, followed by children with ADHD. This supports prior research showing that ASD and ADHD are frequently associated with combined behavioral and emotional regulation challenges, which may differ in severity and manifestation depending on the individual child (Davico et al., 2022; Astenvald et al., 2022).

Factors Associated with Dysregulation

Socioeconomic and Family Factors: Socioeconomic status and family structure were found to influence both behavioral and emotional regulation. Children from lower-income families and those from joint or extended family structures were more likely to experience dysregulation. These findings suggest that limited resources, environmental stressors, and complex caregiving dynamics may contribute to difficulties in self-regulation.

Consistent with this, prior studies have found that lower socioeconomic status is linked to higher prevalence of emotional and behavioral problems in children, due to limited access to educational resources, stress, and reduced parental support (Zhou et al., 2025). Family support, consistency in caregiving, and parental involvement play critical roles in fostering emotional stability and adaptive behavior (Löytömäki et al., 2022).

Screen Time and Sleep Patterns: Excessive screen time emerged as a significant factor associated with poor emotional regulation. Children who spent more than four hours daily on screens were more likely to display difficulties in controlling emotions. Adequate sleep, conversely, appeared to protect against dysregulation, as children sleeping less than six hours were more likely to have both behavioral and emotional difficulties.

These observations are aligned with research demonstrating that excessive screen exposure can increase irritability, inattention, and social withdrawal, while adequate sleep supports emotional stability and behavioral control (Madigan et al., 2020; Mindell et al., 2017). These findings highlight the need for structured routines that balance learning, play, screen time, and rest.

Parental Education and Occupation: The study also revealed that higher parental education was associated with better emotional regulation in children. This suggests that educated parents may be more aware of child development, employ positive parenting strategies, and provide environments conducive to adaptive behavior and emotional control. Prior literature supports these findings, showing that parental education is a strong predictor of child emotional and behavioral outcomes (Eisenberg et al., 2010). Parental occupation, however, was not significantly associated with dysregulation, suggesting that educational awareness may be a stronger factor than employment status in influencing child development in this context.

Health Factors: Physical health factors, including sleep and gastrointestinal issues, were associated with dysregulation. Children experiencing health-related discomfort, such as constipation, were more likely to demonstrate behavioral problems. Evidence from other studies shows that poor physical health can exacerbate irritability, impulsivity, and emotional instability in children with neurodevelopmental disorders, highlighting the need for integrated care approaches (Beattie et al., 2019; Cortese et al., 2021).

Implications for Occupational Therapy

The findings of this study, which demonstrated high levels of behavioral and emotional dysregulation among children with neurodevelopmental disorders, carry significant implications for occupational therapy practice. Occupational therapists play a vital role in identifying, assessing, and managing self-regulation challenges that influence a child's participation, learning, and social engagement. The following implications highlight how occupational therapy can address the identified challenges effectively.

Early Identification and Screening: Occupational therapists should prioritize early screening for behavioral and emotional dysregulation among children with neurodevelopmental disorders. Early detection enables the timely initiation of interventions that can reduce long-term negative impacts on learning and social functioning. Screening tools such as the Behavior Rating Inventory of Executive Function (BRIEF) and the Sensory Profile can help identify early signs of dysregulation (Eisenberg, Spinrad, & Eggum et al., 2010). Early identification ensures children receive appropriate therapeutic input before maladaptive behaviors become ingrained.

Sensory Integration–Based Interventions: Many children with neurodevelopmental disorders exhibit sensory processing difficulties that directly influence their behavioral and emotional regulation. Occupational therapists can implement Ayres Sensory Integration (ASI)–based activities, such as swinging, deep pressure, or proprioceptive tasks, to promote calmness and attention. Research supports the effectiveness of sensory integration in improving self-regulation, attention, and adaptive behavior among children with Autism Spectrum Disorder (Pfeiffer et al., 2011; Lang et al., 2012). Such approaches enhance children's participation in school and home activities while promoting emotional stability.

Parent-Mediated and Family-Centered Interventions: Parent involvement is critical for maintaining consistent behavioral and emotional regulation at home. Occupational therapists can educate parents on how to implement behavior management strategies, structure daily routines, and use positive reinforcement techniques. Studies show that parent-mediated interventions significantly improve children's adaptive behavior and communication skills (Oono, Honey, & McConachie et al., 2013). Family-centered therapy empowers caregivers, strengthens the parent–child bond, and ensures generalization of therapeutic gains beyond clinical settings.

Promoting Structured Daily Routines: A structured daily routine—including consistent sleeping schedules, limited screen exposure, and regular outdoor play—supports a predictable environment that enhances emotional stability. Occupational therapists can collaborate with families to create balanced routines that meet children's sensory and emotional needs, thus reducing stress and impulsivity (Richdale & Schrecket al., 2009).

Building Emotional Literacy and Coping Skills: Children with neurodevelopmental disorders often have difficulty identifying and expressing emotions. Occupational therapy can incorporate activities that develop emotional literacy, such as using visual emotion cards, storytelling, and mindfulness techniques. By teaching relaxation, breathing exercises, and coping strategies, therapists help children manage frustration, anxiety, and anger in constructive ways, thereby enhancing their social and academic participation (Zinsser et al., 2012).

Collaboration with Teachers and Multidisciplinary Teams: Behavioral and emotional regulation difficulties often affect school performance. Occupational therapists should collaborate with teachers, psychologists, and speech–language therapists to develop individualized support plans. Creating sensory-friendly classrooms, visual schedules, and calm-down spaces can improve attention, reduce meltdowns, and facilitate learning participation (Case-Smith & O'Brien et al., 2015).

Addressing Socioeconomic and Cultural Factors: The present study found associations between behavioral regulation and factors such as family income and parental education. Therapists should adapt interventions based on socioeconomic context, ensuring accessibility and affordability. Low-cost, home-based strategies—like structured play, music, or physical activities- can be used effectively even in resource-limited environments. Tailoring interventions to families' cultural values promotes better engagement and sustainability (WHO, 2020).

Addressing Health and Lifestyle Factors: Health-related issues, such as inadequate sleep or constipation, were found to influence behavioral regulation. Occupational therapists should include health-promoting routines within intervention plans, encouraging healthy sleep hygiene, balanced nutrition, and physical activity. Collaboration with medical professionals may be needed to manage comorbid conditions that affect self-regulation (Cortese, Brown, & Konofal et al., 2021).

Enhancing Participation and Quality of Life: The ultimate goal of occupational therapy is to improve children's participation in meaningful occupations-such as play, learning, and self-care. By addressing both behavioral and emotional dysregulation, occupational therapists can help children achieve greater independence, social inclusion, and overall well-being. Therapeutic efforts focused on self-regulation contribute not only to skill development but also to emotional resilience and family harmony (Kielhofner, 2008; AOTA, 2020).

CHAPTER VI: CONCLUSION

6.1 Strengths and Limitations

6.1.1 Strength

The present study provides valuable insight into the behavioral and emotional regulation challenges faced by children with neurodevelopmental disorders within the Bangladeshi context. Unlike many previous studies that focused on Western populations, this research highlights context-specific factors such as socioeconomic status, family structure, and lifestyle habits influencing self-regulation. The use of a relatively large sample (n = 160) strengthens the reliability of the findings. Additionally, the study contributes to the growing body of evidence supporting the importance of occupational therapy-based interventions in managing dysregulation and promoting functional participation. The integration of both behavioral and emotional domains allows for a more holistic understanding of children's regulatory capacities, which is crucial for designing comprehensive intervention models (Kielhofner, 2008; AOTA, 2020).

- One of the major strengths of this study lies in its inclusion of multiple types of neurodevelopmental disorders, which provides a broader understanding of the behavioral and emotional regulation patterns among this population. The use of a structured assessment framework allowed for consistent data collection and analysis.
- The data collection from participants and the data entry process was non-biased.
- Focus on Dual Domains: The study examined both behavioral and emotional regulation in children with neurodevelopmental disorders (NDDs), providing a more comprehensive understanding of their psychosocial functioning.

- Inclusion of Multiple Factors: The research explored several associated variables including sociodemographic, environmental, and health-related factors, helping to identify potential risk elements influencing dysregulation.
- Clinical Relevance: The findings hold direct value for occupational therapy practice, especially for designing parent-mediated and sensory-based interventions to promote self-regulation skills.
- Humanitarian Focus: By emphasizing family and environmental influences, the study highlights the importance of holistic and family-centered therapeutic approaches in supporting children with NDDs.

6.1.2 Limitations

Despite its contributions, several limitations should be acknowledged. There are some limitations of the study. They are,

- First, the cross-sectional design limits the ability to establish causality between the identified factors and levels of dysregulation. Longitudinal studies would be needed to explore how these behaviors evolve over time.
- Second, data were collected using caregiver reports, which might have been influenced by subjective perceptions and recall bias. Third, the study included children with different types of neurodevelopmental disorders (such as ASD, ADHD, CP, and ID), which may vary widely in symptom presentation, thus limiting condition-specific generalization.
- Finally, environmental and cultural influences on child behavior and emotion were not explored in depth, which could further inform intervention strategies.

- One of the limitations of this study is that the Behavior and Emotional Checklists were developed and linguistically validated, but full psychometric properties, such as reliability, internal consistency, and construct validity, were not assessed. Due to limited sample size and time constraints, conducting comprehensive psychometric analysis was not feasible within this study.

6.2 Practice Implication

6.2.1. Recommendation for Future Practice

- Early Screening and Assessment - Occupational therapists should include regular screening for emotional and behavioral regulation difficulties as part of developmental assessments, particularly for children at risk of NDDs.
- Individualized Sensory and Behavioral Interventions- Practice should integrate sensory processing and emotional regulation strategies within daily therapy routines to improve participation in self-care, play, and learning activities (Schaaf et al., 2015).
- Parent and Caregiver Involvement- Parent training and counseling should be emphasized to enhance consistency in applying regulation strategies across home and school environments (Oono et al., 2013).
- Interdisciplinary Collaboration - Collaboration with teachers, psychologists, and pediatricians can create a cohesive support network addressing both behavioral and emotional needs.
- Cultural and Socioeconomic Sensitivity - Therapists should design interventions adaptable to the local context, considering affordability, family education level, and cultural norms to ensure accessibility and sustainability.

These recommendations align with the Occupational Therapy Practice Framework (AOTA, 2020), which emphasizes a holistic, client-centered, and contextually relevant approach to enhancing participation and quality of life.

6.2.2 Recommendation for Future Research

- Longitudinal and Experimental Studies - Future research should explore how behavioral and emotional regulation develops over time and whether targeted interventions can improve outcomes longitudinally.
- Condition-Specific Analyses - Separate analyses for Autism Spectrum Disorder, ADHD, and other NDDs would help determine condition-specific intervention priorities.
- Parent and Environment-Related Factors- Future studies should examine the impact of parental mental health, home environment, and school setting on child regulation.
- Qualitative Studies- Including qualitative interviews with parents and therapists may provide deeper insight into contextual challenges and coping experiences.
- Cross-Cultural Comparisons - Comparative studies between different regions or countries could identify cultural differences influencing emotional and behavioral regulation and guide globally informed OT interventions.
- Future research should focus on evaluating these psychometric properties to strengthen the scientific rigor and standardization of the checklists for use in both clinical and research settings.

6.3 Conclusion

This study aimed to explore the levels of behavioral and emotional dysregulation among children with neurodevelopmental disorders (NDDs) and identified their associated factors. The findings showed that a large proportion of children experienced poor behavioral and emotional regulation, highlighting significant challenges in managing emotions, controlling impulses, and maintaining adaptive behaviors in daily activities. Socio-demographic and environmental factors, such as parental education, family structure, daily screen time, and diagnosis type, were found to have a notable influence on these outcomes.

The results show that difficulties in self-regulation are not only symptoms of NDDs but are also shaped by surrounding family, educational, and environmental contexts. This suggests the need for a holistic and family-centered approach in occupational therapy interventions. Early identification and intervention focusing on emotional control, social participation, and behavior management can greatly improve a child's adaptive functioning and quality of life. One of the strengths of this study is its inclusion of multiple neurodevelopmental conditions, which provides a broader understanding of behavioral and emotional challenges across different diagnoses. However, some limitations should be acknowledged. The cross-sectional design restricts the ability to establish cause-and-effect relationships, and reliance on caregiver reports may introduce subjective bias. Additionally, cultural and environmental influences were not deeply explored, and further longitudinal studies are recommended to track changes in regulation patterns over time.

From a broader humanitarian and social perspective, the findings hold important implications:

For Government and Policy Makers: The study highlights the urgent need for early screening programs and parent awareness initiatives for neurodevelopmental disorders. Government-supported community awareness campaigns can help in reducing stigma, improving early detection, and ensuring access to occupational therapy and rehabilitation services at the primary healthcare level (WHO, 2020).

For Parents of Newly Diagnosed Children: The results may help parents better understand the nature of their child's emotional and behavioral difficulties. Awareness of factors such as daily routines, screen time, and play opportunities can empower parents to create more supportive home environments and to seek timely therapeutic guidance (Rosenbaum et al., 2022).

For Occupational Therapists and Other Professionals: The findings reinforce the importance of interdisciplinary collaboration in supporting children with NDDs. Occupational therapists can design individualized programs focusing on self-regulation, sensory integration, and daily living skills, while educators and psychologists can complement these efforts through classroom and behavioral strategies (Case-Smith & Arbesman, 2020).

For Future Research: Future studies should consider longitudinal designs and include qualitative components to understand the lived experiences of families. Exploring environmental, cultural, and socio-economic influences in greater depth could also contribute to the development of more contextually appropriate interventions for children in different communities.

In conclusion, the study contributes meaningful insights into the behavioral and emotional regulation challenges faced by children with neurodevelopmental disorders. By addressing these issues through early occupational therapy interventions, community education, and policy-level initiatives, it is possible to enhance not only the developmental outcomes of these children but also their overall inclusion, dignity, and quality of life within society.

CHAPTER VII: REFERENCES

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Chapter VIII: APPENDICES

Appendix A: Ethical Approval Form

বাংলাদেশ হেলথ্ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref: CRP-BHPI/IRB/05/2025/1077 Date: 15.05.2025

To,
Piyas Saha
M.Sc. in Occupational Therapy, Part-II
Roll: 02, Student ID:12123020
BHPI, CRP, Savar, Dhaka-1343.

Subject: Approval of the thesis proposal "**Behavioral and Emotional Dysregulation and Its Associated Factors in Children with Neurodevelopmental Disorder: A Cross-Sectional Study**" by ethics committee.

Dear Piyas Saha,
Congratulations.
The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned dissertation, with yourself, as the principal investigator and Associate Professor. Muhammad Millat Hossain, Department of Rehabilitation Science, Project & Course Coordinator, MRS Program, BHPI,CRP as my thesis supervisor. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation/thesis/research Proposal
2	Questionnaire (English & / or Bengali version)
3	Information sheet & consent form.

The purpose of the study is to investigate the level of behavioural and emotional Dysregulation and Its Associated Factors in Children with Neurodevelopmental Disorder. In this study, two self-developed scales titled "Emotional Checklist" and "Behavioral Checklist" will be used to investigate the level of behavioural and emotional regulation in children with neurodevelopmental disorders and to identify the key factors influencing this regulatory process that may take 20 to 30 minutes to answer the questionnaire. Data collectors will receive informed consent from all participants and collected data will be kept confidential and there is no likelihood of any harm to the participants and / or participation in the study may benefit the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at **09:00 AM** on **13/04 2025** at BHPI **(48th IRB Meeting).**

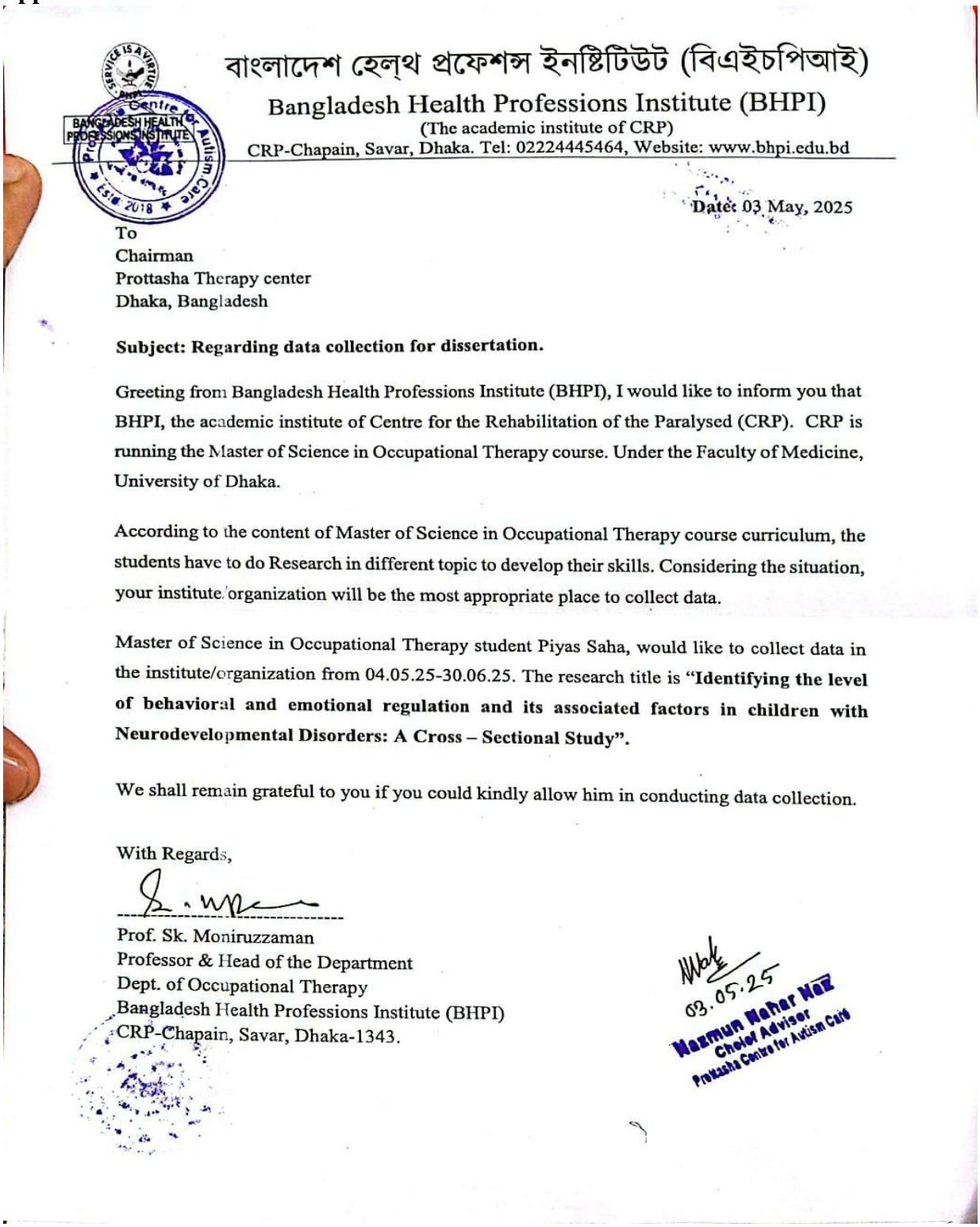
The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ। ফোন: +৮৮ ০২ ২২৪৪৪৫৪৬৪-৫, +৮৮ ০২ ২২৪৪৪১৪০৪, মোবাইল: +৮৮ ০১৭৩০ ০৫৯৬৪৭
CRP-Chapain, Savar, Dhaka-1343, Bangladesh. Tel: +88 02 224445464-5, +88 02 224441404, Mobile: +88 01730059647
E-mail : principal-bhpi@crp-bangladesh.org, Web: bhpi.edu.bd

Appendix B: Permission Letter for Data Collection



বাংলাদেশ হেল্‌থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)

Bangladesh Health Professions Institute (BHPI)

(The academic institute of CRP)

CRP-Chapain, Savar, Dhaka. Tel: 02224445464, Website: www.bhpi.edu.bd

Date: 03 May, 2025

To
Chairman
Prottasha Therapy center
Dhaka, Bangladesh

Subject: Regarding data collection for dissertation.

Greeting from Bangladesh Health Professions Institute (BHPI), I would like to inform you that BHPI, the academic institute of Centre for the Rehabilitation of the Paralysed (CRP). CRP is running the Master of Science in Occupational Therapy course. Under the Faculty of Medicine, University of Dhaka.

According to the content of Master of Science in Occupational Therapy course curriculum, the students have to do Research in different topic to develop their skills. Considering the situation, your institute/organization will be the most appropriate place to collect data.

Master of Science in Occupational Therapy student Piyas Saha, would like to collect data in the institute/organization from 04.05.25-30.06.25. The research title is **"Identifying the level of behavioral and emotional regulation and its associated factors in children with Neurodevelopmental Disorders: A Cross – Sectional Study".**

We shall remain grateful to you if you could kindly allow him in conducting data collection.

With Regards,

Prof. Sk. Moniruzzaman
Professor & Head of the Department
Dept. of Occupational Therapy
Bangladesh Health Professions Institute (BHPI)
CRP-Chapain, Savar, Dhaka-1343.

03.05.25
Nazmun Naher Naz
Chief Advisor
Prottasha Centre for Autism Care

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The academic institute of CRP)
CRP-Chapain, Savar, Dhaka. Tel: 02224445464, Website: www.bhpi.edu.bd

Date: 03 May, 2025

To
Chairman
CRP-Chapain, Savar, Dhaka-1343.
Dhaka, Bangladesh

Subject: Regarding data collection for dissertation.

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Master of Science in Occupational Therapy student Piyas Saha, would like to collect data in the institute/organization from 04.05.25-30.06.25. The research title is **"Identifying the level of behavioral and emotional regulation and its associated factors in children with Neurodevelopmental Disorders: A Cross – Sectional Study".**

We shall remain grateful to you if you could kindly allow him in conducting data collection.

With Regards,

Prof. Sk. Moniruzzaman
Professor & Head of the Department
Dept. of Occupational Therapy
Bangladesh Health Professions Institute (BHPI)
CRP-Chapain, Savar, Dhaka-1343.

He will collect data at from this Dept. please help him.
Thanks
7-7-25

Hosneara Perveen
Head of Department
Department of Paediatric
CRP, Savar, Dhaka

Appendix C: Information Sheet and Consent Form [English Version]

Information Sheet and Consent Form

Bangladesh Health Professions Institute (BHPI)

Occupational Therapy Department

CRP-Savar, Dhaka-1343

Title of the Research:

"Identify the level of behavioral and emotional regulation and its associated factors in children with Neurodevelopmental disorder".

Researcher:

Piyas Saha, MSc in Occupational Therapy, Session 2022-23, Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343.

Research Location: Dhaka

Introduction:

I am Piyas Saha, a student of MSc in Occupational Therapy at Bangladesh Health Professions Institute (BHPI), am conducting this study as part of my academic curriculum for the completion of my MSc degree. This research project is being conducted under the supervision of qualified faculty members. Through this study, my aim to collect and analyze data to identify the level of behavioral and emotional regulation and its associated factors in children with Neurodevelopmental disorder. Before the participants decide to participate in this study, I would like to provide you with details regarding the purpose of the research, data collection process, ethical considerations, and your rights as a participant. If the participants are interested in participating, please take the time to make an informed decision. Participation is entirely voluntary, and you have the right to choose whether or not to participate.

The participants may also discuss the study with your family members, close friends, or others you trust before making a decision. If there is any part of the information that you do not understand, feel free to ask me for clarification.

Time and Rights:

The participants are under no obligation to participate in this research. Your decision to participate will be kept confidential, and all information collected will be used solely for the purpose of this study. You may withdraw from the study at any time without providing any explanation, and your decision will be respected.

If you have any questions or concerns about the study, feel free to ask me at any point. Thank you for considering participation in this research.

Background and purpose of the study:

This research invites children with Neurodevelopmental Disorders (NDDs) and their primary caregivers to participate in a study being conducted at a special school or a dedicated clinical center. The study is aimed at children aged 3–12 years diagnosed with Autism Spectrum Disorder.

We cordially invite you to be a part of this study. The primary objective of this research is to identify the level of behavioral and emotional regulation and its associated factors in children with Neurodevelopmental disorders. An occupational therapist will guide this process, analyzing sensory processing patterns and adaptive behaviors to develop effective strategies for early intervention and improvement in their development.

We believe your participation will contribute significantly to achieving the objectives of this research and ultimately benefit children with NDDs.

Study-Related Information:

Participants will be invited for a one-on-one session lasting approximately 30 to 40 minutes. During this session, we will discuss the study in detail and provide a consent form for your participation. The study will involve structured data collection using a validated questionnaire, supervised by the therapist.

Once you express your interest in participating, you will receive a detailed guideline and schedule for the sessions. Your involvement will include answering questions, providing relevant information, and ensuring accuracy in responses. You are encouraged to adhere to the study guidelines and participate actively.

The project will be conducted in a confidential manner. Your name or personal details will not be disclosed; only a unique identification number will be used for the study. Data will be securely stored and analyzed to ensure accuracy. This research process, including data collection and analysis, is expected to be completed within a month.

For further clarification or to confirm your participation, you may contact us. We look forward to your valuable input to advance our understanding of sensory processing and adaptive behavior in children with Autism Spectrum Disorder.

Consent for Participation:

By agreeing to participate in this study, you acknowledge that the information you provide will be used exclusively for purposes related to the study and its objectives. The researcher assures that your participation will not involve any physical or psychological harm. If, at any point, you wish to withdraw from the study, you may do so without any obligation or explanation. Your agreement will be recorded as a part of the study documentation.

Right to Refuse or Withdraw:

During the interview process, if any of the discussions make you uncomfortable or you feel that the questions are unclear, you have the full right to refuse participation or withdraw from the discussion. You may also decline to answer specific questions or discontinue your participation at any stage of the study, with no consequences to you.

Benefits and Risks of Participation:

This study does not provide any monetary benefit for your participation. However, through your involvement, you contribute valuable insights to the research aimed at identifying the level of behavioral and emotional regulation difficulties and its associating factors in children with Neurodevelopmental Disorder. Participation involves responding to questions that may feel personal or unexpected at times. In such cases, the researcher will ensure a sensitive approach. The data collected will only be used for research purposes and may guide further therapeutic practices to improve functional behavior and social integration of children with autism.

The researcher guarantees that there are no significant risks associated with this study. However, if any discomfort arises, support will be provided as required. Even if you choose not to participate, your decision will not affect the services or assistance you are entitled to.

By agreeing to participate, you support the development of effective intervention strategies that aim to improve the social, educational, and life skills of children with Autism Spectrum Disorder, ultimately helping them lead independent and fulfilling lives.

Confidentiality:

We ensure that your information remains secure and confidential. This survey project collects data only for research purposes and stores it securely. Your personal information will not be shared with anyone. In this survey, your identity will be anonymized and assigned a specific identification number. Only the research team will know your number and keep it strictly confidential.

Participation in the survey is voluntary, and you can withdraw at any stage. Data collected will be stored in a designated congress database, ensuring that your identity cannot be revealed without your explicit consent. Data will be collected using paper-based or online mediums. The published results of the research will not include participants' names but will be presented in an aggregated format.

Research Purpose and Publication Information:

The survey is part of a research initiative focusing on global social science and occupational therapy. The findings may be presented at international conferences and published in peer-reviewed journals.

Participant Registration:

Participation in this research is entirely voluntary, and participants will not receive monetary compensation.

Appendix C: Information Sheet and Consent Form [Bangla Version]

Information sheet and Consent form (Bangla)

বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বিএইচপিআই)

অকুপেশনাল থেরাপি বিভাগ

সিআরপি-চাপাইন গাভার ঢাকা-১৩৪৩

অংশগ্রহণকারীর তথ্য এবং সম্মতিপত্র

গবেষণার বিষয়: "নিউরোডেভেলপমেন্টাল ডিসঅর্ডারযুক্ত শিশুদের আচরণগত এবং আবেগীয় নিয়ন্ত্রণের স্তর এবং এর সঙ্গে সংশ্লিষ্ট কারণসমূহ চিহ্নিত করা"।

গবেষক:পিয়াস সাহা এমএসসি ইন অকুপেশনাল থেরাপি, সেশন ২০২২-২৩ ইং, বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বি,এইচ,পি,আই),সাভার, ঢাকা-১৩৪৩.

গবেষণার স্থান:ঢাকা

ভূমিকা :

আমি পিয়ার সাহা, ঢাকা বিশ্ববিদ্যালয়ের মেডিসিন অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউটের(বি,এইচ,পি,আই) মাস্টার্স ইন অকুপেশন থেরাপি বিভাগের ছাত্র হিসেবে স্নাতক-শিক্ষা কার্যক্রমে (২০২২-২৩ ইং)সেশনে অধ্যয়নরত আছি। বি,এইচ,পি,আই থেকে এমএসসি ইন অকুপেশনাল থেরাপি শিক্ষা কার্যক্রমটি সম্পন্ন করার লক্ষ্যে একটি গবেষণা প্রকল্প পরিচালনা করা বাধ্যতামূলক। এই থিসিস কাজটি থিসিস সুপারভাইজারের অধীনে পরিচালিত হবে। এই তথ্য শীট দ্বারা তদন্তকারী অধ্যয়নের উদ্দেশ্য, তথ্য সংগ্রহ প্রক্রিয়া, নৈতিক সমস্যা সম্পর্কে বিস্তারিত তথ্য উপস্থাপন করা হয়েছে। আপনি যদি এই গবেষণায় অংশগ্রহণ করতে আগ্রহী হন, তাহলে অধ্যয়ন সম্পর্কে স্পষ্ট তথ্য আপনাকে সহজেই সিদ্ধান্ত নিতে সাহায্য করবে। এখন আপনাকে সিদ্ধান্ত নিতে হবে না যে আপনি গবেষণায় অংশগ্রহণ করবেন কি না। আপনি সিদ্ধান্ত নেওয়ার আগে, আপনি আপনার আত্মীয়স্বজন, বন্ধুবান্ধব বা যার সাথে আপনি স্বাচ্ছন্দ্য বোধ করেন তাদের সাথে গবেষণা সম্পর্কে কথা বলতে পারেন। যদি এই সম্মতি ফর্মে এমন কিছু শব্দ থাকে যা আপনি বুঝতে পারেন না, দয়া করে আমাকে থামতে বলুন। আমি ব্যাখ্যা করতে সময় নেব। অধ্যয়নের অংশগ্রহণকারীদের সম্পর্কে তথ্য গোপন রাখা হবে এবং অধ্যয়নের

লক্ষ্য অংশগ্রহণকারীদের জানানো হবে। আপনি তদন্তের কোন অংশ বুঝতে না পারলে,তদন্তকারী আপনাকে বুঝতে সাহায্য করবে।

অধ্যয়নের পটভূমি ও উদ্দেশ্য :

এই গবেষণায় অটিজম বৈশিষ্ট্য সম্পূর্ণ শিশু এবং তাদের প্রাথমিক পরিচর্যাদাতাদের আমন্ত্রণ জানানো হয়েছে এবং যারা বিভিন্ন স্পেশাল স্কুল বা থেরাপি সেন্টার থেকে অকুপেশনাল থেরাপি সেবা গ্রহণ করছেন এবং যে সকল অটিজম বৈশিষ্ট্য সম্পূর্ণ শিশুর বয়স (৫- ১২) বছর। আপনাকেও এই অংশ অনুসারে এই গবেষণায় অংশগ্রহণের জন্য আমন্ত্রণ জানানো হচ্ছে। অর্থায়নের লক্ষ্য হলো নিউরোডেভেলপমেন্টাল ডিসঅর্ডারযুক্ত শিশুদের আচরণগত এবং আবেগীয় নিয়ন্ত্রণের স্তর এবং এর সঙ্গে সংশ্লিষ্ট কারণসমূহ চিহ্নিত করা। এই গবেষণা একজন অকুপেশনাল থেরাপিস্টকে জানতে সাহায্য করবে, অটিজমে আক্রান্ত শিশুর সংবেদনশীল প্রক্রিয়া ও অভিযোজন আচরণের এবং কিভাবে এটি অটিজম বৈশিষ্ট্য সম্পূর্ণ শিশুর দ্রুত পুনরুদ্ধারে প্রভাবিত করে। আমরা মনে করি, আপনার কার্যকর অংশগ্রহণের মাধ্যমে এই অধ্যয়নের উদ্দেশ্য পূরণ করা সহায়ক হবে। এটি সেবা কার্যক্রমে আরও কার্যকর করবে এবং সেবা কার্যক্রম থেকে প্রত্যাশিত ফলাফল পেতে সাহায্য করবে।

গবেষণা সম্পর্কিত তথ্য :

সম্মতি ফর্মে আপনার স্বাক্ষর নেয়ার আগে তথ্যপত্রে গবেষণা সম্পর্কিত তথ্য আপনার সাথে আলোচনা করা হবে তারপরে অংশগ্রহণকারীদের একটি তৈরি করা প্রশ্ন সম্পূর্ণ করতে বলা হবে যা পূরণ করতে ১-১.৩০ ঘন্টা সময় লাগতে পারে। আপনি যদি এই গবেষণার অংশগ্রহণ নিশ্চিত করেন, তাহলে আপনাকে সম্মতি ফর্মের একটি অনুলিপি দেয়া হবে। পরেরবার এই গবেষণার একজন সদস্য আপনার কাছ থেকে করতে যাবেন। আপনার পছন্দের সময় অনুসারে তিনি কিছু প্রশ্ন জিজ্ঞাসা করে সেই ডাটা সংগ্রহ করবেন এবং আপনাকেও প্রশ্নের উপরের জন্য টিকচিহ্ন দিতে হবে। কোন অজুহাত না দেখে এই গবেষণা থেকে যেকোনো সময়, আপনি আপনার অংশগ্রহণ প্রত্যাহার করতে পারেন। গবেষণা প্রকল্পে আপনার জড়িত থাকার বিষয়ে অথবা অংশগ্রহণ প্রত্যাহার করার সিদ্ধান্তের পরে, চিকিৎসা চলাকালীন অবস্থায় পেশাগত থেরাপিস্টদের সাথে আপনার সম্পর্ক বা আপনি যে প্রতিষ্ঠান থেকে চিকিৎসা সেবা গ্রহণ করছেন সেটি কোনভাবে প্রভাবিত হবে না। তথ্য সংগ্রহের সময় কাল অনুমোদনের তারিখ অনুসরণ করে এক মাস হবে। রেকর্ড করা তথ্য গোপনীয়, আপনার নাম ফর্ম গুলিতে অন্তর্ভুক্ত করা হচ্ছে না, শুধুমাত্র একটি নম্বর আপনাকে সনাক্ত করবে, এবং অধ্যায়নের তত্ত্বাবধায়ক ছাড়া অন্য কেউ এই সমীক্ষায় এক্সেস পাবেন না। জরিপের প্রশ্ন বিতরণ ও সংগ্রহ করবেন পিয়াস সাহা।

স্বেচ্ছায় অংশগ্রহণ :

আপনি যে অংশগ্রহণ করবেন তাতে আপনার চাকুরী বা কাজের সাথে সম্পর্কিত কোন মূল্যায়ন বা প্রতিবেদনের উপর কোন প্রভাব ফেলবে না এবং আপনার শিশু যেখান থেকে থেরাপি নিচ্ছে সে প্রতিষ্ঠানের সাথেও থেরাপি কোন প্রভাব পরবেনা। আপনি ডাটা সংগ্রহের প্রক্রিয়ায় যেকোনো সময় এমনকি পুরো অধ্যয়নের সময়কালে আপনার মন পরিবর্তন করতে পারবেন। আপনি আগে সম্মত হলেও আপনার অংশগ্রহণ প্রত্যাখ্যান করার অধিকার আছে।

প্রত্যাখ্যান বা প্রত্যাহার করার অধিকার:

সাক্ষাৎকারের শেষে আমি আপনাকে আপনার মন্তব্যগুলি পর্যালোচনা করার একটি সুযোগ দেব, এবং আপনি যদি আমার নোটগুলির সাথে একমত না হন বা আমি আপনাকে সঠিকভাবে বুঝতে না পারি তবে আপনি সেগুলির কিছু অংশ সংশোধন বা অপসারণ করতে বলতে পারেন।

অংশগ্রহনের সুবিধা ও ঝুঁকিসমূহ:

গবেষনা প্রকল্পটিতে অংশগ্রহনের জন্য আপনি সরাসরি কোন সুবিধা পাবেননা এবং গবেষণা প্রকল্পটি চলাকালীন সময়ে আপনার কিছু ব্যক্তিগত প্রশ্নের উত্তর দিতে হতে পারে যার কারণে আপনি অতন্ত্য অপ্রস্তুত বোধ করতে পারেন। তবে আমরা আশাবাদী যে, গবেষনার মাধ্যমে প্রাপ্ত উপাত্ত পরবর্তিতে চিকিৎসা কার্যক্রমকে আরো গতিশীল করতে সাহায্য করবে। এখানে সংশ্লিষ্ট গবেষনায় অংশগ্রহনে কোন ধরনের বাড়তি ঝুঁকি, বিপত্তি অথবা অস্বস্তি নেই বলে আশা করা যাচ্ছে। আর্থিক কোনো সাহায্য পাওয়া যাবে না। আপনারা সরাসরি উপকৃত না হলেও আপনাদের অংশগ্রহণের মাধ্যমে এই রিসার্চের বিষয়টি অর্থাৎ নিউরোডেভেলপমেন্টাল ডিসঅর্ডারযুক্ত শিশুদের আচরণগত এবং আবেগীয় নিয়ন্ত্রণের স্তর এবং এর সঙ্গে সংশ্লিষ্ট কারণসমূহ চিহ্নিত করতে পারবো যেটা পরবর্তীতে নিউরোডেভেলপমেন্টাল ডিসঅর্ডার বৈশিষ্ট্য সম্পূর্ণ শিশুর দ্রুত পুনরুদ্ধার, সমাজে এবং দৈনন্দিন জীবনে স্বাবলম্বী করতে গুরুত্বপূর্ণ ভূমিকা পালন করবে।

গোপনীয়তা:

আপনার সম্পর্কে যে তথ্য নেওয়া হবে সেটা গবেষণা দলের বাইরে কারো সাথে শেয়ার করা যাবে না। এই গবেষণা প্রকল্প থেকে আমরা যে তথ্য সংগ্রহ করি তা গোপন রাখা হবে। আপনার সম্পর্কে যেকোনো তথ্যে আপনার নামের পরিবর্তে একটি নম্বর ব্যবহার করা হবে। শুধুমাত্র গবেষকরা জানতে পারবেন আপনার নম্বরটি কী এবং আমরা সেই তথ্যটিকে সম্পূর্ণ গোপনীয় রাখবো। তদন্তকারী আশ করছেন,

গবেষণার ফলাফল বিভিন্ন কংগ্রেসে উপস্থাপন করা হবে। যেকোনো ধরনের প্রকাশনা এবং উপস্থাপনায় তথ্য এমনভাবে উপস্থাপন করা হবে যাতে আপনার সম্মতি ছাড়া কেউ আপনাকে সনাক্ত করতে না পারে। প্রথমে কাগজের মাধ্যমে তথ্য-উপাত্ত সংগ্রহ করা হবে। অংশগ্রহণকারীদের নাম ছাড়াই তথ্য বিশ্লেষণ করে প্রকাশ করা হবে।

গবেষণার ফলাফল ও প্রকাশের তথ্য :

এই গবেষণার ফলাফল গুলি সামাজিক সাইট ওয়েবসাইট সম্মেলন এবং জার্নালে প্রকাশিত হবে।

অংশগ্রহণকারীদের মজুরি:

অংশগ্রহণকারীরা এই গবেষণায় অংশগ্রহণের জন্য কোন মজুরি পাবেন না।

Appendix E: Socio-demographic Information Sheet

1) What is the age of the child?
☐ 3–6 years
☐ 7–10 years
☐ Above 10 years

2) What is the gender of the child?
☐ Male
☐ Female
☐ Other

3) How many siblings does the child have?
☐ None
☐ 1 sibling
☐ 2 siblings
☐ More than 2 siblings

4) What is the monthly income of the parents?
☐ Less than 15,000 BDT
☐ 15,000–30,000 BDT
☐ 30,000–50,000 BDT
☐ More than 50,000 BDT

5) What is the structure of the family?
☐ Nuclear family
☐ Joint family
☐ Extended family (including grandparents or other relatives)

6) Where does the child live?
☐ City
☐ Village

7) How many hours per day does the child spend on screen-related activities (e.g., TV, mobile, computer, games)?
☐ Less than 1 hour
☐ 1–2 hours
☐ 2–4 hours
☐ More than 4 hours

8) How many hours does the child sleep daily?
☐ Less than 6 hours

☐ 6–8 hours
☐ 8–10 hours
☐ More than 10 hours

9) Does the child have any physical disability?
☐ Yes
☐ No

10) Does the child have any speech difficulties?
☐ Yes
☐ No

11) Do you think your child spends enough time in play or physical activities?
☐ Yes
☐ No

12) Are you responsible for helping your child with homework or studies?
☐ Yes
☐ No

13) What is the highest educational qualification of the parents?
(Answer separately for father and mother)

Father:
☐ Primary education
☐ Secondary education
☐ Higher secondary education
☐ Bachelor's degree or above

Mother:
☐ Primary education
☐ Secondary education
☐ Higher secondary education
☐ Bachelor's degree or above

14) Occupation of the mother:
☐ Housewife
☐ Service holder

Appendix F: Quesnnaire (English Version)

Behavioral Checklist

Child's Name:

Diagnosis:

Age:

Gender:

Date:

Anger, Aggression

Questions	Never	Rarely	Sometimes	Often	Always
1. Does your child laugh, cry, or scream suddenly without any apparent reason?	1	2	3	4	5
2. Does your child scream or shout loudly when angry?	1	2	3	4	5
3. Does your child show aggressive behavior such as hitting, pushing, pinching, or biting others?	1	2	3	4	5
4. Does your child hurt themselves, e.g., by head banging or biting themselves?	1	2	3	4	5
5. Does your child frequently experience mood swings, such as getting angry suddenly or calming down unexpectedly?	1	2	3	4	5

Inactivity and Avoidance of Social Interaction

Questions	Never	Rarely	Sometimes	Often	Always
6. Does your child avoid interacting even with familiar people?	1	2	3	4	5
7. Does your child show little interest in playing with peers?	1	2	3	4	5
8. Does your child not respond when called by name or spoken to?	1	2	3	4	5
9. Does your child lose interest in activities they used to enjoy?	1	2	3	4	5
10. Does your child prefer to spend time alone?	1	2	3	4	5

Repetitive Behaviors

Questions	Never	Rarely	Sometimes	Often	Always
11. Does your child repeatedly engage in physical movements such as hand flapping, jumping, or rocking their body?	1	2	3	4	5
12. Does your child make sounds or speak in ways that seem completely nonsensical?	1	2	3	4	5
13. Does your child prefer to follow strict rules and react strongly to even minor changes in routine?	1	2	3	4	5
14. Does your child repeatedly play in the same manner, such as lining up toys, placing them in specific spots, throwing them, or spinning wheels?	1	2	3	4	5

Hyperactivity

Questions	Never	Rarely	Sometimes	Often	Always
15. Does your child constantly move or shout in situations where they are expected to stay calm?	1	2	3	4	5
16. Does your child interrupt others while they are speaking or act impulsively?	1	2	3	4	5
17. Does your child struggle to focus on a task for an extended period?	1	2	3	4	5
18. Does your child refuse to follow instructions from parents or teachers?	1	2	3	4	5

Irrelevant Speech

Questions	Never	Rarely	Sometimes	Often	Always
19. Does your child repeatedly say the same thing without understanding others' responses?	1	2	3	4	5
20. Does your child use meaningless or irrelevant words during conversations?	1	2	3	4	5
21. Does your child use inappropriate language in specific situations?	1	2	3	4	5

Emotional Checklist

Emotional Awareness

Questions	Never	Rarely	Sometimes	Often	Always
1. Can your child express their emotions appropriately in different situations, such as laughing when happy or crying when sad?	1	2	3	4	5
2. Does your child show empathy or enthusiasm when seeing others sad, distressed?	1	2	3	4	5

Emotional Expression

Questions	Never	Rarely	Sometimes	Often	Always
3. Can your child express their emotions correctly through words or gestures?	1	2	3	4	5
4. Does your child become frustrated or irritated over minor issues?	1	2	3	4	5

Anxiety

Questions	Never	Rarely	Sometimes	Often	Always
5. Does your child become overly anxious or worried in new or unfamiliar environments?	1	2	3	4	5
6. Does your child feel scared or uncomfortable around unfamiliar people?	1	2	3	4	5
7. Does your child experience unnecessary worry before starting a new activity?	1	2	3	4	5

Questions	Never	Rarely	Sometimes	Often	Always
8. Does your child show a blank or emotionless expression in various situations, making them seem mentally absent?	1	2	3	4	5
9. Is it extremely difficult to calm your child once they become angry?	1	2	3	4	5
10. Does your child get angry easily over minor issues?	1	2	3	4	5

Appendix G: Questionnaire (Bangla Version)

Behavioral Checklist

শিশুর নাম:

ডায়াগনোসিস (রোগ নির্ণয়):

বয়স:

লিঙ্গ:

তারিখ:

অস্বাভাবিক রাগ, উগ্রতা, এবং কান্না

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
১. আপনার শিশু কি কোনো স্পষ্ট কারণ ছাড়াই হঠাৎ হাসে বা কান্না /চিৎকার করে?	১	২	৩	৪	৫
২. আপনার শিশু কি রাগ হলে চিৎকার, চেঁচামেচি করে?	১	২	৩	৪	৫
৩. আপনার শিশু কি অন্যকে মারধর (চিমটি /ধাক্কা বা লাথি দেয়া) বা কামড়ানোর মতো আক্রমণাত্মক আচরণ করে?	১	২	৩	৪	৫
৪. আপনার শিশু কি নিজেকে আঘাত করে (যেমন মাথা ঠোকানো বা নিজেকে কামড়ানো)?	১	২	৩	৪	৫
৫. আপনার শিশুর কি ঘন ঘন মেজাজের পরিবর্তন হয় (যেমন হঠাৎ করে রেগে যাওয়া বা হঠাৎ করে খুবই শান্ত হয়ে যাওয়া)?	১	২	৩	৪	৫

নিষ্ক্রিয়তা ও সামাজিক কার্যক্রম এড়িয়ে চলা

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
৬. আপনার শিশু কি পরিচিত ব্যক্তিদের সঙ্গেও মেলামেশা এড়িয়ে চলে?	১	২	৩	৪	৫
৭. আপনার শিশু কি সমবয়সীদের সাথে খেলার প্রতি কম আগ্রহ দেখায়?	১	২	৩	৪	৫
৮. আপনার শিশু কি নাম ধরে ডাকলে বা কথা বললে প্রতিক্রিয়া দেখায় না?	১	২	৩	৪	৫
৯. আপনার শিশু কি আগে যেসব কাজ করতে আনন্দ পেতো সেগুলোতে করতে এখন আর আগ্রহ দেখায় না?	১	২	৩	৪	৫
১০. আপনার শিশু কি নিজের মতো করে একা সময় কাটাতে বেশি পছন্দ করে?	১	২	৩	৪	৫

একঘেয়ে আচরণ

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
১১. আপনার শিশু কি বারবার একই রকম শারীরিক নড়াচড়া, যেমন একই জায়গায় ঘোরা,হাত নাড়ানো /লাফানো / শরীর দোলায়?	১	২	৩	৪	৫
১২. আপনার শিশু কি এমন শব্দ করে বা কথা বলে যা পুরোপুরি অর্থহীন?	১	২	৩	৪	৫
১৩. আপনার শিশু কি নির্দিষ্ট নিয়ম মেনে চলতে পছন্দ করে বা রেগুলার রুটিনের মধ্যে সামান্য পরিবর্তন হলেই বাধা দেয়?	১	২	৩	৪	৫
১৪. আপনার শিশু কি বারবার একই নিয়মে খেলে যেমন খেলনা সারিবদ্ধ বা লাইনে সাজানো, নির্দিষ্ট স্থানে সবসময় রাখা বা ছুড়ে ফেলা, চাকা ঘোরানো?	১	২	৩	৪	৫

অতিসক্রিয়তা ও অবাধ্যতা

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
১৫. আপনার শিশু কি এমন পরিস্থিতিতে যেখানে শান্ত থাকা উচিত সেখানেও ক্রমাগত নড়াচড়া, বা চিৎকার করে?	১	২	৩	৪	৫
১৬. আপনার শিশু কি কখনও অন্য কেউ কথা বলার সময় হঠাৎ করে নিজে কথা বলা শুরু করে বা এমন কিছু আচরণ করে যা সেই মুহূর্তে প্রয়োজন ছিল না (যেমন: হঠাৎ করে লাফানো, হাত নাড়ানো, শব্দ বা চিৎকার করা)?	১	২	৩	৪	৫
১৭. আপনার শিশু কি দীর্ঘ সময় ধরে কোনো একটি কাজে মনোযোগ ধরে রাখতে পারে না?	১	২	৩	৪	৫
১৮. আপনার শিশু কি অভিভাবক বা শিক্ষকের নির্দেশ মানতে ও অস্বীকৃতি জানায়?	১	২	৩	৪	৫

অপ্রাসঙ্গিক কথা বলা

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
১৯. আপনার শিশু কি অন্যের কথা না বুঝে একই কথার বারবার পুনরাবৃত্তি করে?	১	২	৩	৪	৫
২০.আপনার শিশু কি কথোপকথনের সময় অর্থহীন বা অপ্রাসঙ্গিক কথা বলে?	১	২	৩	৪	৫
২১. আপনার শিশু কি কোনো নির্দিষ্ট পরিস্থিতিতে অপ্রাসঙ্গিক ভাষা ব্যবহার করে?	১	২	৩	৪	৫

Emotional Checklist

আবেগের সচেতনতা

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
১. আপনার শিশু কি বিভিন্ন পরিস্থিতিতে তার আবেগ যথাযথভাবে প্রকাশ করতে পারে, যেমন আনন্দে হাসি বা দুঃখে কান্না করা?	১	২	৩	৪	৫
২. আপনার শিশু কি অন্যকে দুঃখ ,কষ্ট বা আনন্দিত হতে দেখলে দেখে সহানুভূতি বা উচ্ছ্বাস প্রকাশ করতে পারে?	১	২	৩	৪	৫

আবেগ প্রকাশ

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
৩. আপনার শিশু কি শব্দ বা ইঙ্গিতের মাধ্যমে তার আবেগ সঠিকভাবে প্রকাশ করতে পারে?	১	২	৩	৪	৫
৪. আপনার শিশু কি সামান্য বিষয়ে হতাশ বা বিরক্ত হয়ে পড়ে?	১	২	৩	৪	৫
৫.আপনার শিশু কি সামান্য বিষয়ে হতাশ বা বিরক্ত হয়ে পড়ে?	১	২	৩	৪	৫

উদ্বেগ

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
৬. আপনার শিশু কি নতুন বা অপরিচিত পরিবেশে গিয়ে বেশি চিন্তিত বা উদ্বিগ্ন থাকে?	১	২	৩	৪	৫
৭. আপনার শিশু কি অপরিচিত ব্যক্তিদের সাথে মিশতে ভয় পায় বা অস্বস্তি অনুভব করে?	১	২	৩	৪	৫
৮. আপনার শিশু কি নতুন কাজ শুরুর সময় অযথা দুশ্চিন্তায় ভোগে?	১	২	৩	৪	৫

আবেগ নিয়ন্ত্রণ

প্রশ্ন	কখনই না	খুবই কম	মাঝে মাঝে	প্রায়ই	সর্বদা
৯. আপনার শিশুকে কি কখনও এমন মনে হয় যে, সে কোনো অনুভূতি বা আবেগ প্রকাশ করছে না এবং চারপাশের ঘটনাগুলোর প্রতি মনোযোগ দিচ্ছে না?	১	২	৩	৪	৫
১০.আপনার শিশু একবার রেগে গেলে তাকে শান্ত করা কি খুবই কষ্টকর হয়ে যায়?	১	২	৩	৪	৫
১১. আপনার শিশু কি সহজেই ছোটখাটো কারণে রেগে যায়?	১	২	৩	৪	৫