Relationship between Sleep Quality and Activities of daily Living Engagement in children with Autism Spectrum Disorder

By
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February 2022, Held in March 2023

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

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ACKNOWLEDGEMENT

Finally, I have completed my thesis. After being delayed for over one year, this is a fantastic accomplishment. I had been depressed and lost my way for one year, and I never imagined we would return to finish this degree. Alhamdulillah for everything. Thanks to Allah for being able to complete my thesis with success. I want to thank my family member who always remained by my side in the ups and downs moment of my study period. I want to thank my supervisor Kaniz Fatema who gave me valuable suggestions for the thesis write-up. Also, thanks to Saddam Hossain Sir, who taught me analysis in an easy way. Then I would like to thank my all-research educators whose valuable guidance has been the ones that helped me patch this thesis and make it a full-proof success. Specially thanks to Arifa Jahan Ema Ma'am, most of the suggestions I get from her research class. Without her structured guideline my thesis writes up structure would be zero. Also, thanks to Shamima Akter Shawpna Ma'am for creating the study idea from the start of the study period. Also, thanks to Mohua Akter Ma'am for teaching us basic data analysis procedures. And cordial thanks to Sk. Moniruzzaman Sir for helping me to get information about the study instrument. I really owe a lot to them. Without their instruction, I cannot complete this thesis.

I want to thank my friends, with whom I get support and inspiration to work harder. Also, cordial thanks to all my juniors who helps me a lot in the data collection period and questionnaire translation. And thanks to the all participants who gave their personal information for study purposes.

Finally, I owe a lot to myself. As a result of many efforts and hardships, I have completed my thesis.

DEDICATION

This thesis is dedicated to everyone who supported me in completing my bachelor's degree and didn't give up on me, particularly my family members….

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LIST OF ABBREVIATIONS

ADLs- Activities of Daily Living

ASD- Autism Spectrums Disorder

AWF- Autism Welfare Foundation

BADLs- Basic Activities of Daily Living

BHPI- Bangladesh Health Professions Institute

CAS- Caregiver Assistance Scale

CSHQ- Children's Sleep Habit Questionnaire

CRP- Centre for the Rehabilitation of the Paralysed

DD- Developmental Delay

HSC- Higher Secondary School Certificate

LUTS - Lower Urinary Tract Symptoms

SBD - Sleep Breathing Disorders

SSC - Secondary School Certificate

SPSS - Statistical Package for Social Science

SD- Standard Deviation

TD - Typically development

ABSTRACT

Background: Sleep problem is associated with children with Autism Spectrums Disorder (ASD), and it is well documented in many studies. However, the effect of sleep problems on Activities of Daily living (ADLs) is less focused.

Aim: The goal of the study was to determine the relationship between sleep quality and Activities of Daily living in children with ASD.

Method: The study was conducted by a cross-sectional quantitative study design through face-to-face survey among 80 participants who are parents of children with ASD. All the participants were taken through a purposive sampling technique. The age range of the children was 5 -17 years, where n=63(78.8%) was boys, and n=17(21.3%) was girls. All participants received services from the Centre for the Rehabilitation of the Paralysed (CRP) and the Autism Welfare Foundation (AWF). All the children's diagnoses were confirmed through the pediatric Occupational Therapist. To identify sleep quality, used Children's Sleep Habit Questionnaires (CSHQ) and a Self-developed questionnaire were used for ADLs performance measurement. Fisher Exact test is conducted to determine the association between age, medication, and sleep quality and Spearman's analysis for correlation between sleep quality and ADLs performance in descriptive analysis using SPSS-26 pro.

Result: Results suggested that Children with ASD with sleep problems had a negative relationship with ADLs engagement but not Significant. More specifically, children with ASD face difficulty in sleep and ADLs engagement. Around 90% of ASD children suffer from sleep disorders, where the mean score was 47.45, SD (±6.71664) among 80 children. Approximately 41.3% needed minimum assistance on self-care activities, and 100% of children were independent in their mobility-related activities. Additionally,

this study did not find any association between age range and medicine effect on the sleep quality of children with ASD.

Conclusion: These results suggested that sleep had a negative relationship with ADLs engagement, but most children have more significant sleep problems and ADLs difficulties. However, sleep plays a vital role in developing children's physical, mental, and social well-being. The current studies did not explore specific sleep characteristics and their relation with ADLs. So future research should be conducted to determine the specific relationship between sleep problems and ADLs.

Keywords: Sleep Problem, Activities of Daily Living, Children with Autism

CHAPTER I: INTRODUCTION

1.1 Background

Autism spectrum disorder (ASD) is a neurological disease distinguished by difficulties speaking and interacting with others, having few interests, and exhibiting repetitive behaviors that limit participation in activities at school, work, and other spheres of life, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM) (APA, 2013).

Globally One in every 100 children thought to be affected by autism (WHO, 2022). ASD prevalence in Bangladesh is about to range from 0.15 to 0.8% and may exceed 3% in metropolitan areas (Hossain et al., 2017). Urban locations have higher rates of ASD due to faster diagnosis and better medical care (Sultana et al., 26 May 2021). And it's more common in boys than in girls (Akhter et al., 2022; Hossain et al., 2017; Rahman et al., 2016). Nowadays, it's become a concerning issue globally. Day by day, the prevalence rate increased which increasing parental stress and hampering their quality of life (Akhter et al., 2022; Hossain et al., 2017; Naik & Vajaratkar, 2019; Rahman et al., 2016; Sikora et al., 2012; Sultana et al., 26 May 2021; Yavuz-Kodat et al., 2020).

Studies indicated sleep problems are associated with autism severity (Fadini et al., 2015; Richdale & Schreck, 2009). In the World sleep problem prevalence rate with ASD is around 50%-80% (Yavuz-Kodat et al., 2020). Besides, most of the children with ASD in Bangladesh has been suffering from sleep problem (94.00% vs 87.50%)when compared to a child without a disability (Sultana et al., 26 May 2021). At least one type of sleep disorder common in children with ASD like-Parasomnia, Insomnia, hypersomnia, sleep breathing disorder, or daytime sleepiness (Fadini et al., 2015; Liu

et al., 2006; Richdale & Schreck, 2009; Souders et al., 2009), etc. Almost 28.5% of ASD reported taking sleep-related medications vs 0.3% without disability child (Sultana et al., 26 May 2021). Even with medication, their sleep-related problems do not resolve (Souders et al., 2009). Meanwhile, developmental delay is empirically relevant to sleep disorders. The research found that children with a sleep disorder are developmentally delayed compared to good sleepers (Johnsona et al., 2019; Kamara & Beauchaine, 2019; Mannion & Leader, 2013; Schoen et al., 2017).

However, the study indicated that children with ASD participate less in activities than typically developing children (LeVesser & Berg, 2011; Rodger & Umaibalan, 2011). Most children with ASD depend on their parents to perform their Daily necessary activities (JahanSonia, 2020). Research indicates that the circadian rhythm, sleep cycle of rest, and daily tasks are related to behavioral challenges in children with autism (Yavuz-Kodat et al., 2020). Additionally, reduced behavioral issues are linked to good sleep productivity (Yavuz-Kodat et al., 2020). Similarly, children with ASD who have sleep issues during the daytime exhibit externalizing (aggression, impulsivity, and control issues) and internalizing (withdrawal, anxiety, and sadness) behavior (Johnsona et al., 2019; Kamara & Beauchaine, 2019; Papadopoulos et al., 2019). Sleep problems and physical inactivity are frequently observed in children with ASD. Additionally, the sleep patterns of children with autism are correlated with physical activity; more specifically, the physically active children slept better overall (Allik et al., 2006; Sikora et al., 2012; Wachob & Lorenzi, 2015), they found positive relation with sleep quality and ADLs engagement. On the other hand, fewer studies reported that children with ASD have sleep problems and difficulty performing daily activities but did not find a positive relationship between sleep problems and daily activities (Sikora et al., 2012).

Meanwhile, it's become an important issue better to understand the relationship between sleep quality and ADLs engagement.

This perspective is still not explored in Bangladesh, but the prevalence rate of autism with sleep problems is high. Also, they are suffered from many activities participation where the influencing factor may be sleeping quality. In the existing literature, most of the study focused on child sleep problem, but how sleep affects ADLs of a child with ASD are not explored. This current study will help to identify the relationship between sleep and ADLs Engagement.

1.2 Justification of the Study

The development of children's motor, communicative, social, cognitive, and daily life skills is impacted by various sleep disorders (Taylor et al., 2012). According to Taylor, the development of an ASD child's daily functioning skills will be affected if health professionals do not prioritize sleep intervention. Treatment for children's development of their various skills will be insufficient without erosion sleep issues (Taylor et al., 2012). Children's daytime functioning may improve with the treatment of sleep issues (Schoen et al., 2017). Because of this, the author advised treating sleep disorders and urged further investigation.

Occupational therapists in Bangladesh are crucial in treating children with ASD to develop their skills. But they need to concentrate more on a vital area like sleep, which affects a child's physical, mental, and social development. Through this study, Health care provider will get evidence of how sleep problem affects the ADLs engagement of child with ASD. This research will help healthcare providers to design treatment strategies for children with ASD. Improve knowledge of the connections between sleep quality and ADLs engagement and fill the gap in the autism research community.

Additionally, this study will generate new knowledge regarding how children generally engage in ADLs and their sleep quality. Proper sleep performance will be more critical to a parent or other person who looks after a child with ASD.

1.3 Operational Definition

1.3.1 Autism Spectrums Disorder

Autism spectrum disorder is a condition related to brain development that impacts how a person perceives and socializes with others, causing problems in social interaction and communication. The disorder also includes limited and repetitive patterns of behavior (Myoclinic, 2021).

1.3.2 Sleep Quality

Sleep quality refers to one's happiness with one's sleep experience; sleep quality qualities include sleep efficiency, sleep delay, sleep duration, and wake after sleep onset (WASO)(Nelson et al., 2021).

1.3.3 Activities of Daily Living

The activities of daily living (ADLs) are a term used to collectively describe fundamental skills required to independently care for oneself, such as eating, bathing, and mobility. The term activities of daily living were first coined by Sidney Katz in 1950 (Edemekong et al., 2021).

1.3.4 Ambulating

The degree to which a person can independently moving from one place to another while walking (Edemekong et al., 2021).

1.3.5 Feeding

The ability of a person to feed oneself (Edemekong et al., 2021).

1.3.6 Dressing

The ability to select appropriate clothes and put the clothes on (Edemekong et al., 2021).

1.3.7 Personal Hygiene

The ability to bathe and groom oneself and maintain dental hygiene, nail, and hair care(Edemekong et al., 2021).

1.3.8 Continence

The ability to control bladder and bowel function (Edemekong et al., 2021).

1.3.9 Toileting

The ability to get to and from the toilet, use it appropriately, and clean oneself (Edemekong et al., 2021).

1.3.10 Engagement

The Canadian Model of Occupational Performance refers to engagement with the broader emotional and cognitive factors that may be associated with the occupation. Performance of occupation may provide a means to engagement; however, it is not necessary for engagement, acknowledging that an individual may engage in occupation passively (Black et al., 2019).

1.4 Study Question, Aim, and Objectives

1.4.1 Overarching Study Question

What is the Relationship between sleep quality and ADLs engagement in children with ASD?

1.4.2 Aim

To find out sleep quality and ADLs engagement of children with ASD and the relationship between sleep quality and ADLs engagement.

1.4.3 Objective

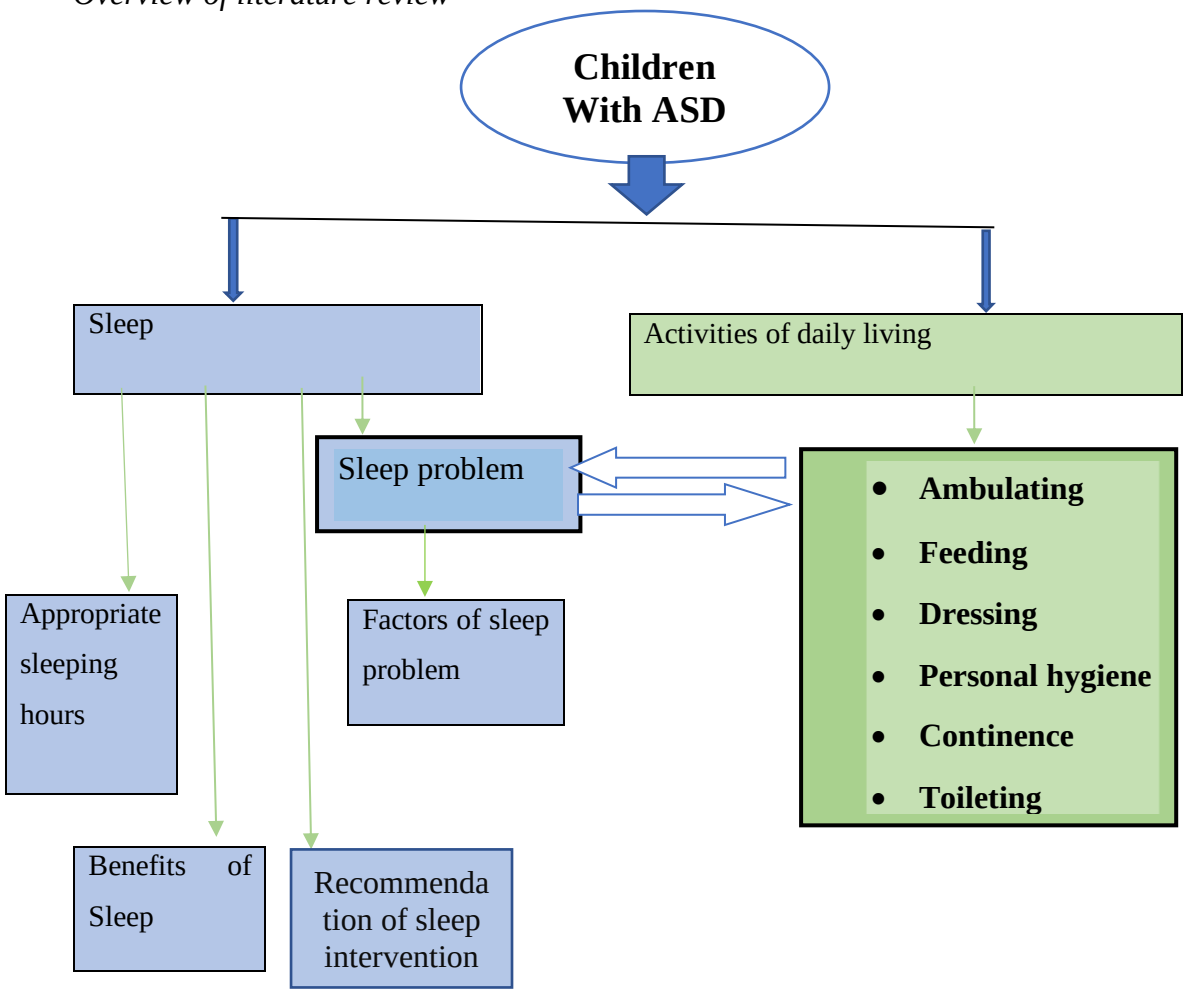
- To identify the overall sleep quality of children with ASD
- To determine the association between Sleep quality and the age range of children with ASD
- To determine the association between medication and sleep quality of children with ASD
- To identify the level of ADLs engagement of children with ASD
- To evaluate the Correlation between sleep quality and ADLs of children with ASD

CHAPTER II: LITERATURE REVIEW

All children need enough good quality sleep for growth, development, and learning. This chapter provides information about sleep quality and ADLs participation in children with ASD in light of the existing literature review. Also, describe the factor associate with sleeping problems in children with ASD. Besides, it provides existing knowledge about an appropriate sleeping hour. Moreover, describe the basic ADLs participation of children with ASD. The chapter also discusses the key gap and provides an overview of the research.

Figure 2.1

Overview of literature review



Note: this figure describes the overview of the literature review

2.1 Sleep

A cross-sectional survey study that involved 167 ASD children, including 108 with autistic disorder, 27 with Asperger's syndrome, and 32 with additional diagnoses of ASD characteristics, was carried out in the USA in 2006. According to the study, most children suffer at least one sleep problem every night, including bedtime resistance, insomnia, parasomnias, Sleep Breathing Disorder (SBD), morning rise troubles, and daytime lethargy. Yet, dyssomnias and parasomnias were the most common disorders in children with ASD (Liu et al., 2006). Furthermore, bedtime resistance is associated with allergy symptoms, hypersensitivity, bed-sharing, and paternal sleeping problems, while insomnia and parasomnia are associated with daytime drowsiness.

Another cross-sectional study in Brazil indicated that children with ASD, extending in age between 4 to 18 years, reported greater sleep problems than typically developing (TD) children. At the same time, the most visible problems are SBD. Furthermore, children with sleep disorders, not just ASD children but also TD children, experience behavioral issues and daytime tiredness as a result of their sleep problems (Fadini et al., 2015).

In addition, Margaret C. Souders in Philadelphia (Souders et al., 2009) did a descriptive cross-sectional research to compare the sleep habits of children with ASD to the sleep behavior of children with TD using both subjective and objective assessments. Furthermore, both subjective and empirical measurements revealed that ASD children have more sleep issues than TD children. However, this study indicated that day drowsiness is the most prevalent sleep disorder in both ASD and TD children, rather than SBD.

Additionally, 151 ASD and 295 TDC who were in the 4–15 age range were interviewed in Bangladesh (Sultana et al., 26 May 2021). According to the study's findings, the

majority of children with ASD had sleep-related issues, such as short sleep duration, sleep anxiety, nocturnal awakenings due to parasomnias, and breathing problems during sleep, compared to children with typical developmental issues. Children with ASD and TD exhibit the same levels of resistance to bedtime, sleep onset delay, and daytime sleeping.

Another study revealed that children with ASD have a higher prevalence of sleep issues. Several additional sleep disorders, such as insomnia, parasomnia, and circadian sleep disorder, were also discovered in this study. Unfortunately, the vast majority of children are unable to interact with their parents; thus, they often have no idea why they wake up at night or are thought to be experiencing parasomnia. Additionally, it has been discovered that ASD children are more likely to experience insomnia (settling issues, co-sleeping, night waking, low sleep efficiency, extended sleep latency, early awakening, challenging bedtime rituals, and daytime drowsiness). Although they recommend conducting studies with children who have developmental delays (DDs) to identify the precise outcome (Richdale & Schreck, 2009).

2.1.1 Factors of Sleep Problem

Richdale and Schreck conducted a clinical study over the previous ten years in Australia in 2009 to identify the variables connected to the likely cause, nature, and prevalence rate. According to the study, the incidence of sleep issues is linked to the severity of the symptoms of autism, chromosomal abnormalities, and familial factors. Based on this study's findings (Richdale & Schreck, 2009), parents' well-being is affected by their children's sleeping issues.

Another research investigation showed that parental mental health, family structure, and quality of sleep all affect children's sleep(Mannion & Leader, 2013).

Problems with sleep are also greatly influenced by bedtime routines. Most parents struggle to keep up a nighttime schedule for their children. They never tried to do that again after that. Thus, it is discovered that sleep problems occur frequently among children with ASD who have inappropriate nighttime practices (Souders et al., 2009).

Although age range is a significant factor in children with ASD's sleep issues, an investigation was done with children with ASD between the ages of 4 and 10 in Indonesia and Japan. It found that younger ASD children in Indonesia have more trouble sleeping. Due to the broad age range of ASD children in Japan, sleep issues are less common among children with ASD there (Irwanto et al., 2016). Although several studies suggest that there is no age difference between those who sleep well and those who do not (Johnsona et al., 2019; Mannion & Leader, 2013).

Studies suggest That ASD children have taken medicine to improve sleep problems (Sultana et al., 26 May 2021). However, rather than taking medication for sleep issues, children with ASD take this for other symptoms. Despite parents' reports that medication cannot cure children's sleep issues, it lowers the severity of these problems. (Souders et al., 2009).

2.1.2 Benefits of Sleep

To provide an overview of the study on sleep issues in children with ASD, Mannion and Leader carried out a literature review in Ireland in 2013. This study examined the prevalence of sleep issues, the significance of researching sleep issues, and determined the value of sleep for everyday functioning (Mannion & Leader, 2013). For sustaining cognitive and emotional growth, proper sleep is essential. On the other hand, the frequency of sleep problems is linked to significant impacts on physical and mental health, further decreasing quality of life (Sultana et al., 26 May 2021; Yavuz-Kodat et

al., 2020). According to research, children who get enough sleep are physically and intellectually healthy. Getting enough sleep is crucial for special children's cognitive, behavioral, social, and general physical and mental health (Fadini et al., 2015; Kang et al., 2020; schrec et al., 2004). The child's everyday activities are influenced by sleep (Sikora et al., 2012). Ensure children get the proper amount of sleep so they have the energy required to complete the activities the following day (Kamara & Beauchaine, 2019; Taylor et al., 2012).

2.1.3 Appropriate Sleeping Hour

According to National Sleep Foundation recommendations, healthy individuals should sleep for 7 to 9 hours every night. To support their growth and development, babies, young children, and teenagers require significantly more sleep. Those over 65 should also obtain 7 to 8 hours each night (Hirshkowitz et al., 2015). Depending on the individual's circumstances, sleeping an hour more or shorter than the recommended amount may occasionally be acceptable (Suni, 2022).

Table 2.1

Recommended sleep hour by age group

Age groups	**Age Range**	**Recommended Hours of Sleep**
Newborn	0-3 months old	14-17 hours
Infant	4-11 months old	12-15 hours
Toddler	1-2 years old	11-14 hours
Preschool	3-5 years old	10-13 hours
School-age	6-13 years old	9-11 hours
Teen	14-17 years old	8-10 hours
Young Adult	18-25 years old	7-9 hours
Adult	26-64 years old	7-9 hours
Older Adult	65 or more years old	7-8 hours

Source: (Hirshkowitz et al., 2015; Suni, 2022)

2.2 Activities of Daily Living

Activities of Daily Living are also known as Basic Activities of Daily Living, according to AOTA, 2002. Basic ADLs (BADLs), sometimes known as physical ADLs, are the abilities needed to take care of one's basic physical requirements, such as eating, clothing, using the restroom, transferring or ambulating, and maintaining personal hygiene or grooming (Pendleton & Schultz-Krohn, 2013; Radomski & Latham, 2002). For typical developmental children, ADLs developmental Milestone are:

Table 2.2

Activities of Daily Living developmental milestone of children

ADLs Domain	**Age Range**
Ambulating	Most children can walk independently at the age of 3 years, including stairs ups and down.
Feeding	Most of the child can feed independently at the age of 2.5 years
Dressing	Most of the children can dress independently at the age of 4 years except for shoo-laces, back buttons, or zippers. But at five years they can do all the things.
Personal hygiene (Bathing, Brushing, nose care, combing hair)	Most children can perform Personal hygiene activities in 3-6 years with supervision. But they can perform bathing independently from 4-6 years and brushing in 3 years.
Continence	Children can manage their bowel and Bladder control at three years. But sometimes they can accidentally toilet at night
Toileting	3 years

Source: (Brisbane, 1965; Illingworth, 1997; Sense; Sheridan, 1973; Smith & Brien)Not all the child learns this is at the chat age range. It can be different for different children.

2.2.1 Feeding

Feedings for ASD children vary depending on the type of food (Naik & Vajaratkar, 2019). In 2019, a qualitative descriptive study with 20 participants was done in India to better understand the challenges that parents of children with ASD face while performing their children's ADLs. Furthermore, parents say that they have difficulty performing feeding tasks for their children. Maximize Children disliked the fragrance of food, as well as slimy and sticky foods. Additionally, they have difficulties swallowing or chewing food on their hand (Naik & Vajaratkar, 2019). Another cross-sectional research in Bangladesh in 2020 with 40 children with ASD indicated that children require assistance to feed themselves with their fingers or with a spoon or fork, as well as to drink from a bottle or cup (JahanSonia, 2020). Feeding challenges in children with ASD are often classified into one of three types: (1) food selection, (2) food rejection, and (3) disruptive mealtime behaviors (Shabnam et al., 2019). Many studies characterize the source of eating issues differently. In his three case reports and literature review research, Hutchinson, 2001 showed that children with communication delays had the propensity to feed behavioral issues. (Hutchinson, 2001). Nonetheless, several reports from parents, physicians, and other health professionals have revealed that feeding behavioral difficulties with ASD children, particularly those with cognitive impairments, are common Furthermore, causes for the predominance of feeding issues in children with ASD, such as perseveration, impulsivity, fear of novelty, sensory impairments, deficiencies in social compliance, and biological food intolerance, have been identified (Cumine et al., 2000). Parental anxiety, reinforcement of negative feeding patterns, and communication difficulties have been proposed as additional social reinforcers that contribute to the persistence of maladaptive feeding behaviors in

this population (Shabnam et al., 2019), and these issues pose a significant challenge to parents and teachers (Schwarz, 2003).

2.2.2 Personal Hygiene

A Phenomenological research with 37 participants in America was conducted in 2017 to gain caregivers' perceptions of the influence of the sensory environment on the involvement in the everyday activities of their young children with ASD. Parents said that they helped their children with personal hygiene tasks such as teeth brushing, hair maintenance, and bathing. However, the majority of people discover only meaningful activities for their children. As a result, they cannot become overburdened(Pfeiffer et al., 2017). JahanSonia discovered that the majority of ASD children are unable to participate in bathing activities. The majority of them require support (JahanSonia, 2020). Naik and Vajaratkar, on the other hand, found that parents can easily handle bathing activities since children like water but require help (Naik & Vajaratkar, 2019). However, other grooming activities, such as cutting hair, washing the face, combing hair, and cutting nails, are more difficult for parents to handle (Naik & Vajaratkar, 2019).

2.2.3 Dressing

Parents struggle with their child's dressing activities. Their children have several concerns with dressing activities, such as -cloth materials, printed garments, and clothes with tags and collars. One of their main worries was how to dress for school. Many parents noted that their children preferred loose gowns to tight-fitted dresses. Another parent stated that their kid employed unusual methods for conducting clothing tasks and that many of them require assistance in donning dresses. This troubling issue adds to parental stress and wastes their time (Naik & Vajaratkar, 2019). Furthermore,

JahanSonia discovered that the majority of the children required assistance in dressing their top and lower bodies (JahanSonia, 2020).

2.2.4 Ambulating

Motor coordination problems are common in ASD children. A database search in the United States in 2010 found 83 ASD studies focusing on motor coordination, arm movements, gait, or postural stability problems. According to this study, persons with ASD have significant motor deficits when compared to neurologically normal control groups. Indeed, the precise results of this investigation give compelling evidence for the hypothesis that people with ASD are less coordinated and have fewer motor skills. It was discovered that ASD children exhibit different motor performance than normally developing controls. Meanwhile, people with ASD showed substantial abnormalities in upper- and lower-extremity motor skills. The author additionally believes that motor problems are related to aberrant brain neuroanatomy (KA et al., 2010). Another study in Norway in 2017 found that children with ASD achieved independent walking significantly later than children with non-ASD diagnoses. The study included 376 children with a clinical diagnosis of any ASD and 114 children with suspected autistic symptoms but no clinical ASD diagnosis. Delays in the age of first walking were related to greater symptom severity in ASD children, according to the study (Reindal et al., 2019).

2.2.5 Toileting

A study was conducted in Ireland in 2018 with 127 samples from various countries such as Ireland, the United Kingdom, the United States of America, Australia, Canada, and other countries to investigate the frequency and type of toileting problems present in children and adolescents with ASD. They discovered that half of the participants have toileting issues, and the majority of children require assistance with toileting activities.

Furthermore, the majority of them are unable to participate in toileting activities following prompting. (Leader et al., 2018). ASD Children require assistance when performing the toileting activity (JahanSonia, 2020). Most parents use different toilet training strategies for their children (Pfeiffer et al., 2017). On the other hand, parents indicate that toileting problems are more related to sleep problems (Leader et al., 2018). Another study discovered that younger children learned better about toileting than older children. (Smith & Smith, 1977).

2.2.6 Continence

When compared to TD children, children with ASD had reduced urinary tract symptoms (LUTS). In 2015, another research with 40 cases and 42 controls was found in Germany to determine the prevalence of incontinence LUTS and psychological symptom abnormalities in children with ASD compared to controls. They discovered nocturnal enuresis (NE) and daytime bowel and bladder control most empirically. Furthermore, children with LUTS have more behavioral issues Children with ASD have LUTS when compared to TD children. Another study was found in Germany in 2015, with 40 cases and 42 control, to identify the prevalence of incontinence LUTS and psychological symptom disorders in children with ASD compared to controls. They found most empirically nocturnal enuresis (NE) and daytime bowel and bladder control. Moreover, the child who faces LUTS has higher behavioral problems (Gontard et al., 2015). Another study of literature in 2010 in Switzerland found that nocturnal enuresis is more frequent among ASD children. Additionally, drug side effects exacerbate the problem of incontinence. Constipation and gastrointestinal disorders are the most prevalent (Gontard et al., 2021)

2.3 Sleep and ADLs

Sleep quality has been linked to everyday behavioral functioning. In France, 2020, a clinical trial study with 52 children to determine the relationship between sleep problems and behavioral difficulties discovered that high irritability and stereotyped behavior were associated with shorter periods of sleep performance compared to low irritability and stereotyped behavior(Yavuz-Kodat et al., 2020) and behaviors are also associated with ADLs participation (Abel et al., 2018). Furthermore, adequate sleep quality increases the quality of life for both parents and children (Akhter et al., 2022; Hossain et al., 2017; Naik & Vajaratkar, 2019; Rahman et al., 2016; Sikora et al., 2012; Sultana et al., 26 May 2021; Yavuz-Kodat et al., 2020).

Another cross-sectional clinical study with 101 participants in Brazil discovered that both TDC and ASD children had behavioral problems with sleep disorders, while ASD children have more behavioral challenges (Fadini et al., 2015)

In addition, a randomized clinical trial with two groups of young children with ASD, excellent sleepers versus bad sleepers, was done in America in 2019 with 177 participants. They also discovered that poor sleepers had considerably more daytime behavioral difficulties, including irritability, hyperactivity, social disengagement, and stereotyped behaviors (Johnsona et al., 2019)

Another literature review indicated that daytime demanding conduct is connected with sleep issues. Compulsive, ritualistic, and repetitive behavior is more common (Mannion & Leader, 2013).

Sikora et al., 2012 found a negative relationship between sleep problems and daytime behaviors in cohort studies with 3452 children aged 4 to 10 years. The research was carried out at 14 locations around the country to identify the relationship between sleep

problems and daytime behavior. According to the author, youngsters may use various coping mechanisms (Sikora et al., 2012).

Some studies have found that children with ASD and sleep disorders had more stereotyped behaviors, social difficulties, and emotional problems, as well as larger deficits in social and academic performance (Allik et al., 2006; Reynolds & Malow, 2011; schrec et al., 2004)

Nonetheless, children with strong social skills succeed in activity participation. A longitudinal research carried out in the United States in 2014 to extend activity engagement across 713 samples of school-age children with ASD showed that ASD children's daily life activities are connected with their social skills (Little et al., 2014). Although it is a longitudinal study, the time is not mentioned.

Taylor predicts an essential link between sleep disorders and everyday adaptive functioning deficits. Those who slept less each night on average had larger deficiencies in abilities needed to execute ordinary daily living tasks (e.g., hygiene, eating, toileting, etc.) when he did research with 315 participants in the US to figure out the association between sleep issues and daytime cognitive and functional skills to complete daily living tasks. According to the study, children who experienced sleep disorders had more motor difficulty doing regular tasks such as pouring water from a glass and combing hair (Taylor et al., 2012).

A pilot study that involved nine children in North America in 2015 found a favorable association between sleep issues and physical activity performance. Furthermore, children with trouble undertaking daily physical activities are less likely to sleep effectively at night (Wachob & Lorenzi, 2015).

Many studies have revealed that children with ASD experience sleep issues that interfere with their everyday activities (Wachob & Lorenzi, 2015).

Many studies have revealed that children with ASD experience sleep issues that interfere with their everyday activities (Allik et al., 2006; Papadopoulos et al., 2019; Sikora et al., 2012)

2.4 Recommendation for Sleep Intervention

Children with ASD require sleep intervention (Papadopoulos et al., 2019). Taylor advocated for sleep intervention to help children with ASD with social, behavioral, and cognitive issues. Sleep intervention has been shown to reduce daytime drowsiness and enhance overall life quality in children with ASD and their parents (Taylor et al., 2012).

Manion and leader found a guideline for sleep intervention in their study. They specified seven therapeutic stages that help children enhance their social, behavioral, and cognitive performance. Like-1. Every ASD child should get a sleep disorder evaluation.2. Determine the possible source of the sleep disturbance.3. Identify a therapy approach for sleep issues. 4. Parental education and behavior modification. 5. Medication requirements, and finally,7. Follow-up (Mannion & Leader, 2013). However, another study found that with parental instruction and behavioral intervention, sleep hygiene can significantly improve children's daytime activities (Schoen et al., 2017).

2.5 Summary of Key Gap

- Above most of the studies, the sample has varieties of age ranges. However, most of the studies explore 4-10 years. So other age groups are not identified. Hence current studies sample the age range of 5-17 years, which incredibly explores more age groups.
- The diagnosis of ASD children was parents reported. Some studies did not focus on pure ASD children.
- Maximum publication of the article between 2001 to 2016, which can be changed in the present time. So, the current study will facilitate new evidence in the present time.
- Some studies' sample size was small, and the study methodology was not clear or not mentioned in their studies.
- Many of study were Qualitative and pilot studies. Hence These study results cannot be generalizable to all populations.
- Most of the studies discuss the above sleep problems in children with ASD and describe sleep problems as an influencing factor in behavioral, and social communication difficulties and less adaptive functioning and daytime performance based on academic performance or parent reports. The study result is not directly relevant to the specific domain of ADLs.
- In Bangladesh, no evidence was studied in relevant Sleep and ADLs engagement of children with ASD. So, another context is not the same as the Bangladeshi context. This study will explore this area.
- Also, the relevant study in the USA, Australia, France, Canada, Switzerland, and Brazil children with ASD were less focused worldwide. But literature strongly supports that there is a relationship between sleep quality and ADLs

engagement. Sleep is very important, especially the children with ASD; it may be a concern in managing a child's condition.

CHAPTER III: METHODS

3.1 Study Design (Method, Approach)

3.1.1 Study Method

This research is followed by a quantitative study design. The process of gathering and interpreting numerical data is known as quantitative research. It can be used to identify trends and averages, formulate hypotheses, examine causality, and extrapolate findings to larger populations (Bhandari, 2022). Hence student researcher used this method to find out the relationships between sleep quality and ADLs in children with ASD and analyzed numerical data. This method is the most applicable method according to study's aim and objectives.

3.1.2 Study Approach

In this study, the student researcher used a cross-sectional study to find out the relationship between sleep quality and ADLs Participation in children with ASD. A cross-sectional study is a kind of research strategy where the researcher gathers information from several people all at once. Cross-sectional research involves the researcher observing variables without influencing them (Thomas, 2020). The student researcher chose this study approach because it helps the researcher to achieve the aim of the study by capturing a specific moment in time and providing a snapshot of a condition through the analysis of different variables. Allows researchers to collect data at a single point in a time, and its a less time-consuming approach. As a student researcher, they got a short time to conduct their study. Hence, the student researcher chooses this study approach for this study.

3.2 Study Setting

Student researcher collected data from three settings.

1. CRP Savar branch (pediatric settings) 2. CRP Mirpur branch (pediatric settings) 3.AWF keraniganj (Special school)

CRP is a non-governmental organization especially known as a rehabilitation centre for SCI patients. But this is also famous for special children referred to CRP for regular therapy. Here is an initial assessment conducted by a multidisciplinary team (which includes physiotherapists, occupational therapists, speech and language therapists & pediatricians). Depending on a child's condition, an appointment is made at outpatient services for an individual treatment session for ASD children (CRP, 2019). Many participants were taking therapy in pediatric settings, and the student researcher selected them to reach. as student researchers have a short time to collect data. Therefore, the student researcher took more fluent participants in the Mirpur CRP branch. As well as both of the settings were clinic settings where a researcher could not reach the adolescent ASD group. That's why the student researcher collected data from a special school where all age ranges of ASD children were available. Hence, the student researcher selects AWF, a well-known special school for ASD children. It is a non-profitable, non-government, voluntary welfare organization established on April 4, 2004, aiming to train and educate children to perform to their maximum strengths and interests and make them able to support themselves. Their services are-daily class activities, daycare services, and intervention. The student researcher reached the participant when they took their child to the class (AWF, 2018). The Overall student researcher took 80 participants from the previously mentioned organization.

3.3 Study Period

The study period of study was from 1st April 2022 to March 2023. However, the student researcher gets time for data collection from 1st November to 30th November 2022.

3.4 Study Participant

3.4.1 Study Population

The study population for this study was the parents of children with ASD in Dhaka, Bangladesh.

3.4.2 Study Sample

The study sample was the parents or caregiver who remains close to the child and knows well their child every activity so that they can answer properly of the research question. And meet the inclusion criteria of the selected organization. Hence, the student researcher took 80 participants who gave their consent for participation.

3.4.3 Sampling Technique

The study was conducted through a purposive sampling technique. It saved time for the student researcher. Purposive sampling is a sampling method, and it occurs when “elements selected for the sample are chosen by the researcher's judgment". Researchers frequently think that by using good judgment, they may acquire a representative sample, which will result in saving time and money” (Dudovskiy, 2011). In this study, the student researcher has set some inclusion and exclusion criteria to meet the exact population for the study. That's why purposive sampling is the best way to sample participants. Also, it is the most cost-effective and time-effective method. As it was student research, the student researcher had a short time to collect data.

3.4.4 Sample Size

According to the standard formula,

$$n = \frac{z^2 \times pq}{d^2}$$

$$n = \frac{(2.576 \times 2.576) \times 0.0085 \times 0.99915}{(0.01 \times 0.01)}$$

$$n = \frac{0.055963047}{0.0001}$$

n = 559.63047

Here,

n=sample size

z=The standard normal deviate 2.576

p=0.008 as well as prevalence of ASD children in Bangladesh is 8.5 per 1000 people.

q=(1-p) = (1-0.0085) = 0.99915; the proportion of the target population

d= 0.01; Level of significance / margin of error (as it is quantitative research the sample size should be more than 40 participants. That's why the student researcher choose Confidence Interval = 99%)

so, the sample size n=Putting these values into the formula get n=559; and according to the 10% non-respond rate of direct interview estimated sample size was 614. As it was student research, the cost of data collection cannot bear the student researcher. Also, the time frame of the data collection period was only one month. So, it was quite

difficult to collect data from 614 samples. That's why the student researcher took 80 samples in the limited time frame.

3.4.5 Inclusion and Exclusion Criteria

Inclusion Criteria

- Parents of both boy & girl children who are diagnosed with ASD.
- Parents of children with ASD whose ages are between 5-17 years.
- Mentally stable Parents.

Exclusion Criteria

- Child who will trans-meridian travels over two time zones or more
- ASD associated with neurogenetic disorders (e.g., associated fragile X syndrome, Rett syndrome, Down syndrome, Smith–Magen's syndrome, Bourneville tuberous sclerosis, Von Recklinghausen's disease, cytomegalovirus encephalitis, congenital rubella syndrome, and phenylketonuria), comorbid severe physical disability or severe allergy

3.5 Ethical Considerations

When the Department of Occupational Therapy at the Bangladesh Health Professions Institute (BHPI) presented the research's objectives to the Institutional Review Board (IRB), the IRB approved its ethical approval. The IRB form number: is CRP/BHPI/IRB/09/22/624 (see Appendix A for the Ethics approval certificate from BHPI). Additionally, permission for data collection was obtained from the Special School of Autism Welfare Foundation (AWF) and the Pediatric Department of CRP Savar and Mirpur branch (see Appendix A for data collection approval letter from AWF and CRP) before collecting data from participants.

3.5.1 Informed Consent

The student researcher properly maintained Helsinki Act's guidelines (WMA, 2022) and clarified the information, including the goal, methodology, requirements, hazards, and possible advantages of the information Sheet (see Appendix B for the information sheet). All participants were given a research information sheet that had detailed information about the study and what they needed to do if they agreed to participate. consented to participate in the study. Also, the student researcher translated the information sheet into Bangla so that participants would easily understand the information sheet. Before taking information from participants, it was ensured that all the participants understood what they were going to participate in. During data collection, permission was taken from all the participants who were interested in giving information through their signature on a written consent form (see Appendix B for the consent form). In addition, a signature was taken from a witness during data collection.

3.5.2 Right of Refusal to Participate or Withdraw

The student researcher gives the right to withdraw information to all participants by providing Withdraw form (see Appendix B for the information sheet). Also, discussed the information withdrawal timeline, which was from the interview time to 30th November 2022. The student researcher made this timeline because, at the start of December month, the student researcher has to input data into specific software. Once the data is inputted into software, the withdrawn data cannot be separated easily. However, none of the participants were requested for withdrawn information.

3.5.3 Confidentiality

The information given by the participants was fully hidden to all. Their name and identity were not disclosed to anyone except the research supervisor. Hence, it was mentioned in Information Sheet. It was ensured in the future; any publication of their

identity would not disclose.

3.5.4 Unequal Relationship

There was no power relationship with the participant as the student researcher and his supervisor were not involved in any treatment process of the participant.

3.5.5 Risk and Beneficence

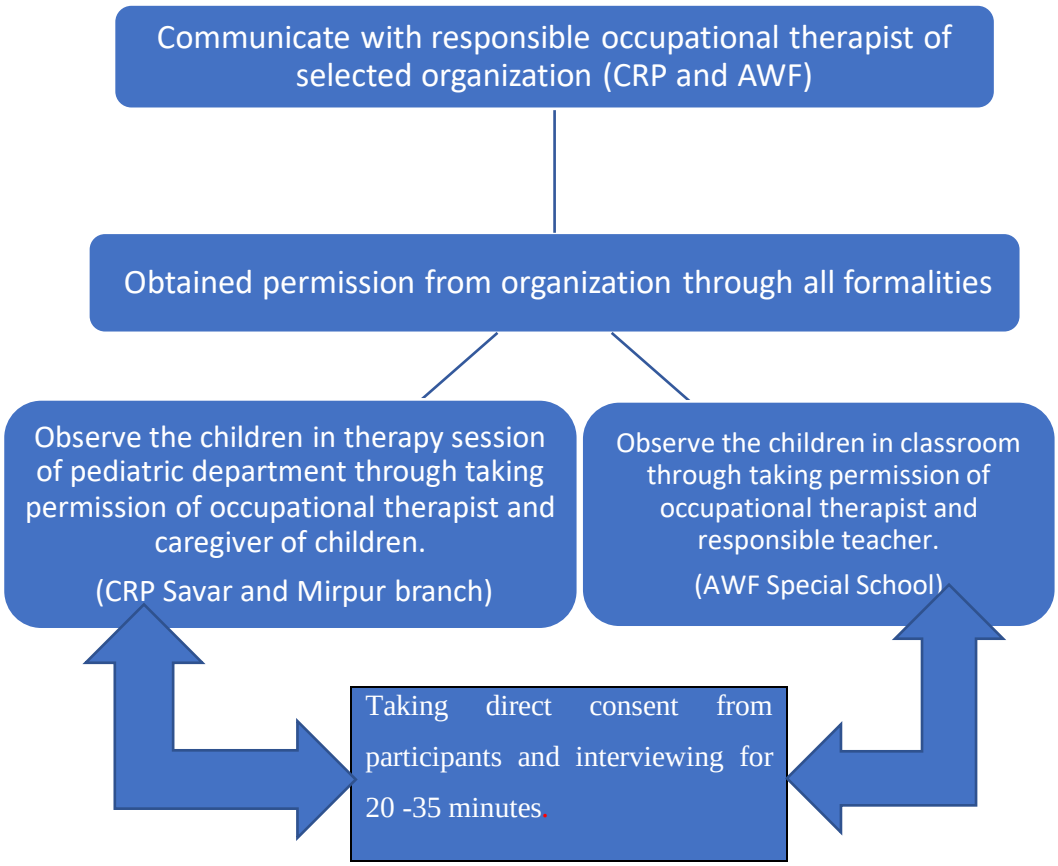
The participants don't have any risk, and they will not get any monetary benefits, but his or her information will help in this research. As a student researcher, there has a risk for the researcher to attack observing adolescent Autism in a Pediatric center or special school. For this reason, the student researcher always maintained safety during observation. Also, the student researcher had to travel by public transport, which was not safe; that's why the researcher took research assistance with her.

3.6 Data Collection Process

3.6.1 Participant Recruitment Process

Figure:3.1

Participant requirement overview



Note: this figure shows the student researcher first communicates with a responsible occupational therapist of the institute for autism children's caregivers or parents through mobile phone. After confirmation of the appropriate sample went to the institute and got a data collection permission letter. After that, the student researcher communicates with all responsible occupational therapists in CRP to identify the inclusion criteria of samples. Then the student researcher met with the caregiver and consented to participate in the study. Then observe the child in the session and ask questions after the session. As it was a clinical setting, it was rare to find out caregivers

or parents of ASD adolescent groups. That’s why the student researcher selected a special school to reach that group. And in the same way, student researchers took permission. In the school, the student researcher observes the ASD child in the classroom. Then met with the caregiver and took permission to participate in the study. Then ask research questions when they are waiting for their child.

3.6.2 Data Collection Method

Student researcher used a standardized questionnaire and a self-developed questionnaire to find out the relationship between sleep quality and ADLs engagement of ASD children from caregivers. So, there is a need to gain a deeper insight into specific answers by treating the questionnaire like a meaningful discussion and deducing the validity of each response. Therefore, the student researcher collected data from participants through face-to-face interviews.

The face-to-face interview is a data collection method in which the interviewer directly communicates with the respondent about the prepared questionnaire. Utilizing this method, it is feasible to get factual data as well as customer opinions, attitudes, preferences, and other information that may arise throughout the respondent's conversation. Therefore, the face-to-face interview approach assures the accuracy of the data gathered and raises the response rate. A quantitative research instrument is a face-to-face standardized or semi-standardized interview (IRIS, 2022). It allowed the student researcher to understand the interviewee person very well, which cannot be achieved in another way.

3.6.3 Data Collection Instrument

A. Sociodemographic Factors

Student researcher developed a questionnaire concerning socio-demographic variables including sex, age, education, occupation of parents and sex, age, education, and medicine information of children. All the information was added to find out the relationship between sleep quality and ADLs engagement in children with ASD.

B. Self-developed Questionnaire for ADLs measurement

Student researcher developed a questionnaire for ADLs measurement where most of the concepts were taken from the Caregiver assistance scale of pediatric evaluation disability inventory (PEDI). ADLs of children are widely assessed with the PEDI. It is a paper-based assessment administrator by parents or caregiver report, structured interview/observation of professional judgment of therapist or teacher, or by a combination of methods (Wassenberg-Severijnen, 2005). The questionnaire consists of 15 items, 8 related to self-care and 7 to mobility, and is designed to evaluate the typical quantity of support offered to a child during essential activities. It Contains two domain- Self-care and Mobility. Student researcher wanted to identify only BADLs, which are six areas- personal hygiene or grooming, dressing, toileting, transferring or ambulating, and eating (Pendleton & Schultz-Krohn, 2013; Radomski & Latham, 2002) that's why Student researcher only focus six areas of ADLs through Self-developed questionnaire for ADLs measurement. The questions of the scale are evaluated on a 5-point. Higher scores represent greater functionality skills and lower scores represent lower functionality skills. As a student researcher, it was really difficult to find out the children's capability to participate in ADLs through direct measurement. But a similar questionnaire has been used in CRP pediatric department to identify the level of ADLs participation for children with ASD. This why researchers choose this Scales concept.

The student researcher first developed the questionnaire in English and then translated the questionnaire into Bangla so that everyone would understand the question.

C. The Children's Sleep Habit Questionnaire (CSHQ)

Student researcher choose CSHQ for identifying the sleep quality of ASD children. The CSHQ is retrospective, 45-item parents report questionnaire which widely used for younger children's sleep quality. The 45 items are divided into eight subscales that represent the following aspects of sleep: daytime sleepiness, parasomnias, night walking, sleep duration, sleep anxiety, and bedtime resistance. On a 3-point scale, sleep-related activities are categorized as occurring "usually" (5–7 times per week, worth 3 points), "sometimes" (2–4 times per week, worth 2 points), or "rarely" (0–1 time per week, worth 1 point). Items 1, 2, 3, 10, 11, and 26all had their scoring inverted, so a higher score indicates more disrupted sleep. Scores for the entire scale (33 items) and its subscales can be determined. Bedtime Resistance (1, 3, 4, 5, 6), Sleep Onset Delay (2, 9, 10, and 11), Sleep Duration (3, 7, 8, and 21), Sleep Anxiety (5, 7, 8, and 21), Night Waking (16, 24, and 25), Parasomnias (12, 13, 14, 15, 17, 22, and 23), Sleep-Disordered Breathing (18, 19, and 20), and Daytime Sleepiness (26, 27, 28, 29, 30, 31, 32, and 33) are the items on the subscales. According to the scale manual total sleep, a disturbing score of 41 or higher suggests the presence of sleep disturbance. The total score is based on the response to all 33 items of 8 subscales. Also, items 5 and 8 are included in two subscales, they only be counted once in the total score. In addition to obtaining the total score, it is important to examine the individuals' subscales because a child could have a sleep disturbance-specific area and not have an elevated total score (Owens et al., 2000; Silvaa et al., 2013). The student researcher translated the CSHQ questionnaire into Bangla with the permission of the author. It helped a lot to the participant to understand the sleep-relevant question.

3.6.4 Field Test Note

As a student researcher translated standardized questionnaires into Bangla. So, the student researcher conducted a pilot test to identify the appropriateness of the questionnaire for the sample participant. Most of the participants understood the translated questionnaire. But student researcher finds out some age-related problems in the participants' children. According to the proposed inclusion criteria, the age range for ASD children was below 18. But according to the developmental milestone of ADLs, most children become independent on ADLs at the age of 5 years. For this reason, the student researcher changed the age range criteria to 5-17 years old for ASD children.

3.7 Data Management and Analysis

Student researcher used descriptive statistics for data analysis. Descriptive statistics are useful for describing, organizing, and summarizing the data and include frequencies, percentages, and description of central tendency and description of relative relation (Hayes, 2022). Many statistical methods might be used, but student researchers used the Fisher Exact test for the association between age range, medication, and sleep quality because the expected cell value was less than 5. Moreover, spearman’s analysis was conducted for the correlation between sleep quality and ADLs engagement in descriptive statistics. Data were managed and analyzed by using Version 26 Pro of the Statistical Package for the Social Sciences (SPSS) to analyze the raw data. SPSS is suitable for the analysis of Quantitative data. Nominal, Ordinal, & Scale data can be input in SPSS and able to analyze those data in different ways. The package enables researchers to obtain statistics ranging from simple descriptive numbers to complex analyses of multivariate matrices. Researchers can combine files, split files, and sort files. And modify existing variables and create new ones (Arkkelin, 2014). Microsoft

office word and Microsoft Excel were used to Specify the findings in the different tables so the reader would have no trouble understanding them.

Proper Data management and analysis are important for finding out the exact result. That's why student researcher used this process for data analysis and management.

3.8 Quality Control and Quality Assurance

To maintain proper quality Student researcher conducted a pilot test before starting formal data collection. A pilot test with two participants was carried out. The student researcher collected data from these participants by using all mentioned data collection instruments and following the whole data collection procedure. Through the pilot test, student researcher could understand whether participants can properly understand the questions or any changes that need to be done. It also helped the validity of the questionnaire in this study. By conducting the pilot test, the student researcher became aware of which part of the questionnaire found difficult to understand. Subsequently, the student researcher finds out the appropriate age-ranged population for the questionnaire. After that student researcher properly collected the data. Then checked the collected data with the possible research supervisor. Then properly input all data in SPSS and check out errors and missing data. Finally analyzed, data by recoding and computing.

CHAPTER IV: RESULTS

4.1 Children's Sociodemographic Information

Table 4.1

Children sociodemographic information

Variable	Category	n= 80	Percent (%)
Sex	Boy	63	78.8
	Girl	17	21.3
Child's age	Mean	8.5788	
	Std. Deviation	3.57292	
	Minimum	5	
	Maximum	17	
child education	School	40	50
	Non-School	40	
	Special school	23	28.7
	Inclusive school	17	21.7
Any present medicine	Yes	58	72.5
	No	22	27.5

Note: table 4.1 represents the overview of children's sociodemographic information, including sex, age, education, and medication. Among 80 children, about 78.8% (n=63) were boys, and 21.3% (n=17) were girls. Their mean age was 8.5788 years, SD (±6.71664), and their age range was lay between 5-17 years. Among 80 children, 50%(n=40) do not attend school, and the rest, 50%, 28.7% (n=23) children go to special schools, and 21.7% (n=17) go to inclusive schools. Let's move to the present medication of children, where 72.5% (n=58) took medicine, and 27.5% (n=22) did take medicine at all.

4.2 Overall Sleep Quality of ASD Children

Table 4.2

Overall Sleep Quality of ASD Children

Variable	**Category**	**n=80**	**Percent (%)**
Sleep Quality	Good sleeper	8	10
	Poor sleeper	72	90
	Minimum	37	
	Maximum	69	
	Mean	47.45	
	SD	6.364	
Total			100

Note: table 4.2 shows the overall sleep quality of ASD children. Here the frequency of good sleepers was 8(10%), and poor sleepers were 7 (90%). Also, the mean score of sleep quality was 47.45 SD (±6.364), and minimum score was 37, and the maximum score was 69. This table indicates that children with ASD suffer more sleep problems.

4.3 Association between Sleep Quality and Age Range

Table 4.3

Association between Sleep Quality and age range

variable	Categorize	Good sleeper	Poor sleeper	Total	df	Asymptotic Significance (1-sided)
Children Age	5-11 years	5	57	62	1	.254
	12-17years	3	15	18		
Total		8	72	80		

*p value>0.05

Note: table 4.3 shows Association between sleep quality and age range. A Fisher Exact test for independence with α=.05 was used to assess Note: whether the age range of children with ASD was related to sleep quality. The Fisher Exact test was not statistically significant, p=(1, N=80) = 0.284, p>0.05, indicating no relationship between children's age range and sleep quality.

4.4 Association between Children's Medication and Sleep Quality

Table 4.4

Association between Children Medication and Sleep Quality

Variable	Categorize	Good sleeper	Poor sleeper	Total	df	Asymptotic Significance (1-sided)
Present medication	Yes	4	54	58	1	.140
	No	4	18	22		
Total		**8**	**72**	**80**		

*p value>0.05

Note: table 4.4 shows an association between children's medication and Sleep quality. A Fisher Exact test for independence with α=.05 was used to assess whether the medication of children with ASD was related to sleep quality. The Fisher Exact test was not statistically significant, p= (1, N=80) = .140, p>0.05, indicating no relationship between children's medication and sleep quality.

4.5 Level of ADLs Engagement of Children with ASD

Table 4.5

Level of ADLs engagement of children with ASD

Variable	Total assistance n (%)	Maximum assistance n (%)	Moderate Assistance n (%)	Minimum Assistance n (%)	Supervision n (%)	Independent n (%)
Eating	2(2.5)	16(20.0)	11(13.8)	22(27.5)	18(22.5)	11(13.8)
Grooming	4(5)	22 (27.5)	21 (26.3)	15 (18.8)	12(15)	6(7.5)
Bathing	3(3.8)	23(28.7)	23(28.7)	16(20)	8(10)	7(8.8)
Dressing upper body	2(2.5)	12(15)	25(31.3)	13(16.3)	19(23.8)	9(11.3)
Dressing lower body	2(2.5)	8(10)	23(28.7)	13(16.3)	24(30)	10(12.5)
Toileting	5(6.3)	24(30)	23(28.7)	3(3.8)	8(10)	17(21.3)
Bladder management	8(10)	15(18.8)	11(13.8)	12(15)	16(20)	18(22.5)
Bowel management	8(10)	12(15)	14(17.5)	12(15)	16(20)	18(22.5)
Self-care Average total	0(0)	7(8.8)	17(21.3)	23(28.7)	22(27.5)	11(13.8)
Bed mobility	0(0)	0(0)	0(0)	0(0)	0(0)	80(100)
Chair, box/ toilet transfer	0(0)	0(0)	0(0)	0(0)	0(0)	80(100)
Crawling	0(0)	0(0)	0(0)	0(0)	0(0)	80(100)

Indoor locomotion	0(0)	0(0)	0(0)	0(0)	0(0)	80(100)
Outdoor locomotion	0(0)	0(0)	0(0)	1(1.3)	1(1.3)	78(97.5)
Stairs	0(0)	0(0)	0(0)	1(1.3)	1(1.3)	78(97.5)
Mobility average total	0(0)	0(0)	0(0)	0(0)	0(0)	(100)

Note: table 4.5 presents The ADLs engagement of children with ASD where in eating activities from all participants, n=2(2.5%) needs Total assistance, n=16(20.0%) needs maximum Assistance, n=11(13.8%) needs moderate assistance, n=22(27.5%) needs minimum assistance, n=18(22.5%) needs supervision and n=11(13.8%) was independent.

Grooming activities from all participants, n= 4 (5%) need Total assistance, n=22 (27.5%) needs maximum Assistance, n=21 (26.3%) needs moderate assistance, n=15 (18.8%) needs minimum assistance, n=12(15%) needs supervision and n=6(7.5%) was independent.

Bathing activities from all participants, n= 3(3.8%) need Total assistance, n=23(28.7%) need maximum Assistance, n=23(28.7%) need moderate assistance, n=16(20%) need minimum assistance, n=8(10%) need supervision and n=7(8.8%) was independent.

Dressing in upper body activities from all participants, n= 2(2.5%) need Total assistance, n=12(15%) needs maximum Assistance, n=25(31.3%) needs moderate assistance, n=13(16.3%) needs minimum assistance, n=19(23.8%) needs supervision and n=9(11.3%) was independent.

Dressing in lower body activities from all participants, n= 2(2.5%) need Total assistance, n=8(10%) needs maximum Assistance, n=23(28.7%) needs moderate

assistance, n=13(16.3%) needs minimum assistance, n=24(30%) needs supervision and n=10(12.5%) was independent.

Toileting activities from all participants, n= 5(6.3%) need Total assistance, n=24(30%) need maximum Assistance, n=23(28.7%) need moderate assistance, n=3(3.8%) need minimum assistance, n=8(10%) need supervision and n=17(21.3%) was independent.

Bladder management activities from all participants, n= 8(10%) need Total assistance, n=15(18.8%) need maximum Assistance, n=11(13.8%) need moderate assistance, n=12(15%) need minimum assistance, n=16(20%) need supervision and n=18(22.5%) was independent.

Bowel management activities from all participants, n= 8(10%) need Total assistance, n=12(15%) need maximum Assistance, n=14(17.5%) need moderate assistance, n=12(15%) need minimum assistance, n=16(20%) need supervision and n=18(22.5%) was independent.

Overall selfcare care domain activities from all participants, n=0(0%) needs Total assistance, 7(8.8%) need maximum Assistance, n=17(21.3%) needs moderate assistance, n=23(28.7%) needs minimum assistance, n=22(27.5%) needs supervision and n=11(13.8%) was independent.

From the mobility domain, all the children n=80(100%) were independent in Bed mobility, Chair, box/ toilet transfer, Crawling, and Indoor locomotion except Outdoor locomotion and Staring mobility. In outdoor locomotion and staring mobility, n=1(1.3%) needs minimum assistance, n=1(1.3%) needs supervision, and rest of children n=78(97.5%) was independent. Quite a Mobility domain activities n=80(100%) children were independent.

4.8 Correlation between Sleep Quality and ADLs

Table 4.6

Correlation between sleep quality and ADLs

Correlations between ADLs and Sleep Quality				
			ADLs score	Sleep Quality
Spearman's rho	ADLs score	Correlation Coefficient	1.000	-0.109
		Sig. (2-tailed)		0.337
		N	80	80
	Sleep Quality	Correlation Coefficient	-0.109	1.000
		Sig. (2-tailed)	0.337	
		N	80	80

*p value>0.05

Note: table 4.6 shows Spearman's correlation coefficient between ADLs level and sleep quality. The results indicate that there are negative (inverse) relationships between ADLs level and sleep quality (r= -0.109; p=0.337) since the p-value is >0.05.

CHAPTER V: DISCUSSION

This study examined sleep quality and ADLs engagement level in a sample of ASD children (age range 5 to 17 years). For this study, participants were recruited through a purposive sampling technique. Sleep quality was measured by CSHQ, and the level of independence was measured by a self-developed questionnaire.

Concerning this study's purpose, the results showed that there is a negative relationship between ASD children's sleep problems and greater difficulties in the performance of ADLs, but not statically significant, which is opposed to previously reported studies (Fadini et al., 2015; Johnsona et al., 2019; Mannion & Leader, 2013; Yavuz-Kodat et al., 2020). Some confounding factors may influence the result, delayed ADLs training, family factor, or parental physical and mental health. Current studies could not explore these factors.

When moving to the first objective of the current studies, the current studies found that significantly greater sleep problems are prevalent, where a mean score of 47.45, SD ±6.71664 among 80 children with ASD of this studies. Around 90% of ASD children suffer from different sleep problems. On the other hand, Sleep problems are particularly prominent among children suffering from developmental disorders. This agrees with previous studies in developed countries Children with ASD (Fadini et al., 2015; Liu et al., 2006; Richdale & Schreck, 2009; Souders et al., 2009; Sultana et al., 26 May 2021). But specific sleep problems could not be identified in the current studies.

When reaching the second objective about the relationship between age and sleep quality, the study could not identify an instance of an association between age and sleep problems. The previous study indicated that age range plays a vital factor in sleep problems (Irwanto et al., 2016). The children with ASD were an average age of 8.57

years, SD (±6.71), and their age range lay between 5-17 years, which is not exactly meet with previous studies (Irwanto et al., 2016). It may have occurred as a result of cultural variations in various contexts. However, this finding suggested there is no relation between age range and good and poor sleepers, which is agreeable with some studies (Johnsona et al., 2019; Mannion & Leader, 2013).

The third objective of the study about the association between medication and sleep quality. It is indicated around 72.5% Of children take medicine to erase sleep and other problems, which was constant in previous studies (Souders et al., 2009; Sultana et al., 26 May 2021). Hence current studies did not find any statistically significant relation between medicine and sleep quality. Sleep problems were prominent in about 90.1% of children even after medication which was agreed by previous studies (Souders et al., 2009).

In parallel to the fourth objective of the study, the findings on ADLs difficulties in children with ASD were more prevalent. This study found that children with ASD have problems in their daily basic self-care activities, as reported by previous studies (JahanSonia, 2020; Naik & Vajaratkar, 2019; Pfeiffer et al., 2017). But the result varied from previous studies. Current studies found that in average Self-care activities,0%need total assistance, 8.8% of ASD children needed maximum assistance, 21.3% needed moderate assistance, 28.7% needed minimum assistance, 27.5% needed supervision, and 13.8% were independent. That may be happened because of sample variation of different settings.

Another interesting finding from the mobility domain is that all the children 100% were independent in Bed mobility, Chair, box/ toilet transfer, Crawling, and Indoor locomotion, except Outdoor locomotion and Staring mobility. In outdoor locomotion

and staring mobility, 1.3%need minimum assistance, 1.3%need supervision, and resting children, 97.5% were independent, which disagreed with the previous studies (Reindal et al., 2019). It may differ because of variations in the age range of the existing literature.

From the available research, it came to light that Children with ASD have uttermost sleep problems, influencing their daily activities. But current studies did not find a significant but negative relationship between sleep problems and ADLs performance difficulties. The possible reason for different results can be geographical changes in the sample. Moreover, the coping strategy of the children may differ in various contexts. Conversely, children with ASD have difficulty in specific areas of sleep and self-care. So further research should be conducted to find out the exact cause of ADL difficulties and explore specific sleep problems that may relate to ADL difficulties.

CHAPTER VI: CONCLUSION

6.1 Strengths and Limitations

6.1.1 Strengths

- The study design perfectly matched to cross-sectional study design according to the study aim and objective.
- Gained deeper understanding through Face-to-face interviews.
- For the appropriateness of questionnaires Field tests were conducted.
- Different associations and correlations were tested according to the study aim and objective.
- Diagnosis of the children was confirmed by the pediatric occupational therapist.

6.1.2 Limitations

- The finding of this study can't be generalized to all children with ASD because of the small sample group.
- Exact sample of the population was not met (80) according to the sample size calculation.
- Sleep measurement is based on subjective measurement (parent's report). Hence the objective measure of sleep is the depth evaluation method.
- Some situational sample selection biased were present. Some children were from special schools for reaching the adolescent group. But most children were admitted to special schools after toilet training. Hence exact ADLs level of those children could not be generalized to all the samples.
- Specific sleep problems and their cause could not identify.

- This study focuses on 6 domains of BADLs. Hence other social and behavioral aspects cannot explore.

6.2 Practice Implication

This study provides evidence about sleep nature and its associated factor and explores ADLs difficulties and their relation to children with ASD. Hence occupational therapist works on a major goal for engaging children with disabilities in their ADLs. So, this evidence impacts a lot in therapeutic intervention. They can introduce sleep issues in the planning of intervention. Also, this evidence will aware of the general people who have children with ASD. They will be more concerned about their children's sleep habits and ADLs training earlier.

6.3 Recommendation for Future Research

- Further research should be conducted on specific sleep problem and their relation with ADLs of children with ASD.
- Relationship between sleep problems and behavioral, social, and emotional difficulties in children with ASD should be explored in future research.
- Family structure, parental health issues, sleeping environmental factors, and biopsychosocial causes of sleep problems should be addressed in future research.

6.4 Conclusion

Sufficient and adequate sleep is vital for maintaining physical, cognitive, and emotional development. Sleep difficulties potentially have an added negative impact on family functioning and parents' psychological well-being. The study aimed to identify the relationship between sleep quality and ADLs engagement in children with ASD. This is the first study about the concerning issues of children with ASD. The studies found that children with ASD have poor sleep quality and ADLs performance difficulties. But the findings of the studies did not suggest any significant relation between sleep quality and ADLs engagement in children with ASD. This study provides additional sociodemographic data on children with ASD. Although sleep problem is not significantly related to ADLs performance, there may another behavioral, emotional, or social factor is associated with sleep problems.

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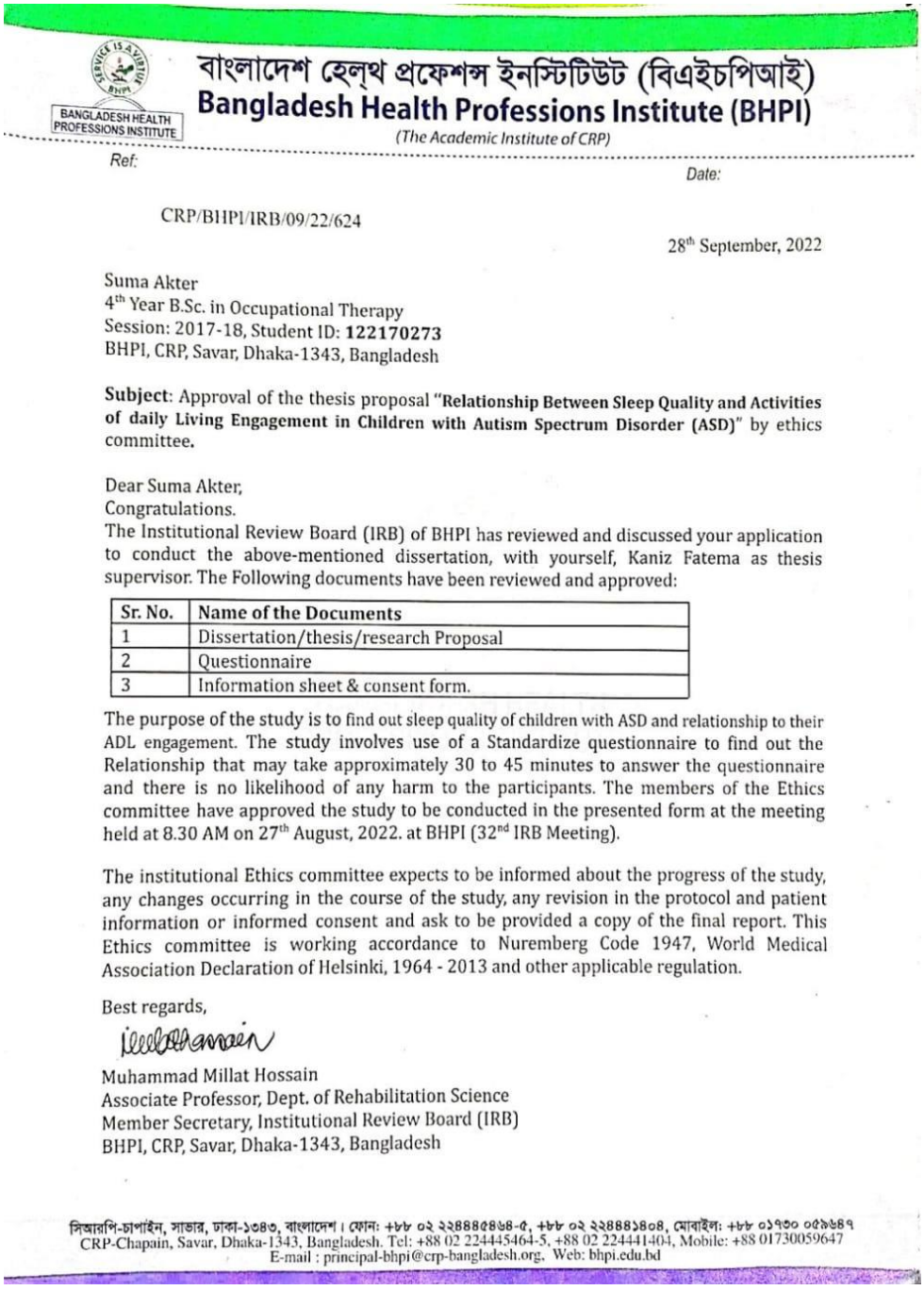
APPENDICES

Appendix A: Ethical Approval Form

Part I: IRB Letter



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

BANGLADESH HEALTH PROFESSIONS INSTITUTE

Ref:

Date:

CRP/BHPI/IRB/09/22/624

28th September, 2022

Suma Akter
4th Year B.Sc. in Occupational Therapy
Session: 2017-18, Student ID: **122170273**
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal "**Relationship Between Sleep Quality and Activities of daily Living Engagement in Children with Autism Spectrum Disorder (ASD)**" by ethics committee.

Dear Suma Akter,
Congratulations.
The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, Kaniz Fatema as thesis supervisor. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation/thesis/research Proposal
2	Questionnaire
3	Information sheet & consent form.

The purpose of the study is to find out sleep quality of children with ASD and relationship to their ADL engagement. The study involves use of a Standardize questionnaire to find out the Relationship that may take approximately 30 to 45 minutes to answer the questionnaire and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 8.30 AM on 27th August, 2022. at BHPI (32nd 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
Associate Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ। ফোন: +৮৮ ০২ ২২৪৪৫৪৬৪-৫, +৮৮ ০২ ২২৪৪৪১৪০৪, মোবাইল: +৮৮ ০১৭৩০ ০৫৯৬৪৭
CRP-Chapain, Savar, Dhaka-1343, Bangladesh. Tel: +88 02 22444546-5, +88 02 224441404, Mobile: +88 01730059647
E-mail : principal-bhpi@crp-bangladesh.org, Web: bhpi.edu.bd

Part II: Data Collection Permission Letter from Savar CRP

Date: 31st October, 2022

To

Head of the Pediatric Department

Centre for the Rehabilitation of the Paralysed (CRP)

CRP-Chapain, Savar, Dhaka-1343

Subject: Prayer for permission to collect data for the research project.

Sir,

With due respect to state that, I am a student of 4th year B. Sc. in Occupational Therapy department of Bangladesh Health Professions Institute (BHPI). In 4th year, I have to submit a research project to the University of Dhaka in partial fulfillment of recruitments of the degree of Bachelor of Science in Occupational Therapy. My research title **is "Relationship between sleep quality and Activities of Daily Living (ADL) engagement in children with Autism Spectrum Disorder (ASD)."** The aim of the study is to find out sleep quality of children with ASD and relationship to their ADL engagement. As it is quantative research, I would like to take the interview of caregiver and observation of ASD child who are client of Pediatric Department at CRP. Now I am looking for your kind approval to start my data collection and I would like to assure that anything of my research period will not be harmful for the participants and also for the Pediatric Department.

So, I therefore pray and hope that your kind enough to give me permission to take the interview of caregiver and observation of child with ASD and help me to complete the project successfully.

I remain

Sir

Sincerely

Suma Akter

Suma Akter

4th year, B.Sc in Occupational Therapy student

Session: 2017-18

Ref: CRP/BHPI/IRB/09/22/624

Forwarded for your kind consideration and permission for data collection to conduct her Research.

31/10/2022

Sk. Moniruzzaman
Associate Professor & Head
Dept. of Occupational Therapy
BHPI, CRP, Savar, Dhaka-1343

She will collect data from here. please help her. Thanks

31-10-22

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

Part III: Data Collection Permission Letter from Mirpur CRP

Date: 10th November, 2022

To

Center Manager

CRP- Mirpur, Dhaka-1206

Through proper channel

Subject: Prayer for permission to collect data for the research project.

Sir,

With due respect to state that, I am a student of 4th year B. Sc. in Occupational Therapy department of Bangladesh Health Professions Institute (BHPI). In 4th year, I have to submit a research project to the University of Dhaka in partial fulfillment of recruitments of the degree of Bachelor of Science in Occupational Therapy. My research title **is "Relationship between sleep quality and Activities of Daily Living (ADL) engagement in children with Autism Spectrum Disorder (ASD)."** The aim of the study is to find out sleep quality of children with ASD and relationship to their ADL engagement. As it is quantative research, I would like to take the interview of caregiver and observation of ASD child who are client of Pediatric Department at CRP, Mirpur, Now I am looking for your kind approval to start my data collection and I would like to assure that anything of my research period will not be harmful for the participants and also for the Pediatric Department.

So, I therefore pray and hope that your kind enough to give me permission to take the interview of caregiver and observation of child with ASD and help me to complete the project successfully.

I remain

Sir,

Suma Akter

Suma Akter

4th year, B.Sc in Occupational Therapy student

Session: 2017-18

Ref: CRP/BHPI/IRB/09/22/624

Forwarded for your kind consideration and permission for data collection to conduct her Research.

10/11/2022

Sk. Moniruzzaman
Associate Professor & Head
Dept. of Occupational Therapy
BHPI, CRP, Savar, Dhaka-1343

Part IV: Data Collection Permission Letter from AWF

Date: 24th November, 2022

To

Dr. Rownak Hafiz

Chairperson

Autism Welfare Foundation (AWF)

Moddher Char, Shamlapur, Keranigonj Model Thana, Dhaka- 1312

Subject: Prayer for permission to collect data for the research project.

Sir,

With due respect to state that, I am a student of 4th year B. Sc. in Occupational Therapy department of Bangladesh Health Professions Institute (BHPI). In 4th year, I have to submit a research project to the University of Dhaka in partial fulfillment of recruitments of the degree of Bachelor of Science in Occupational Therapy. My research title is **"Relationship between sleep quality and Activities of Daily Living (ADL) engagement in children with Autism Spectrum Disorder (ASD)."** The aim of the study is to find out sleep quality of children with ASD and relationship to their ADL engagement. As it is quantative research, I would like to take the interview of caregiver and observation of ASD child who are students of Autism Welfare Foundation. Now I am looking for your kind approval to start my data collection and I would like to assure that anything of my research period will not be harmful for the participants and also not for the Autism Welfare Foundation.

So, I therefore pray and hope that your kind enough to give me permission to take the interview of caregiver and observation of child with ASD and help me to complete the project successfully.

I remain

Sir

Sincerely

Suma Akter

Suma Akter

4th year, B. Sc in Occupational Therapy student

Session: 2017-18

Ref: CRP/BHPI/IRB/09/22/624

Forwarded for your kind consideration and permission for data collection to conduct her research.

24.11.2022

Sk. Moniruzzaman
Associate Professor & Head
Dept. of Occupational Therapy
BHPI, CRP, Savar, Dhaka-1343

27.11.2022

AUTISM WELFARE FOUNDATION

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

Bangladesh Health Professions Institute (BHPI)

Center for the Rehabilitation of the Paralysed (CRP)

Chapain, Savar, Dhaka-1343

Part I: Information Sheet Introduction

Title: Relationship between sleep quality and occupational participation in Children with autism spectrum disorder

Investigator: Suma Akter, Student of B.Sc. in Occupational Therapy,

Bangladesh Health Professions Institute (BHPI), CRP- Savar, Dhaka- 1343

Place: Autism center and school in Dhaka.

Introduction

I am Suma Akter, B.Sc. in Occupational Therapy student at Bangladesh Health Professions Institute (BHPI), have to conduct a thesis as a part of this Bachelor course, under thesis supervisor Kaniz Fatema. You are going to have details information about the study purpose, data collection process, and ethical issues.

You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research.

If this consent form contains some words that you do not understand, please ask me to stop. I will take the time to explain.

Background and Purpose of the study

You are being invited to be a part of this research because as a mother you have a better understanding of the challenges and problems during sleep and the Activities of daily living of your child. The purpose of my study is to explore the sleep quality of children with ASD and its relationship to their ADLs engagement of children with autism spectrum disorder. This study will be helpful to have a better understanding of the importance of sleep & ADLs engagement and their challenges and some possible solutions to cope with those challenges.

Research related information

The research-related information will be discussed with you throughout the information sheet before taking your signature on the consent form. After that participants will be asked to complete a standard questionnaire which may need 45-60 minutes. In this questionnaire, there will be questions on socio-demographic factors (for example Age, sex, experience). It will also contain some specific questions related to sleep and activities of daily living. Particularly, in this research we select Caregivers of some children with autism spectrum disorder for the study.

The information recorded is confidential and your identity will not be disclosed.

Risks and benefits

We are asking you to share some personal information if you feel uncomfortable giving information. You do not need to take part in the discussion interview/survey if you don't wish to do so, and that is also okay. On the other hand, you may not have any direct benefit by participating in this research, but your valuable participation is likely to help us to find out some valuable information about sleep and ADLs engagement rating of children with an autism spectrum disorder.

It is expected that there is no additional risk, inconvenience, or discomfort in participating in the relevant research.

Confidentiality

Information about you will not be shared with anyone outside of the research team. The information that we collect from this research project will be kept private. Only the researchers will know about your information and we will lock that information up with

a lock and key. It will not be shared with or given to anyone except Kaniz Fatema, the study supervisor.

Sharing the Results

Nothing that you tell us today will be shared with anybody outside the research team and nothing will be attributed to you by name. The knowledge that we get from this research will be shared and widely available to the public.

Information withdrawal

You can cancel any information collected for this research project in a fixed time. After publishing the research, you can't withdraw any information. After the cancellation, we expect permission from the information whether it can be used or not.

Whom to Contact

If you have any questions, you can ask me now or later. If you wish to ask questions later, you may contact any of the following: Suma Akter, Bachelor of Science in Occupational Therapy, Department of Occupational Therapy, Cell phone-01740031117.

This proposal is reviewed and approved by Institutional Review Board (IRB), Bangladesh Health Professions Institute (BHPI), CRP-Savar (CRP/BHPI/IRB/09/22/624) Dhaka-1343, Bangladesh, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find out more about the IRB, contact Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh. You can ask me any more questions about any part of the research study if you wish to. Do you have any questions?

Part II: Parental Consent Form

I have been invited to participate in research titled Relationship between sleep quality and ADLs Engagement in Children with autism spectrum disorder. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Name of Participant_____

Signature of Participant _____

Date_____

Witness Signature: …… Date:

Statement by the researcher taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands that the following will be done:

1. The information only will be used for the study

2. All information will be kept confidential

3. The identity of the participant will not be revealed.

I confirm that the participant was allowed to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Name of Researcher taking the consent_____

Signature of Researcher taking the consent_____

Date:

Part III: Withdraw Form

Participants Name: ……

Reason of withdrawing

……

……..

.

Participants Signature: ……

Day/Month/Year: ……

Witness Signature: …… Date:

Appendix B: Information Sheet and Consent Form [Bengali Version]

বাংলাদেশ হেলথ প্রফেশনস ইনষ্টিটিউট (বিএইচপিআই)

অকুপেশনাল থেরাপি বিভাগ

সিআরপি-চাপাইন,সাভার, ঢাকা-১৩৪৩, টেলি:০২-৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪, ফ্যাক্স ০৭৭৪৫০৬

অংশগ্রহণকারীদের তথ্য এবং সম্মতিপত্র

গবেষনার বিষয়: অটিজম স্পেকট্রাম ডিসঅর্ডারে আক্রান্ত শিশুদের ঘুমের গুণমান এবং দৈনন্দিন কাজে অংশগ্রহণের মধ্যে সম্পর্ক।

গবেষক: সুমা আক্তার, বি.এস.সি ইন অকুপেশনাল থেরাপি (৪র্থ বর্ষ), সেশন:২০১৭-২০১৮ ইং, বাংলাদেশ হেলথ্ প্রফেশন ইনস্টিটিউট (বিএইচপিআই), সাভার, ঢাকা-১৩৪৩

তত্ত্বাবধায়ক: কানিজ ফাতেমা,

লেকচারার, অকুপেশনাল থেরাপি বিভাগ, বাংলাদেশ হেলথ প্রফেশন ইনস্টিটিউট।

গবেষনার স্থান: অটিজম সেন্টার এবং স্কুল ঢাকা, বাংলাদেশ।

পর্ব ১ তথ্যপত্র

ভূমিকা

আমি সুমা আক্তার, ঢাকা বিশ্ববিদ্যালয়ে চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউটে বি.এস.সি.ইন. অকুপেশনাল থেরাপি বিভাগে ৪র্থ বর্ষের ছাত্রী হিসেবে স্নাতক শিক্ষাকার্যক্রম (২০১৭-২০১৪) সেশনে অধ্যয়নরত আছি। বিএইচপিআই থেকে অকুপেশনাল থেরাপি বি.এস.সি. শিক্ষাকার্যক্রমটি সম্পন্ন করার জন্যে একটি গবেষনা প্রকল্প পরিচালনা করা বাধ্যতামূলক। এই গবেষণা প্রকল্পটি অকুপেশনাল থেরাপি বিভাগের অধ্যাপিকা কানিজ ফাতেমা এর তত্ত্বাবধায়নে সম্পন করা হবে। এই অংশগ্রহণকারী তথ্য ও পত্রের মাধ্যমে গবেষণার প্রকল্পটির উদ্দেশ্য, উপাত্ত সংগ্রহের প্রানালি ও গবেষণাটির সাথে সংশ্লিস্ট বিষয় কিভাবে রক্ষিত হবে তা বিস্তারিত ভাবে আপনার কাছে উপস্থাপন করা হবে। যদি এই গবেষণায় অংশগ্রহন করতে আপনি ইচ্ছুক থাকেন, সেক্ষেত্রে এই গবেষণার সম্পৃক্ত বিষয়স সম্পর্কে স্বচ্ছ ধারনা থাকলে সিদ্ধান্ত গ্রহন সহজতর হবে। অবশ্য এখন আপনার অংশগ্রহন আমাদের নিশ্চিত করতে হবেনা। যে কোন সিদ্ধান্ত গ্রহনের পূর্বে, যদি চান, আপনার আত্মীয়-স্বজন, বন্ধু অথবা আস্থাভাজন যে কারো সাথে এই ব্যাপারে আলোচনা করতে পারেন। অপরপক্ষে, অংশগ্রহনকারী তথ্যপত্রটি পড়ে যদি কোন বিষয়বস্তু বুঝতে সমস্যা হয় অথবা যদি কোন কিছু সম্পর্কে আরো বেশি জানার প্রয়োজন হয়, তবে নির্দ্বিধায় প্রশ্ন করতে পারেন।

গবেষনার প্রেক্ষাপট ও উদ্দেশ্য

আপনাকে এই গবেষণার অংশ হওয়ার জন্য আমন্ত্রণ জানানো হচ্ছে কারণ একজন মা হিসেবে আপনি বাচ্চার ঘুমের সময় এবং আপনার সন্তানের দৈনন্দিন জীবনযাত্রার ক্রিয়াকলাপগুলির চ্যালেঞ্জ এবং সমস্যাগুলি সম্পর্কে আরও ভালভাবে বুঝতে পারেন। আমার গবেষনার মুল উদ্দেশ্য হল অটিজম স্পেকট্রাম ডিসঅর্ডারে -এ আক্রান্ত শিশুদের ঘুমের গুণমান এবং তাদের দৈনন্দিন কাজের মধ্যে সম্পর্ক অন্বেষণ করা। এই গবেষনাটি ঘুমের গুরুত্ব ও দৈনন্দিন কাজে অংশগ্রহণ এবং তাদের চ্যালেঞ্জগুলি এবং সেই চ্যালেঞ্জগুলির সাথে মোকাবিলা করার জন্য কিছু সম্ভাব্য সমাধান সম্পর্কে আরও ভাল বোঝার জন্য সহায়তা করবে বলে আমরা আশাবাদী।

এই গবেষনা কর্মটিতে অংশগ্রহনের সাথে সম্পৃক্ত বিষয় সমূহ কি সে সম্পর্কে জানা যাক

আপনার থেকে অনুমতিপত্রে স্বাক্ষর নেবার আগে, এই অংশগ্রহনকারী তথ্যপত্রের মাধ্যমে গবেষনা প্রকল্পটির পরিচালনা করার তথ্যসমূহ বিস্তারিত ভাবে আপনার কাছে উপস্থাপন করা হবে। আপনি যদি এই গবেষনায় অংশগ্রহন করতে চান, তাহলে সম্মতিপত্রে আপনাকে স্বাক্ষর করতে হবে।এর পরে অংশগ্রহণকারীদের একটি স্ট্যান্ডার্ড প্রশ্নাবলী সম্পূর্ণ করতে বলা হবে যার জন্য ৪৫-৬০ মিনিট সময় লাগতে পারে। এই প্রশ্নাবলীতে সামাজিক-জনসংখ্যাগত কারণগুলির উপর প্রশ্ন থাকবে (উদাহরণস্বরূপ: বয়স, লিঙ্গ, অভিজ্ঞতা)। এতে ঘুম এবং দৈনন্দিন জীবনযাত্রার কার্যকলাপ সম্পর্কিত কিছু নির্দিষ্ট প্রশ্নও থাকবে। বিশেষ করে, এই গবেষণায় আমরা গবেষণার জন্য অটিজম স্পেকট্রাম ডিসঅর্ডারে আক্রান্ত কিছু শিশুর কেয়ারগিভার নির্বাচন করি।

রেকর্ড করা তথ্য গোপনীয় এবং আপনার পরিচয় প্রকাশ করা হবে না।

যদি আপনি সম্মতি প্রদান না করেন তবে আপনাকে অংশগ্রাহন করতে হবেনা। আপনি সম্মতি প্রদান করা স্বত্ত্বেও যে কোন সময় গবেষককে কোন ব্যাখ্যা প্রদান করা ছাড়াই নিজের অংশগ্রহন প্রত্যাহার করতে পারবেন। গবেষনা প্রকল্পটিতে অংশগ্রহন করা কিংবা না করা অথবা পরবর্তীতে অংশগ্রহন প্রত্যাহার করারা সদ্ধান্তের সাথে আপনার সন্তানের বর্তমান চিকিৎসা কোন ভাবে প্রভাবিত হবে না।

অংশগ্রহনের সুবিধা ও ঝুঁকি সমূহ কি ?

গবেষণা প্রকল্পটি চলাকালীন সময়ে আপনার কিছু ব্যক্তিগত প্রশ্নের উত্তর দিতে হতে পারে যার কারণে আপনি অতন্ত্য অপ্রস্তুত বোধ করতে পারেন। আপনি যদি তা করতে না চান তাহলে আপনাকে অংশগ্রহন করতে হবে না। অন্যদিকে, এই গবেষণায় অংশগ্রহণ করে আপনার সরাসরি কোনো লাভ নাও হতে পারে, তবে আপনার মূল্যবান অংশগ্রহণ আমাদের অটিজম স্পেকট্রাম ডিসঅর্ডারে আক্রান্ত শিশুর ঘুম এবং দৈনন্দিন কাজে অংশগ্রহন রেটিং সম্পর্কে কিছু মূল্যবান তথ্য জানতে সাহায্য করবে।

এখানে সংশ্লিষ্ট গবেষনায় অংশগ্রহনে কোন ধরনের বাড়তি ঝুঁকি, বিপত্তি অথবা অস্বস্তি নেই বলে আশা করা যাচ্ছে।

তথ্যের গোপনীয় তা কি নিশ্চিত থাকবে?

এই সম্মতি পত্রে স্বাক্ষর করার মধ্য দিয়ে আপনি এই গবেষনা প্রকল্পে অধ্যয়নরত গবেষনা কর্মীকে আপনার ব্যক্তিগত তথ্য সংগ্রহ ও ব্যবহার করার অনুমতি দিয়েছেন। এই গবেষনা প্রকল্পের জন্য সংগৃহীত যেকোন তথ্য, যা আপনাকে সনাক্ত করতে পারে তা গোপনীয় থাকবে। আপনার সম্পর্কে সংগৃহীত তথ্যসমূহ সাংকেতিক উপায়ে উল্লেখ থাকবে। শুধুমাত্র এর সাথে সরাসরি সংশ্লিষ্ট গবেষক ও তার তত্ত্বাবধায়ক এই তথ্যসমূহে প্রবেশাধিকার পাবেন। সাংকেতিক উপায়ে চিহ্নিত উপাত্ত সমূহ পরবর্তী উপাত্ত বিশ্লেষনের কাজে ব্যবহৃত হবে । তথ্যপত্র গুলো তালাবদ্ধ ডুয়ারে রাখা হবে। বিএইচপিআই এরঅকুপেশনাল থেরাপি বিভাগে ও গবেষকের ব্যক্তিগত ল্যাপটপে উপাত্ত সমূহের ইলেকট্রনিক অর্জন সংগৃহীত থাকবে।

প্রত্যাশা করা হচ্ছে যে, এই গবেষণা প্রকল্পের ফলাফল বিভিন্ন ফোরামে প্রকাশিত এবং উপস্থাপিত হবে। যে কোন ধরনের প্রকাশনা ও উপস্থাপনার ক্ষেত্রে তথ্যসমূহ এমন ভাবে সরবরাহ করা হবে, যেন আপনার সম্মতি ছাড়া আপনাকে কোনভাবেই সনাক্ত করা না যায়। তথ্য-উপাত্ত প্রাথমিকভাবে কাগজপত্র সংগ্রহ করা হবে।

গবেষনা সর্ম্পকে জানতে কোথায় যোগাযোগ করতে হবে?

গবেষনা প্রকল্পটির বিষয়ে যোগাযোগ করতে চাইলে অথবা গবেষনা প্রকল্পটির সম্পর্কে কোন প্রশ্ন থাকলে এখন বা পরবর্তীতে যে কোন সময়ে জিজ্ঞাসা করতে পারেন। সেক্ষেত্রে আপনি গবেষকের সাথে উল্লেখিত ০১৭৪০০৩১১১৭নাম্বারে যোগাযোগ করতে পারেন।

এই গবেষণা প্রকল্পটি বাংলাদেশ হেলথ প্রফেশন ইনস্টিটিউট, সাভারের প্রাতিষ্ঠানিক নৈতিকতা পরিষদ (সিআরপি- বিএইচপিআই/আই আর বি/০৯/২২/৬২৪) থেকে পর্যালোচিত ও অনুমোদিত হয়েছে। এই গবেষনা প্রকল্প পরিচালনা প্রসঙ্গে যে কোন উদ্বিগ্ন অথবা অভিযোগকারী ব্যক্তি প্রাতিষ্ঠানিক নৈতিকতা পরিষদের সাথে এই নাম্বারে (৭৭৪৫৪৬৪-৫) যোগাযোগ করবেন।

গবেষনা থেকে নিজেকে প্রত্যাহার করা যাবে কি?

আপনি সম্মতি প্রদান করা সত্ত্বেও, একটি নিদিষ্ট সময়ের মধ্যে গবেষককে কোন ব্যাখ্যা প্রদান করা ছাড়াই নিজের অংশগ্রহণ প্রত্যাহার করতে পারবেন। বাতিল করার পর তথ্যসমূহ কি ব্যবহার করা যাবে কি যাবেনা তার অনুমতি অংশগ্রহণকারীর প্রত্যাহার পত্রে (শুধুমাত্র স্বেচ্ছায় প্রত্যাহারকারীর জন্য প্রযোজ্য) উল্লেখ করা থাকবে।

কোড নংঃ

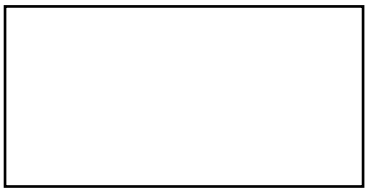
পিতামাতার সম্মতি পত্র

“অটিজম স্পেকট্রাম ডিসঅর্ডারে আক্রান্ত শিশুদের ঘুমের গুণমান এবং দৈনন্দিন কাজে অংশগ্রহণের মধ্যে সম্পর্ক”-শীর্ষক গবেষনায় অংশগ্রহনের জন্য আমাকে আমন্ত্রন জানানো হয়েছে। আমি পূর্বলিখিত তথ্য পত্রটি পড়েছি বা এটা আমাকে পড়ে শোনানো হয়েছে। এই বিষয়ে আমার প্রশ্ন জিজ্ঞাসা করার সুযোগ ছিল এবং যে কোন প্রশ্নের জন্যে আমি উত্তর পেয়েছি। এই গবেষনায় একজন অংশগ্রহনকারী হবার জন্য আমি স্বেচ্ছায় সম্মতি দিচ্ছি ।

অংশগ্রহনকারীর নামঃ

অংশগ্রহনকারীর স্বাক্ষরঃ তারিখঃ

নিরক্ষর হয় যদি অংশগ্রহণকারীর আঙ্গুলের ছাপ



গবেষক ও সম্মতি কারীর বিবৃতি

আমি অংশগ্রহনকারী কে অংশগ্রহনকারীর তথ্যপত্রটি পড়ে শুনিয়েছি এবং আমার সর্বোচ্চ সামর্থ্য অনুযায়ী নিশ্চিত করেছি যে, অংশগ্রহনকারীর বোধগম্য হয়েছে যে, নিম্নোক্ত বিষয় সমূহ করা হবে।

১) সকল তথ্য গবেষণার কাজে ব্যবহৃত হবে।

২) তথ্য সমূহ সম্পূর্ণভাবে গোপনীয় করা হবে।

(৩) অংশগ্রহনকারীর নাম ও পরিচয় প্রকাশ করা হবেনা।

আমি নিশ্চিত করেছি যে, এই বিষয় সম্পর্কে প্রশ্ন করার সুযোগ দেওয়া হয়েছে এবং অংশগ্রহনকারি যে সকল প্রশ্ন জিজ্ঞাসা করেছেন, আমার সর্বোচ্চ সামর্থ্য অনুযায়ী, সেগুলোর সঠিক উত্তর প্রদান করা হয়েছে। আমি নিশ্চিত করেছি যে, কোন বাক্তিকে সম্মতি দান করতে বাধ্য করা হয়নি। তিনি অবাধে অথবা স্বেচ্ছায় সম্মতি দিয়েছেন।

গবেষকের নামঃ

গবেষকের স্বাক্ষরঃ তারিখ:

স্বাক্ষীর নাম:

স্বাক্ষীর স্বাক্ষরঃ তারিখঃ

অংশগ্রহণকারী প্রত্যাহার পত্র

(শুধুমাত্র স্বেচ্ছায় প্রত্যাহার কারীর জন্য প্রযোজ্য)

অংশগ্রহনকারীর নামঃ……

প্রত্যাহার করার কারনঃ

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পূর্ববর্তী তথ্য ব্যবহারেরঅনুমতি থাকবে কিনা?

হ্যাঁ / না

অংশগ্রহনকারীর নামঃ

অংশগ্রহনকারীর স্বাক্ষরঃ তারিখ

নিরক্ষর হয় যদি

অংশগ্রহণকারীর আঙ্গুলের ছাপ

Appendix C: Questionnaire

Part I: Self-developed Questionnaire for ADLs Measurement [English Version]

Self-developed Questionnaire for ADLs Measurement

5=Independent

4=Supervision

3=Minimum Assistance

2=Moderate Assistance

1=Maximum Assistance

0=Total Assistance

	Visit number	**Score**
A	**Self-care Domain**	
1	Eating: eating and drinking regular meals; do not include cutting, opening containers, or serving food from serving dishes	
2	Grooming: Brushing teeth, brushing or combing hair, and caring for the nose.	
3	Bathing: washing drying face and hands, taking a bath or shower, do not include getting in and out of a tub or shower, water preparation, or washing back or hair.	
4	Dressing Upper Body: all indoor clothes not including back fasteners; do not include getting clothes from closet or drawers.	
5	Dressing Lower Body: all indoor clothes including putting on or taking off the brace, do not include getting clothes from close it or drawers	
6	Toileting: clothes, toilet management, or external device use and hygiene. do not include toilet transfer, monitoring schedule, or cleaning up after the accident.	
7	Bladder Management: control of bladder day and night, monitoring schedule	

8	Bowel Management: control of bowel day in night, monitoring schedule	
	Self-care total	
B	Mobility Domain	
1	Bed Mobility: Getting in and out and changing positions in the child's bed.	
2	Chair, Box, toilet transfers: the ability to transfer on a chair box or toilet	
3	Crawling: the ability to crawl on a bed or floor	
4	Indoor Locomotion: 50 feet (3-4 rooms); do not include opening doors or carrying objects	
5	Outdoor Locomotion:150 feet locomotion on a level surface focusing on physical ability to move outdoors.	
6	Stairs: client and decent a fool flight of stairs (15 to 12 the steps)	
	Mobility total	
	Total score	

Part I: Self-developed Questionnaire for ADLs Measurement [Bengali Version]

৫=স্বাধীন, ৪=তত্ত্বাবধায়ন, ৩=অল্প সহযোগিতা, ২=পরিমিত সহযোগিতা , ১=অনেক সহযোগিতা , ০=পুরোপুরি সহযোগিতা

	পরিদর্শন সংখ্যাঃ	স্কোর
১	নিজের যত্ন	
	১.খাবার খাওয়াঃ নিয়মিত খাদ্য গ্রহন ও পানি পান করা (মাংস কেটে খাওয়া, খোলা পাত্র অথবা খবার পরিবেশনকারী পাত্র থেকে খাবার পরিবেশন অন্তর্ভুক্ত করা যাবে না)	
	২. সাজসজ্জাঃ দাঁত ব্রাশ করা, চুল ব্রাশ করা অথবা চিরুনি দিয়ে আচরানো এবং নাকের যত্ন নেয়া।	
	৩. গোসল করাঃ হাত -মুখ ধোয়া ও মুছা, গোসল করা অথবা শাওয়ার নেয়া। (ঝর্না ও বাথটাবে প্রবেশ এবং বের হওয়া; পানি ব্যবহারের প্রস্তুতি এবং চুল পরিষ্কার অন্তর্ভুক্ত করা যাবে না)	
	৪. শরীরের উপর অংশে কাপড় পরিধানঃ সকল ধরনের অন্তর্বাস পরিধান ও খোলা (আলমারি বা ড্রয়ার থেকে কাপড় নেয়া অন্তর্ভুক্ত হবে না)	
	৫. শরীরের নিচের অংশে কাপড় পরিধানঃ সকল ধরনের অন্তর্বাস পরিধান ও খোলা (আলমারি অথবা ড্রয়ার থেকে জামাকাপড় নেয়া অন্তর্ভুক্ত হবে না)	
	৬. টয়লেটিংঃ পোশাক, টয়লেট ব্যবহার এবং পরিষ্কার পরিচ্ছন্নতা (টয়লেট ট্রান্সফার, সময় পর্যবেক্ষণ এবং টয়লেটর পর পরিষ্কার অন্তর্ভুক্ত হবে না)	
	৭. মূত্রাশয় ব্যবস্থাপনা: রাতে ও দিনে মূত্রাশয় আয়ত্তে রাখা এবং সময় পর্যবেক্ষণ করা।	
	৮. অন্ত্র ব্যবস্থাপনাঃ রাতে ও দিনে অন্ত্রের কার্যক্রম আয়ত্তে রাখা এবং সময় পর্যবেক্ষণ করা।	
	নিজের যত্ন মোট স্কোর	
২	চলাফেরার ডোমেইন	
	১. বিছানায় গড়াগড়িঃ বিছানায় বাচ্চার উঠানামা এবং অবস্থান পরিবর্তন করা।	
	২. চেয়ার, বাক্স / টয়লেট ট্রান্সফারঃ চেয়ার, বক্স ও টয়লেট থেকে জায়গা পরিবর্তনের সক্ষমতা।	

	৩. হামাগুড়িঃ বিছানা এবং মেঝেতে হামাগুড়ি দেয়ার সক্ষমতা।	
	৪. অন্তর্বিবাগ চলাফেরাঃ ৫০ ফুট (৩-৪ রুম) (দরজা খোলা এবং কোন বস্তু বহন করা অন্তর্গত করা যাবে না)	
	৫. বর্হিবিভাগ চলাফেরারঃ ১৫০ ফুট দূরত্বের মধ্যে চলাফেরা। অনুভূতিকভাবে এবং বাহিরে চলাচলের শারীরিক গতিবিধির উপর গুরুত্ব দিতে হবে।	
	৬. সিড়িঃ (১২-১৫) ধাপের সিড়িতে উঠানামা করা।	
	মোট চলাফেরা স্কোর	

Part II: Children's Sleep Habit Questionnaire (English Version)

CHILD'S SLEEP HABITS
(Preschool and School-Aged)

The following statements are about your child's sleep habits and possible difficulties with sleep. Think about the past week in your child's life when answering the questions. If last week was unusual for a specific reason (such as your child had an ear infection and did not sleep well or the TV set was broken), choose the most recent typical week. Answer USUALLY if something occurs **5 or more times** in a week; answer SOMETIMES if it occurs **2-4 times** in a week; answer RARELY if something occurs **never or 1 time** during a week. Also, please indicate whether or not the sleep habit is a problem by circling "Yes," "No," or "Not applicable (N/A)."

Bedtime

Write in child's bedtime: _____

	3 Usually (5-7)	2 Sometimes (2-4)	1 Rarely (0-1)	Problem?
Child goes to bed at the same time at night **(R) (1)**	☐	☐	☐	Yes No N/A
Child falls asleep within 20 minutes after going to bed **(R) (2)**	☐	☐	☐	Yes No N/A
Child falls asleep alone in own bed **(R) (3)**	☐	☐	☐	Yes No N/A
Child falls asleep in parent's or sibling's bed **(4)**	☐	☐	☐	Yes No N/A
Child falls asleep with rocking or rhythmic movements	☐	☐	☐	Yes No N/A
Child needs special object to fall asleep (doll, special blanket, etc.)	☐	☐	☐	Yes No N/A
Child needs parent in the room to fall asleep **(5)**	☐	☐	☐	Yes No N/A
Child is ready to go to bed at bedtime	☐	☐	☐	Yes No N/A
Child resists going to bed at bedtime	☐	☐	☐	Yes No N/A
Child struggles at bedtime (cries, refuses to stay in bed, etc.) **(6)**	☐	☐	☐	Yes No N/A
Child is afraid of sleeping in the dark **(7)**	☐	☐	☐	Yes No N/A
Child is afraid of sleeping alone **(8)**	☐	☐	☐	Yes No N/A

Sleep Behavior

Child's usual amount of sleep each day: _____ hours and _____ minutes
(combining nighttime sleep and naps)

	Usually (5-7)	Sometimes (2-4)	Rarely (0-1)	Problem?
Child sleeps too little **(9)**	☐	☐	☐	Yes No N/A
Child sleeps too much	☐	☐	☐	Yes No N/A
Child sleeps the right amount **(R) (10)**	☐	☐	☐	Yes No N/A
Child sleeps about the same amount each day **(R) (11)**	☐	☐	☐	Yes No N/A
Child wets the bed at night **(12)**	☐	☐	☐	Yes No N/A
Child talks during sleep **(13)**	☐	☐	☐	Yes No N/A
Child is restless and moves a lot during sleep **(14)**	☐	☐	☐	Yes No N/A
Child sleepwalks during the night **(15)**	☐	☐	☐	Yes No N/A
Child moves to someone else's bed during the night (parent, brother, sister, etc.) **(16)**	☐	☐	☐	Yes No N/A
Child reports body pains during sleep. If so, where? _____	☐	☐	☐	Yes No N/A
Child grinds teeth during sleep (your dentist may have told you this) **(17)**	☐	☐	☐	Yes No N/A
Child snores loudly **(18)**	☐	☐	☐	Yes No N/A

(continued)

ASSESSMENT | **SLEEP DISORDERS**

Sleep Behavior (continued)

	Usually (5-7)	Sometimes (2-4)	Rarely (0-1)	Problem?
Child seems to stop breathing during sleep (19)	☐	☐	☐	Yes No N/A
Child snorts and/or gasps during sleep (20)	☐	☐	☐	Yes No N/A
Child has trouble sleeping away from home (visiting relatives, vacation) (21)	☐	☐	☐	Yes No N/A
Child complains about problems sleeping	☐	☐	☐	Yes No N/A
Child awakens during night screaming, sweating, and inconsolable (22)	☐	☐	☐	Yes No N/A
Child awakens alarmed by a frightening dream (23)	☐	☐	☐	Yes No N/A

Waking During the Night

	Usually (5-7)	Sometimes (2-4)	Rarely (0-1)	Problem?
Child awakes once during the night (24)	☐	☐	☐	Yes No N/A
Child awakes more than once during the night (25)	☐	☐	☐	Yes No N/A
Child returns to sleep without help after waking	☐	☐	☐	Yes No N/A

Write the number of minutes a night waking usually lasts: _____

Morning Waking

Write in the time of day child usually wakes in the morning: _____

	Usually (5-7)	Sometimes (2-4)	Rarely (0-1)	Problem?
Child wakes up by him/herself (R) (26)	☐	☐	☐	Yes No N/A
Child wakes up with alarm clock	☐	☐	☐	Yes No N/A
Child wakes up in negative mood (27)	☐	☐	☐	Yes No N/A
Adults or siblings wake up child (28)	☐	☐	☐	Yes No N/A
Child has difficulty getting out of bed in the morning (29)	☐	☐	☐	Yes No N/A
Child takes a long time to become alert in the morning (30)	☐	☐	☐	Yes No N/A
Child wakes up very early in the morning	☐	☐	☐	Yes No N/A
Child has a good appetite in the morning	☐	☐	☐	Yes No N/A

Daytime Sleepiness

	Usually (5-7)	Sometimes (2-4)	Rarely (0-1)	Problem?
Child naps during the day	☐	☐	☐	Yes No N/A
Child suddenly falls asleep in the middle of active behavior	☐	☐	☐	Yes No N/A
Child seems tired (31)	☐	☐	☐	Yes No N/A

During the past week, your child has appeared very sleepy or fallen asleep during the following (check all that apply):

	1 Not Sleepy	2 Very Sleepy	3 Falls Asleep
Play alone	☐	☐	☐
Watching TV (32)	☐	☐	☐
Riding in car (33)	☐	☐	☐
Eating meals	☐	☐	☐

Part II: Children's Sleep Habit Questionnaire (Bengali Version*)*

চিল্‌ড্রেন স্লিপ হ্যাবিট কোশ্চেনিয়ার (সি এস এইচ কিউ) / শিশুর ঘুমের অভ্যাসের প্রশ্নাবলি

নিম্নলিখিত বিবৃতিগুলো আপনার সন্তানের ঘুমের অভ্যাস এবং ঘুমের সম্ভাবনা অসুবিধা সম্পর্কিত। প্রশ্নের দেওয়ার সময় আপনার সন্তানের গত সপ্তাহের সংঘটিত ঘুমের অভ্যাসের কথা বলুন। যদি গত সপ্তাহে কোনো নির্দিষ্ট কারণে আপনার সন্তানের ঘুম অস্বাভাবিক হয় (যেমনঃ আপনার সন্তানের কানে ইনফেকশন হয়েছে এবং ভালো ঘুম হয়নি বা টিভি সেট ভেঙ্গে গিয়েছে) তাহলে সাম্প্রতিকতম খুব কাছের সপ্তাহটি বেছে নিন। যদি সপ্তাহে ৫ বার বা তার বেশি বার অভ্যাস গুলো সংঘটিত হয় তাহলে উত্তর দিন "প্রায়"। যদি সপ্তাহে ২-৪ বার সংঘটিত হয় তাহলে উত্তর দিন। "মাঝে মাঝে। যদি সপ্তাহে কখনই না বা ১ বার সংঘটিত হয় তাহলে উত্তর দিন "কদাচি" এছাড়াও শিশুরা ঘুমের অভ্যাসে কোনো সমস্যা আছে কিনা তার উত্তর দিন "হ্যাঁ, "না" বা "প্রযোজ্য নয়"।

ঘুমানোর সময় :

শিশুর ঘুমানোর সময় লিখুন _____

		প্রায়	মাঝে মাঝে	কদাচিৎ	সমস্যা?
১	শিশু প্রতি রাতে একই সময়ে ঘুমাতে যায় (আর) (১)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২	শিশু বিছানায় যাওয়ার ২০ মিনিটের মধ্যে ঘুমিয়ে পড়ে (আর) (২)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৩	শিশু নিজের বিছানায় একা ঘুমিয়ে পড়ে (আর) (৩)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৪	শিশু বাবা-মায়ের বা ভাইবোনের বিছানায় ঘুমিয়ে পড়ে(৪)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৫	শিশুকে দোল দিলে বা ছন্দময় নরাচরা করালে ঘুমিয়ে পড়ে	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৬	শিশুর ঘুমানোর সময় বিশেষ কিছু বস্তুর প্রয়োজন হয় (পুতুল, বিশেষ কম্বল ইত্যাদি)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৭	শিশু ঘুমানোর সময় বাবা-মার প্রয়োজন হয় (৫)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়

৮	শিশু ঘুমানোর সময় বিছানায় ঘুমাতে যেতে প্রস্তুত থাকে	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৯	শিশু ঘুমানোর সময় বিছানায় যেতে অনীহা প্রকাশ করে	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১০	শিশু ঘুমানোর সময় বিরক্ত করে (কান্না করা , বিছানায় অবস্থান করতে চায় না ইত্যাদি) (৬)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১১	শিশু অন্ধকারে ঘুমাতে ভয় পায় (৭)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১২	শিশু একা ঘুমাতে ভয় পায় (৮)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়

ঘুমের আচরণ

শিশুর প্রতিদিনের ঘুমের পরিমাণঃ _____ ঘন্টা এবং _____ মিনিট।

(রাতের ঘুম এবং দিনের ঘুম একত্রে)

		প্রায়	মাঝে মাঝে	কদাচিৎ	সমস্যা?
১৩	শিশু অল্প সময় ঘুমায় (৯)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১৪	শিশু বেশি ঘুমায়	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১৫	শিশু পরিমিত ঘুমায় (আর) (১০)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১৬	শিশু প্রতিদিন একই পরিমাণ ঘুমায় (আর) (১১)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১৭	শিশু রাতে বিছানায় প্রসাব করে (১২)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১৮	শিশু ঘুমের মধ্যে কথা বলে (১৩)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
১৯	শিশু ঘুমের মধ্যে অস্থির থাকে এবং অনেক নড়াচড়া করে (১৪)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২০	শিশু রাতে ঘুমের মধ্যে হাঁটাহাটি করে (১৫)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২১	শিশু রাতে ঘুমের মধ্যে অন্য কারো বিছানায় চলে যায় (বাবা-মা, ভাই, বোন ইত্যাদি) (১৬)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২২	শিশু ঘুমের মধ্যে শরীর ব্যাথার কথা বলে যদি তাই হয়, কোথায়? _____	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২৩	শিশু ঘুমের মধ্যে দাঁত পেষণ করে (আপনার শিশুর দাঁতের ডাক্তার আপনাকে এটি বলে থাকতে পারে (১৭)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২৪	শিশু জোরে জোরে নাক ডাকে (১৮)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়

২৫	শিশুর ঘুমের সময় শ্বাস বন্ধ হয়ে যায় বলে মনে হয় (১৯)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২৬	শিশু ঘুমের সময় নাক ডাকে বা নাক চেপে ধরে	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২৭	শিশুর নিজের বাড়ি ছাড়া অন্য কোথায় ঘুমাতে সমস্যা হয় (যেমনঃ আত্মীয় স্বজনের বাড়ি, ছুটিতে অন্য কোথায় গেলে (২১)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২৮	শিশু ঘুমের সমস্যা সম্পর্কে অভিযোগ করে।	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
২৯	শিশু রাতে চিৎকার করে, ঘেমে এবং অস্বস্তিবোধ করে জেগে ওঠে (২২)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৩০	শিশু ভয়ঙ্কর স্বপ্ন দেখে শঙ্কিত হয়ে জেগে ওঠে।(২৩)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়

রাতে জেগে উঠা

		প্রায়	মাঝে মাঝে	কদাচিৎ	সমস্যা?
৩১	শিশু রাতে একবার জেগে ওঠে (২৪)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৩২	শিশু রাতে একের অধিকবার জেগে ওঠে (২৫)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৩৩	শিশু জেগে ওঠার পরে কারো সাহায্য ছাড়াই পুনরায় ঘুমিয়ে পড়ে	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়

শিশু রাতে কয় মিনিটের জন্য জেগে উঠে লিখুন _____

সকালে ঘুম থেকে জেগে উঠা

শিশু সাধারণত সকালে কখন ঘুম থেকে উঠে তার সময় লিখুন _____

		প্রায়	মাঝে মাঝে	কদাচিৎ	সমস্যা?
৩৪	শিশু নিজ থেকেই জেগে উঠে (আর) (২৬)	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়
৩৫	শিশু এলার্ম ঘড়ি বাজলে জেগে উঠে	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়
৩৬	শিশু নেতিবাচক মেজাজ নিয়ে জেগে ওঠে (২৭)	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়

৩৭	পরিবারের প্রাপ্ত বয়স্করা বা ভাইবোন শিশুকে জাগিয়ে তোলে (২৮)	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়
৩৮	শিশুর সকালে ঘুম থেকে উঠতে কষ্ট হয় (২৯)	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়
৩৯	শিশুর সকালে ঘুম ঘুম ভাব কাটিয়ে উঠতে অনেক সময় লাগে (৩০)	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়
৪০	শিশু খুব ভোরে জেগে উঠে	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়
৪১	শিশুদের সকালে ভালোই ক্ষুদা লাগে	☐	☐	☐	হ্যাঁ/না/প্রযোজ্য নয়

দিনের ঘুম

		প্রায়	মাঝে মাঝে	কদাচিৎ	সমস্যা?
৪২	শিশু দিনের বেলায় ঘুমায়।	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৪৩	শিশু হটাত কাজের মধ্যে/ খেলার মধ্যে ঘুমিয়ে পড়ে	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়
৪৪	শিশুকে ক্লান্ত মনে হয় (৩১)	☐	☐	☐	হ্যাঁ/না/ প্রযোজ্য নয়

গত সপ্তাহে, আপনার সন্তানের নিম্নলিখিত কাজের সময়ে ঘুম ঘুম ভাব হয়েছে বা ঘুমিয়ে পড়েছে (যা প্রযোজ্য সব পরীক্ষা করে দেখুন):

		ঘুম-ঘুম ভাব হয়নি	খুব ঘুম ঘুম ভাব হয়েছে	ঘুমিয়ে পড়েছে
৪৫	নিজে নিজে খেলা	☐	☐	☐
৪৬	টিভি দেখা (৩২)	☐	☐	☐
৪৭	গাড়িতে চড়া	☐	☐	☐
৪৮	খাবার খাওয়া (৩৩)	☐	☐	☐

Part III: Socio-demographic Information (English and Bangla)

Socio-demographic Information

Name of Father/Mother: Parents age:

Occupation of Father/Mother:

Address: .....Mobile Number: .....

Name of child:

Child's age:

Gender: Boy / Girl

Child education: Yes / No

If yes: special school/ Inclusive school

Location of Data Collection: In-patient/outpatient unit

Is any present medicine? yes/no

Name of medicine: ..... Cause:

Date of information:

জনসংখ্যা সংক্রান্ত তথ্য

পিতা /মাতার নামঃ পিতা /মাতার বয়সঃ

শিক্ষাগত যোগ্যতাঃ পিতা /মাতার পেশাঃ

ঠিকানাঃ .....মোবাইল নম্বরঃ .....

শিশুর নামঃ

শিশুর বয়সঃ

লিঙ্গঃ ছেলে / মেয়ে

শিশুর পড়াশুনাঃ কোন স্কুল পড়ে কি? হ্যাঁ/ না

উত্তর হ্যাঁ হলে কোণটিঃ বিশেষ স্কুল/অন্তর্ভুক্ত স্কুল

তথ্য সংগ্রহের স্থানঃ অন্তবিভাগ/বর্হিবিভাগ

বর্তমানে কোনো ঔষধ গ্রহন করে কী? হ্যাঁ/না

উত্তর হ্যাঁ হলে, ঔষধের নামঃ ..... কারণঃ