

**Exploring the Influences of Prolonged Screen Time on  
the Behavior of Children aging 3 to 6 years  
During COVID-19 Crisis**

By

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A thesis submitted to Brac Institute of Educational Development in partial fulfillment of  
the requirements for the degree of  
Master of Science in Early Childhood Development

Brac Institute of Educational Development  
Brac University  
December 2021

## **Declaration**

It is hereby declared that

1. The thesis submitted is my/our own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I/We have acknowledged all main sources of help.

**Student's Full Name & Signature:**

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## Approval

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Of fall 2021 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Master of Science in Early Childhood Development on December 14, 2021.

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## **Ethics Statement**

Title of Thesis Topic: Exploring the Influences of Prolonged Screen Time on the Behavior of Children aging 3 to 6 years During COVID-19 Crisis

Student name: Atia Marfua

1. Source of population: Educated mothers who had 3 to 6 year child
2. Does the study involve (yes, or no)
  - a) Physical risk to the subjects (no)
  - b) Social risk (no)
  - c) Psychological risk to subjects (no)
  - d) discomfort to subjects (no)
  - e) Invasion of privacy(no)
3. Will subjects be clearly informed about (yes or no)
  - a) Nature and purpose of the study (yes)
  - b) Procedures to be followed (yes)
  - c) Physical risk (yes)
  - d) Sensitive questions (yes)
  - e) Benefits to be derived (yes)
  - f) Right to refuse to participate or to withdraw from the study (yes)
  - g) Confidential handling of data (yes)
  - h) Compensation and/or treatment where there are risks or privacy is involved(yes)
4. Will Signed verbal consent for be required (yes or no)
  - a) from study participants (yes)
  - b) from parents or guardian (yes)
  - c) Will precautions be taken to protect anonymity of subjects? (yes)
5. Check documents being submitted herewith to Committee:
  - a) Proposal (yes)
  - b) Consent Form (yes)
  - c) Questionnaire or interview schedule (yes)

### **Ethical Review Committee:**

Authorized by:  
(chair/co-chair/other)

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## **Abstract**

Prolonged screen time exposure had been a soaring concern for children in last two decades but COVID-19 pandemic exacerbated this phenomenon. The aim of this quantitative research was to explore the consequences of prolonged screen time on 3 to 6 years children's behavior during COVID-19. The survey was conducted on an online platform with 40 mothers who had 3 to 6 years old children. Strength and Difficulties Questionnaire (SDQ) and Socio-Economic Status (SES) questionnaire were used to collect data. The study showed 91% of mothers believed that prolonged screen time has negative effect on children. The average screen time per child was 3.08 hours which indicates that each of them was exposed to prolonged screen time (more than 2 hours). Mothers noticed children changing behavior due to prolonged screen time during pandemic. As per mothers' reflection, children exhibited hyperactivity (52.50%), attention problems (42.50%), reduced interest in studying (37.50%) and aggressive behavior (27.50%). Study also discovered that children who spent prolonged time on screen had more behavior problems than those who were exposed to non-prolonged screen time. Awareness and education is a necessity to initiate healthy digital habits and educate the caregivers and parents regarding the short and long term effects of prolonged screen time.

**Keywords:** Prolonged screen time; Pandemic; COVID-19; Child's behavior; Digital device

## **Dedication**

This study is dedicated to all of my three sons who are coolness of my eyes, the cause for my interest in studying ECD and field of application of my earned knowledge.

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To complete the Master's degree I have received a great deal of support and assistance. At first let's praise and thank Allah, the Almighty, for His rain of blessings throughout my Masters course to complete the degree successfully.

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## **List of Acronyms**

|          |   |
|----------|---|
| AACP     | American Academy of Child and Adolescent Psychiatry |
| BRAC     | Bangladesh Rural Advancement Committee              |
| COVID-19 | Corona Virus Disease of 2019                        |
| SDQ      | Strength and Difficulties Questionnaire             |
| SPSS     | Statistical Package for Social Science              |
| UN       | United Nations                                      |
| WHO      | World Health Organization                           |

# **Chapter I**

## **Introduction & Background**

### **Introduction**

Nearly 20 months into the coronavirus pandemic, parents across the globe have been watching their children sliding down into an all-consuming screen life. At the onset of pandemic, many parents relaxed limits on screens or overlooked the vastly increasing time as a temporary solution to keep restless children busy and entertained (Richtel, 2021). This was mostly because of children started staying home, deprived of play, outdoor activities, family and social gathering and extra-curricular activities of all forms. Later on, many forms of online schooling started as an alternative to physical presence and aided the children to be dependent further on screen stretching the screen time to an unacceptably high level. Most of the countries all over the world anticipated that adverse effects of excessive amount of time spent on digital screens may see due to lack of opportunities for outdoor activities to maintain social distance (Wong, et al., 2020).

According to World Health Organization, children feel isolated, bored, anxious, and fear as the effect of the pandemic on their families (WHO, 2020). A review article stated that, prolong screen time is associated with negative health effect like low emotional stability, psychological problems and greater risk or anxiety although careful and controlled use of digital device is connected with well-being (Pandya & Lodha, 2021)

Literatures revealed in a study that children if remain unaccompanied while on screen, might develop problems relating to sleeping, delayed speech, poor school performance, aggressive behavior, and other health problems (Sanders, et al., 2016). Another study showed, young children who spent more than 2 or more hours of T.V. viewing increases behavior problems

(Lumeng, et al., 2006). Children who are exposed on digital devices for a long time will lower their physical activity (Sandercock, et al., 2017).

## **Statement of the Problem**

Children getting exposed to prolong screen time have become a point of significant concern for last two decades. During the current crises period resulting from outbreak of pandemic, children are bound to stay at home due to school closure, are hardly exposed to outside and thereby lacking physical activity, playing outdoor, facing much reduced opportunity to meet other peers, friends, relatives and are encountering almost no social connectivity. In this crisis situation, the extent of the problem has been worsened as the children got confined at home were excessively exposed screen time reaching beyond any usual limits. All these have led the children to many negative consequences risking their future. A study in 2020, Carroll mentioned that, 87% of children's screen time had increased during pandemic (Carroll, et al., 2020).

According to the American Academy of Child and Adolescent Psychiatry (AACAP), has limited screen time to watching educational programming with a caregiver for 18 and 24 months, 1 hour per weekday and 3 hours on the weekend days for children of 2-5 years (American Academy of Child and Adolescent Psychiatry, 2020).

Richtel reported that, Children's screen time had doubled by May 2021, as compared with the same period in 2020. The study also found that, In the United States, children spent, on average, 97 minutes a day on YouTube in March and April, up from 57 minutes in February, and nearly double the use of 2020 with similar trends found in Britain and Spain (Richtel, 2021).

A recent Canadian study over 2,400 families suggests that, Children who spend more than 2 hours on screen in a day have five times more likelihood to demonstrate clinically significant

behavioral problems and seven times more chances to fall prey of ADHD compared to those children who spend less than 30 minutes per day. (Neitz, 2019).

### **Purpose of the Study**

Purpose of the study is to explore the consequence of prolong screen time on behavior of the children aged 3 to 6 years in times of COVID-19 crisis. The study also addresses child practices about screen time and the challenges faced by parents regarding children's behavioral changes in lockdown for pronged screen time.

### **Significance of the Study**

Most of the children across the world are exposed to screen time beyond the recommended time limit. In Bangladesh, children of Dhaka and other urban area, parents tend to allow their children accessing electronic gadgets with screen with a view to keeping them engaged without even knowing the allowable time limits and the harmful effects of prolonged screen time on their children. During the period of COVID-19 pandemic, most of the children being unable to attend school, play outside and meet the peers showing a rise in tendency making the situation even more challenging. A study in preschool children in China has shown that children with screen time exposed approximately 2 hours per day had a significantly increased risk of having total difficulties, emotional symptoms, conduct problems, hyperactivity, peer problems, and pro-social problems (Wu, et al., 2016). The study also reported that children who use screen time for 2 hours per day had difficulties in emotion and behavior.

Children learn many things from a very early ages, they learn very fast even within the age of five. The early exposure of high intensity digital devices may lead to children's cognitive delay and speech delay. They even may show hyperactivity, unable to focus, restless and also difficult to control their behavior. According to (Sundus, 2018), children, who over usages of

electronic gadgets have negative impacts such as speech delay, cognitive delay, distraction, attention deficit, hyperactive, learning problem, anxiety and childhood depression. In the pandemic crisis, a very recent findings of the study in 2021 revealed that, 92 percent parents reported that, an extreme level of technology was used by the children during COVID-19 and 88 percent parents believed excessive use of gadgets can have harmful effect for children (Qutoshi, et al., 2021).

Unfortunately, Bangladesh has not seen enough of such studies and investigation, especially in regards to the influences on behavior keeping. Lack of specific information also greatly lies in the fields regarding the children of urban families, where parents are majorly responsible for their child's upbringing. A fresh study addressing these issues might help digging deep into the influence of prolonged screen time on children's behavior due to pandemic. Such study might help understanding the severity of the problem hinting the underlying negligence (if any) of parents' responsible for escalation. This research also can be eye-opening for our parents and future generation and will also help to further research.

## **Research Topic & Research Questions**

### **Research Topic**

Exploring the Influences of Prolonged Screen Time on the Behavior of Children aging 3 to 6 years During COVID-19 Crisis.

### **Research Questions**

1. What is parents 'understanding of prolonged screen time? What is the practice of the children regarding screen time?
2. What kind of behavioral changes have been happened in the children due to exposure of prolong screen time during COVID-19?



3. What are the challenges faced by the parents regarding in their children's behavior resulting from prolonged screen time exposure during COVID19?

### **Operational Definition**

Prolonged screen time refers to more than 2 hours a day of time spent in front of the screen (Robinson, et al., 2017). According to the American Academy of Child and Adolescent Psychiatry (AACAP), screen time has limited for 18 months to 24 months children and 1 hour per weekday and 3 hours on the weekend days for children of 2-5 years (American Academy of Child and Adolescent Psychiatry, 2020). In this study, more than 2 hours is considered as prolonged screen time.

## **Chapter II**

### **Literature Review**

To know the consequences of children's behavioral problems caused by prolonged screen time when children were forced to stay home due to lockdown and school closure in the COVID-19 crisis, a list of relevant literatures were reviewed. Literatures were reviewed keeping global and Bangladesh context. The global context again was studied keeping three different themes into purview, which are described below.

### **Global Context**

Screen based digital devices, have simplified undertaking many necessary and daily tasks and therefore started penetrating our personal realm much before COVID-19 pandemic. Screen time exposure among children was also a subject of grave concern. Children's possible exposure to prolonged screen time may usually begin in early ages like in infancy (Anand, et al., 2014).

It is evident that time spent with mobile devices by infant to 8 years children has drastically risen from 38% to 72% from 2011 to 2013 ( Kabali, et al., 2020). A study on 'determining factors in children's screen time' reported on their research papers that, 63% of children (2 to 5 years) were excessively exposed to screen as they viewed screen more than 2 hours per day (Nogueira, et al., 2019). Another very recent study recorded that, average screen time among the children aged 4 to 12 years was 2.5 hours for boys and 2 hours for girls and preschooler had higher amount of user than school aged children (Ishtiaq, et al., 2021).

Two studies identified that, screen time has increased resulting from online classes during COVID-19 (Carroll, et al., 2020 and Li & Lalani, 2020). Children's screen time increased not only for recreational and other purposes but for online classes also. 82% of the parents complained that lockdown has caused increased screen time in their children and 30% of the

parents informed that, this additional screen time is 4 hours or more per day and this is not related to schooling/ class purpose. (Shin & Al-Habaibeh, 2020). A current study revealed not only children's screen time has increased (87%) but also parents (74% mothers & 61% fathers) screen time has increased during lockdown (Carroll, et al., 2020).

Use of multiple gadgets is a common phenomenon in other places as well, as another study revealed, 61% children watched TV, smartphone and tab used by children in early childhood 41% and 22% respectively. (Nobre, al., 2019). A study found that, when young children of 1 to 4 years were allowed to use smartphone or digital devices very often, consequently they got disappointed when they were asked to give the devices back to their parents (Roy, 2015).

A study reported that the chances of increment of screen usage in children is related to the higher levels of stress parents were undergoing during the earlier months of pandemic whereas lesser use of screen was also apparent when parents remain more engaged with their children (Seguin, et al., 2021).

Many researchers have shown negative impact of prolonged screen time on children that are discussed below:

### **Effects on children's behavior due to prolonged screen time**

Several research evidences have proved that prolonged screen time effects on children's behavior including mental health.

A study of Canada revealed that, young preschooler children have strong association with worse inattention problems resulting from prolonged screen time (Tamana, et al., 2019). Children's screen time with various types of gadget is positively linked with children's behavior problem (Guerreo, et al., 2019). This study also mentioned that, children's screen time with various types of gadget is positively linked with children's behavior problem like 5.9% increase in rule breaking behavior, social problem increase 5% and 4% increase aggressive behavior. Children who were habituated on using digital devices were more

aggressive and less able to control their emotions (Suhana, 2018). Moreover, attention problems, aggressive behavior, anxious state were considered to be the most frequent behavior problem related to high screen time (Guerrero, et al., 2019).

A study conducted before pandemic over preschool children in China showed that children with screen time exposed approximately 2 hours per day had a significantly increased risk of having total difficulties, emotional symptoms, conduct problems, hyperactivity, peer problems, and pro-social problems (Wu, et al., 2017). A study conducted on German preschooler ( 2 to 6 years) who used devices at two time frames; first one was baseline and the other was a follow up after 12 months, both showing more signs of hyperactivity and increased risk for hyperactivity even one year later (Poulain, et al., 2018). Same study showed that Children who used mobile phones showed more conduct problems and more signs of hyperactivity/ inattention than children who did not use mobile phones. A very recent study demonstrated that, there is significance in screen time between preschooler and emotional behavior (Ishtiaq, et al., 2021). Additionally, a longitude study in Canada, on children of Quebec, has examined that 2 year toddlers who had been exposed in TV viewing one hour per day showed aggressive behavior, peer problems and social difficulties at the age of 13. (Pagani, et al., 2016). The threat of mental illness, depression, anxiety, psychological disorders and suicidal tendencies dramatically augmented as a result of the disproportionately high screen time (Sampasa-Kanyinga, et al., 2015).

In the very early years of young children brain develops very fast and too much of screen time exposure at this age is linked with self-regulation problem (Radesky, 2014). For children's health and wellbeing, physical activity has indispensable role. In pandemic, due to school closure, lack of indoor or outdoor activities children's amount of physical activity is

reduced drastically during COVID-19 crisis. With physical activity decreased and screen time increased, children's physical and mental wellbeing gets strained.

Tandon, et al., 2021 mentioned that, during pandemic only 13.5% school aged children were engaged in physical activity in recommendation 60 minutes per day which is lower than pre pandemic estimates of 25% (Piercy, et al., 2018). It is also found in their study that mental health is related to physical activity and their study indicated that, higher screen time exposure exhibited children's poor mental health (Tandon, et al., 2021).

In early childhood, young children who get exposed to prolonged screen time show low performance on reading tests and also suffer from attention deficit (Health Matter, n.d.). Another such study also pointed out that learning difficulty in children had connection with excessive use of digital gadgets by the children (Sundus, 2018).

Dr Jennifer F. Cross, a developmental and behavioral pediatrics expert reported that if young children remain engaged with smartphone and other digital devices for a long period, it is difficult to expose them to non-electronic events like playing with toys and exploring outdoors that helps to develop creative and imagination power. It is also tough for such children to get in playing with others that enhance proper social skills (Health Matter, n.d.)

Children who remain engaged for a prolonged (more than 2 hours in a day) time on screen score low in their language and thinking tests. Children exposed to screen more than seven hours in a day will have their brain's cortex thinning which is connected to critical thinking and reasoning (Health Matter, n.d.).

Jericho and Elliott in 2020 and Paulus in 2019 have showed that children's screen time had been linked with adversarial effect on their mental health outcome, delayed brain development, and weakened social skills (as cited in Seguin, et al., 2021) .

According to Rauche Foundation, children's brain 85% develop by the age of five (as cited in Higham, 2013). A recent cross-sectional study discovered that 3 to 5 years aged children may suffer from changes in the brain area leading to language, literacy and cognitive delay, if they had been excessively exposed to screen time (Hutton, et al., 2019). In 2018, Sundus stated in his study that, by using screening tool researchers concluded children for each who spent 30 minute more on screen, 49% more possibly at risk of speech delay. This study also revealed that, excessive gadget usages by the children relates to cognitive delay, learning difficulties, and leads to mental health issues including depression in certain ages (Sundus, 2018).

### **Effects on children's health due to prolonged screen time**

In 2019, a study on screen time and problem behaviors in children: exploring the mediating role of sleep duration Michelle and other researchers revealed that, the more engagement in screen time related to shorter sleep period which is associated with increased behavior problems among children and also reported that every one hour watching video games was connected with reduced sleep duration.

Excessive exposure of screen time among preschooler was found to be linked with reduced sleep time in another study as well (Nathanson and Fries, 2014). In a very recent study, Wang discovered a noticeable amount of myopic exhibit among young children as they were bound to stay at home after COVID-19 outbreak and the frequency of myopia increased 1.4 to 3 times in 2020 as compared to the previous 5 years (Wang, 2020). Brightness and radiation of digital device affect the eyes, disregard physical fitness, poor diet sleep deficiency and emotional distress, depression and anxiety, and relationship difficulties (Krishnan, et al, 2017).

In a study on 'Young children's online learning During COVID-19 pandemic' where parents highlighted that due to online classes their children's screen time has extended that

has ultimately affected their children's eye sights, social and physical health(Dong, et al.,2020). Too much screen time exposure can lead to loss of vision for bright LED screen light (Parenting Today Staff, 2017). In a study of 2019, it was found that preschooler children who use high intensity of gadget have double the chance of obesity than preschoolers who use low (Srinahyanti, et al., 2019). Evidence also has shown that, children who extensively use gadgets can cause obesity. Another study reported that, prolonged screen time leads to early life obesity and heavy weight by decreasing physical activity (LeBlanc, et al., 2015).

### **Effects on children's growth and development out of prolong screen time**

Children who are under 5 years may suffer from many health issues like emotional, sleep behavioral issues that hamper growth and development (Kaur, et al., 2019).

The long term usage of digital devices creates adverse effects on children's growth and development. Without supervision of caregivers, frequently usages of electronic devices among young children can be related to delayed growth and development (Sagr & Sagr, 2020). Mehra in 2019 reported that continuous and over use of digital devices leads to eye sight issues, social and emotional difficulties, absence of motor control, less attentiveness and long term effects on child development (as cited in Qutoshi, et al., 2021).

### **Bangladesh Context**

Over the last six years, Bangladesh has seen a dramatic increase in the amount of technology available to and used by children. (Hossain, 2020). According to Mahmud, Children play video games for 20 to 25 hours on average per week (Mahmud, 2016). In 2018, Sadri reported that more than 80 % children uses the Smartphone and TV for entertainment and children use devices almost 2 hours per day.

Unprecedented lockdown due to outbreak of COVID-19 has caused the daily screen time for 90% of the children with different electronic devices especially for those who living urban area leading to many health risks (Dhaka Tribune, 2021). A renowned ophthalmologist professor Dr Golam Mustafa, The director of the National Institute of ophthalmology and Hospital said, the staring at any screen such as computer, mobile or any other electronic devices is harmful for the eyes irrespective of age factor. He has specially mentioned that the number of children coming to the hospital with eye problems and headaches for the last few months has gone high. Most of these children came up with reflective error which means they needed glasses (Dhaka Tribune, 2021).

Researcher also found that, viewing of the devices from close distance is most common in Dhaka city and more than 65% parents are not aware of consequences of using excessive device. He has also shown that, in urban area, children are extensively exposed to digital screen due to increased number of nucleus family, working parents, increased use of digital instruments in educational institutes, and insufficient outdoor play opportunities (Sadri, 2018).

In August 2020 one of the media houses of Bangladeshi launched a news story of the subject of excessive use of smart phone use by children aging below 5 years, and on its negative impacts. Many of the children reported to have been suffering from severe difficulties with their vision and delayed speech (The Daily Star, 2021).



## **Chapter III**

### **Methodology**

#### **Research Design**

In this study, Quantitative research design was followed. A short survey was conducted to explore the influences of prolonged exposure of screen time on children's behavior during COVID-19 pandemic. The strength of the survey is to capture the context of the current situation which is valuable for further research. It also helps to generate the hypothesis.

#### **Research Site**

The research was carried out at Dhaka, the capital of Bangladesh. Dhaka is one of the densely populous city with 47,400 people per square kilometer and the ninth-largest city in the world. In 2021, estimated population of Dhaka is 21.1 million in urban area. The city is situated beside the Buriganga River.

#### **Research Sample**

The sample was mothers with at least one child within the age of 3-6 years.

#### **Sample Size and Sampling Selection Procedure**

The sample size of the proposed study was 40 mothers who have at least one child aged 3 to 6 years. The sample mothers were selected from the different part of Dhaka city using purposive sampling method. In addition, the mothers were educated and had internet facility and email ID to respond. Before sending the questionnaire to the participants or sample mothers, the researcher had arranged a session in Google meet with the participants to demonstrate the questionnaire. After that, the survey was commenced. To respond

questionnaire, participants need to fill up a Google form. A link was provided to the participants through email. They got reasonable amount of time to respond. Before data collection starts, a prior consent was taken via email. It was ensured that, identity of the participants has remained secured and confidential. It was also informed to the participants that the survey will be solely used for study purpose.

### **Data Collection Tools**

Data were collected remotely using digital platform such as Google Form. Survey Questionnaire was developed and transferred into Google form. It was self-administered questionnaire. The following tools were used in this study.

### **Strength and Difficulties Questionnaire (SDQ):**

The SDQ is a brief behavioral standardized screening questionnaire for measuring emotion and behavior in children and adolescents ranging from 2 to 17 years of age (Goodman, 1997; Mullick & Goodman, 2001). It exists in parent version, teacher version and a self-report version for children aged 11 years or above (Goodman, 1997) and available in over 40 languages. SDQ consists of five subscales, four of which assess problem behaviors relating to emotional symptoms, conduct problems, hyperactivity-inattention symptoms, and peer relationship problems, with the fifth assessing pro-social behaviors. The questionnaire incorporates 25 items, with 5 items for each subscale. It asks respondent to rate the 25 items using a 3-point likert scale.

### **Socio-Economic Status (SES) Questionnaire**

To collect the socioeconomic status of the participants, SES questionnaire was included within the self-administered survey questionnaire. Mothers age, education, occupation and number of children information was included in the SES questionnaire. Furthermore, before

the data collection pilot testing of the self-administered questionnaire was done to permit any modification if needed.

### **Data Collection Process**

The researcher developed the SES and general questionnaire according to the research questions and objectives. Then the questionnaire was reviewed by the ECD expert to check the face validity. After that, it was piloted with a few participants and finalized.

As the survey was conducted through a digital platform, the survey questionnaire was transformed into a Google form and again piloted. A short introduction including objectives and process will be added in the Google form, aiming at building rapport with the participants before they start responding to the questionnaire. Before sharing the Google link with participants/ mothers, the researcher communicated over the phone with them to share study objectives and collect emails.

### **Data Management and Analysis**

The participants submitted their responses in the same Google form provided to them. All collected data through Google form was stored in the Google excel/ Spreadsheet by default. Then the data was cleaned and analyzed using descriptive statistics. All data were entered into SPSS and later were coded, labeled and categorized. Data were presented either in graphical (pie chart, bar chart) or table format. Frequency, percentage, means were calculated in statistical description.

### **Ethical Issues**

Researcher took a written approval from BRAC, Institute of Educational Development, BRAC University to conduct the research. Researcher took written informed consent from the participants, before conducting survey. Participants were assured that, anonymity and

confidentiality of data collected from the participants would be maintained. Researcher explained them the objective, purpose and nature of the study, so that they can get clear idea. At no point, the information given by the participants would be disclosed to anyone. It was ensured that, participants enjoy right to withdraw and refuse to participate from the study at any time, without giving any justification. In this study, participation of the participants remained completely voluntary. The important concern should be to avoid duplicate publication of same data or result. The researcher must remain ethically obligated not to use any form of deception. Above all, researcher abided by all ethical protocol.

### **Validity and Reliability**

Survey questionnaire was prepared to address research questions. For validity, the tool (survey questionnaire) was examined by an expert from BRAC IED. Face validity of tools was obtained by the expert review.

### **Limitations of the Study**

The study had some limitations that may pose some affect the findings. Compared to the overall population of Dhaka, the sample size was relatively small and likely to affect the reliability of the possible outcome. Due to the COVID-19 pandemic, the span of time for collection of data was remain relatively short and therefore changes over the time cannot be minutely noted. This study was limited within the context of Dhaka city only which was not in wider context.

## **Chapter IV**

### **Results & Discussion**

#### **Results**

The aim of this study was to know the consequences of prolong screen time on behavior of the children aged 3 to 6 years during COVID-19 crisis. Furthermore, the study addressed mothers understanding about prolonged screen time and children's practices regarding screen time. This research also identified challenges mothers had been facing as a result of prolong time spent on screen by their children. Based on research objectives and questions all results were organized.

#### **Demographic Characteristics of Participants**

The survey was conducted on 40 mothers. Table 1 represents demographic characteristics of the respondents and the children. The age range of the mother is 26 to 40 years and the mean age is 33.20 years. It is found that, 10%, 22.50% and 67.50% mothers were HSC, graduate and post graduate respectively. About 55% mothers were homemakers, and 45% were in different professions. Table 1 also shows that, father's age range was 31 to 50 years with a mean of 38.47 years. 77.50% of the fathers were service holders. With regards to children, the age range was 3 to 6 years, 50% aged between 5 to 6 years, 22.50% belonged to 4 to 5 year age group and 27.50% were within 3 to 4 years. The mean age of the children was 4.72 years. 40% child were girls and 60% were boys.

**Table 1: Demographic Characteristics of Participants (N-40)**

| <b>Variables</b>             | <b>Frequency</b> | <b>Percentages</b> | <b>Mean</b> |
|------------------------------|------------------|--------------------|-------------|
| <b>Mother's age in years</b> |                  |                    | 33.20       |
| 26-30                        | 14               | 35                 |             |
| 31-35                        | 13               | 32.50              |             |
| 36-40                        | 13               | 32.50              |             |
| <b>Mother's Education</b>    |                  |                    |             |
| H.S.C                        | 4                | 10                 |             |
| Graduate                     | 9                | 22.50              |             |
| Post Graduate                | 27               | 67.50              |             |
| <b>Mother's Occupation</b>   |                  |                    |             |
| Home maker                   | 22               | 55                 |             |
| Service holder               | 16               | 40                 |             |
| Business                     | 2                | 5                  |             |
| <b>Father's Age</b>          | N-40             |                    | 38.63       |
| 31-35                        | 13               | 32.50              |             |
| 36-40                        | 14               | 35                 |             |
| 41-45                        | 10               | 25                 |             |
| 46-50                        | 3                | 7.50               |             |
| <b>Father's Occupations</b>  |                  |                    |             |
| Service Holder               | 31               | 77.50              |             |
| Business                     | 9                | 22.50              |             |
| <b>Child's Age Range</b>     |                  |                    | 4.72        |
| 3-4 years                    | 11               | 27.50              |             |
| 4-5 years                    | 9                | 22.50              |             |
| 5-6 years                    | 20               | 50                 |             |
| <b>Child's Sex</b>           |                  |                    |             |
| Girls                        | 16               | 40                 |             |
| Boys                         | 24               | 60                 |             |

### Mother's understanding about prolonged screen time

Table 2 represents mother's view about screen time. It is found that, 57.50% mothers opined that, screen time described as time spent viewing TV/ mobile/ Tab/computer/ handhold and visual devices, 12.50% mothers answered that, screen time defined as a sedentary activity and 5% mothers had no knowledge about screen time. 25% mothers did not response at all to the question.

**Table 2: Mother's view about screen time**

| Mother's views about screen time | Frequency | Percentages |
|----------------------------------|-----------|-------------|
| Time spent with visual devices   | 23        | 57.5        |
| Sedentary activity               | 5         | 12.5        |
| No knowledge about screen time   | 2         | 5           |
| No response                      | 10        | 25          |

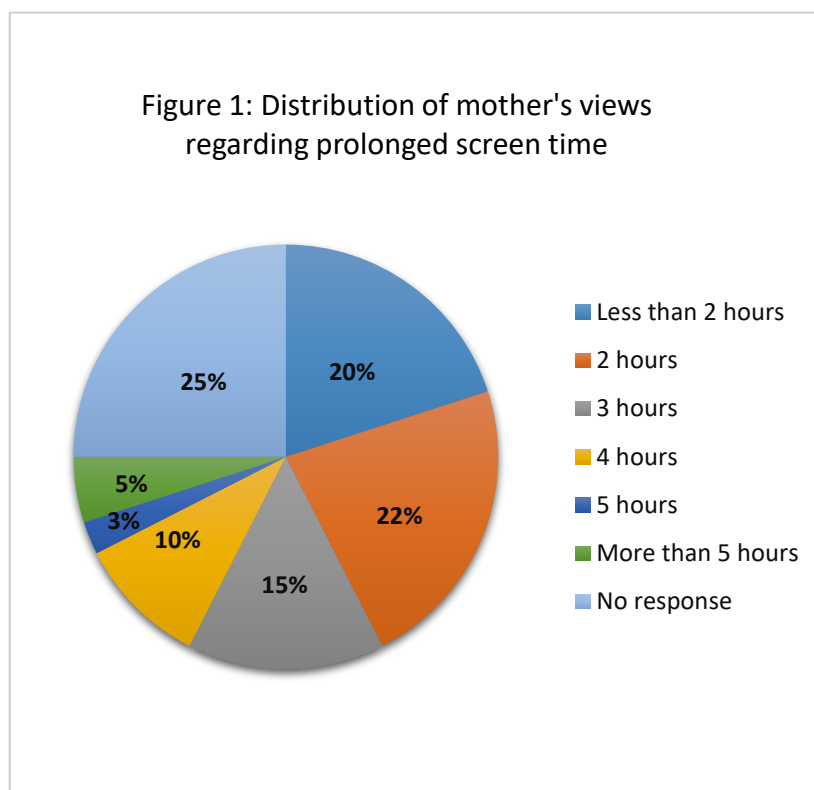


Figure 1 show mother's views regarding prolonged screen time. Mothers were asked to express how much of the time they felt to spend on screen by the children could be regarded as prolonged screen time. 22% of the mothers considered it to be 2 hours and 20% of the mothers considered it to be less than 2 hours. 15%, 10%, 3% and 5% of the mothers felt that the duration of prolonged screen time were 3 hours, 4 hours, 5 hours and more than 5 hours respectively. 25% mothers did not respond to the question.

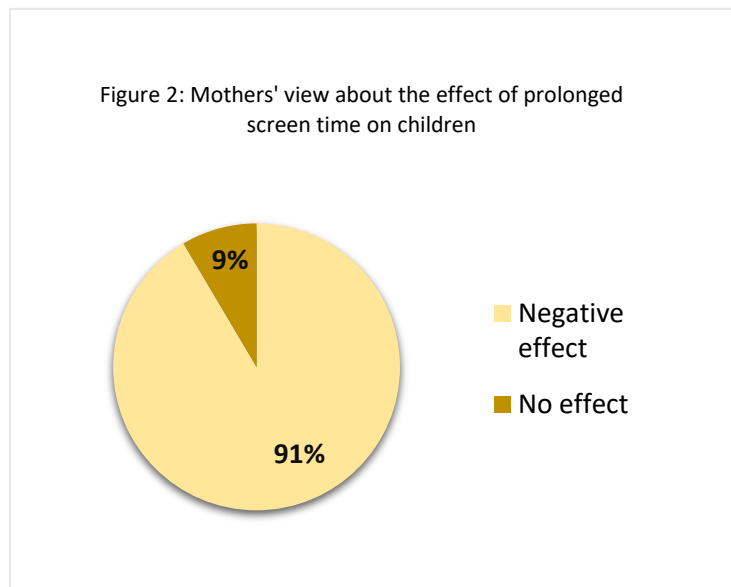


Figure 2 displayed mother's view about the effect of prolonged screen time on children. 91% of the mothers observed that prolonged screen time has clear negative effect on children whereas 9% mothers said that there was no negative effect.

### **Children's practices regarding screen time**

#### ***Children's online class per day***

Figure 3 displays children's online class per day during pandemic. As per mothers' responses, 15% children were doing their online classes 1 hour in a day. 12%, 8%, and 10% children had online classes 2 hours, 3 hours and 4 hours per day respectively during pandemic. 55% children were not attending school due to their age.



Figure 3: Children's online class per day during pandemic

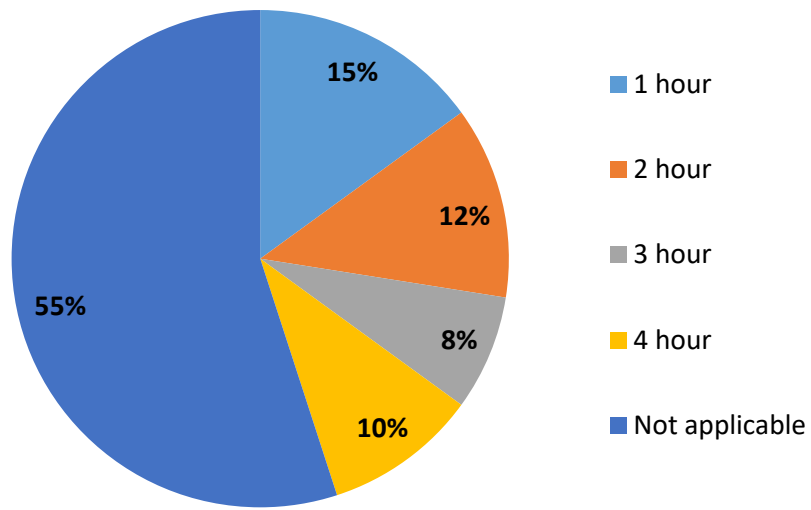
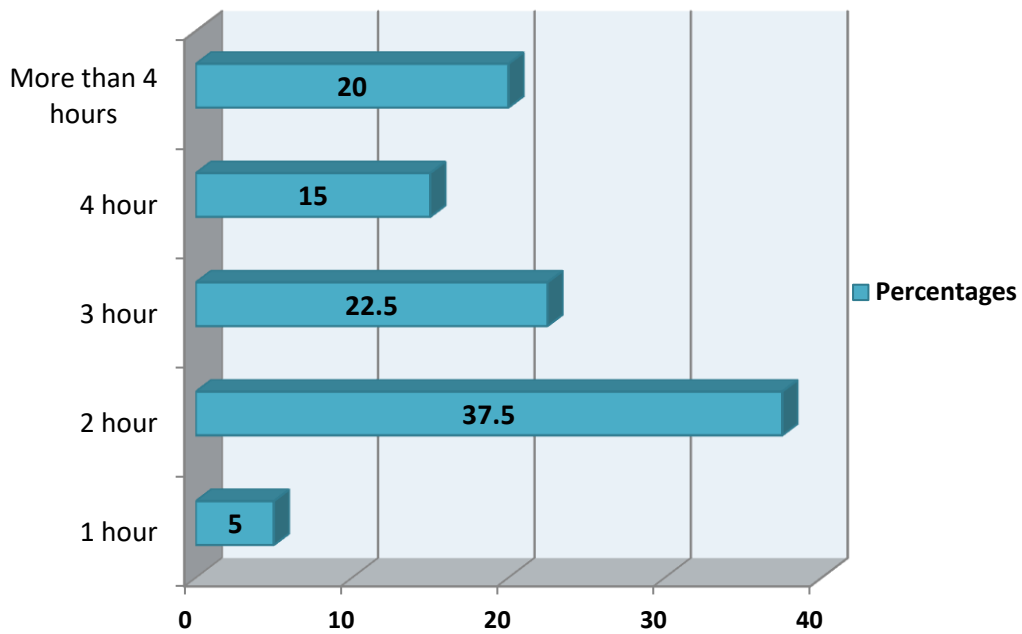


Figure 4: Children's screen time per day



### *Children's screen time per day*

Figure 4 represents children's screen time in a day. It is found that 5%, 37.50%, 22.50%, 15% and 20% children spent screen time for 1 hour, 2 hours, 3 hours, 4 hours and more than 4 hours in a day respectively. The average screen time per child was 3.08 hours.

**Table 3: Distribution of children by exposing screen time**

| <b>Variable</b>                               | <b>Frequency</b> | <b>Percentages</b> |
|---|------------------|--------------------|
| Children exposed to more than 2 hours per day | 23               | 57.5               |
| Children exposed to 2 hours or less per day   | 17               | 42.5               |

Table 3 represents distribution of children by exposing screen time. About 57.5 % of children were exposed more than 2 hours which is considered as prolonged screen time and 42.5% of children exposed 2 hours or less than 2 hours which is considered as non-prolonged screen time.

### *Gadgets used by children*

**Table 4: Distribution of types of gadgets used by children**

| <b>Types of gadget used by the children for screen time</b> | <b>Frequency</b> | <b>Percentages</b> |
|---|------------------|--------------------|
| TV  | 14               | 35                 |
| Mobile/Smart phone/Tab                                      | 35               | 87.50              |
| Computer (desktop/Laptop)                                   | 4                | 10                 |

Table 4 shows types of gadget used by children. Mothers were given options to provide information even it was more than one gadget. It is found that, 35% children watched TV, 87.50% of child used Mobile/ Smart phone/ Tab and 10% used computers.

## Consequences of prolonged screen time on children

Mothers noticed that, children's behavior were changing during lockdown. 55% mothers observed children's had been changing their behavior due to prolonged time spent for screen time during COVID-19 pandemic. Whereas the other 45% did not notice any change in behavior of their children. According to operational definition, prolonged screen time is the time spend on screen by children for more than 2 hours .

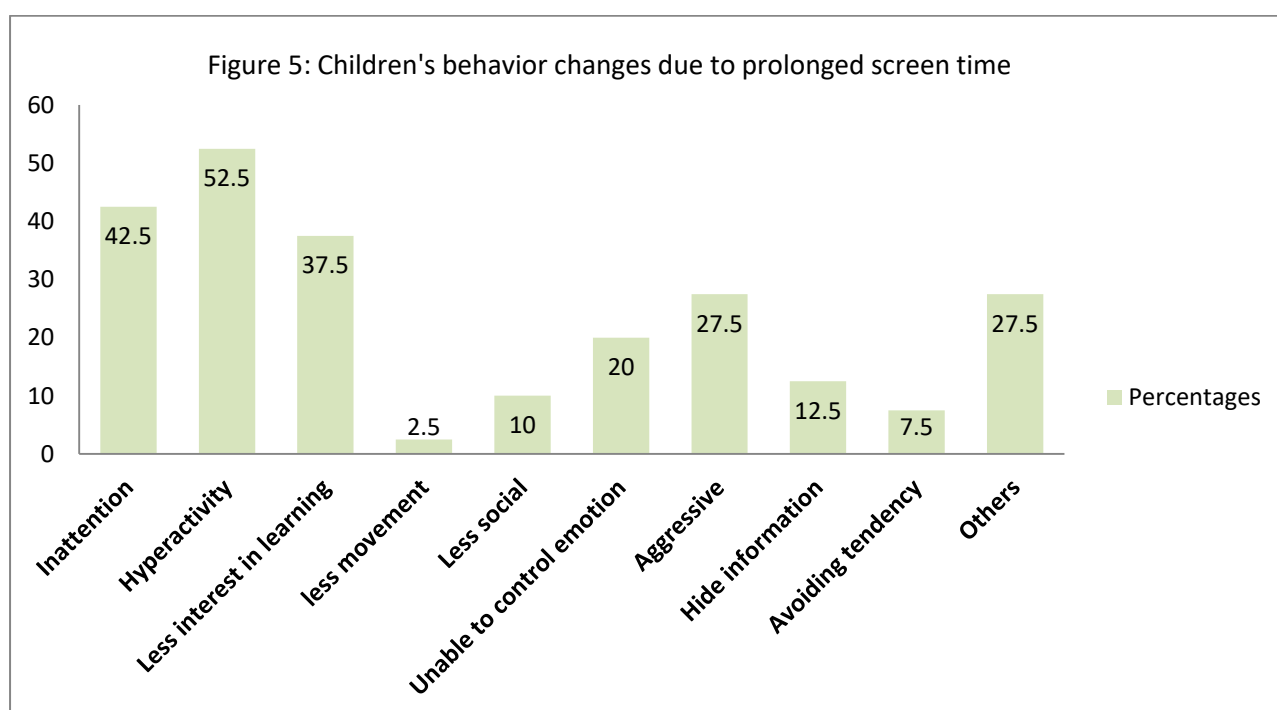
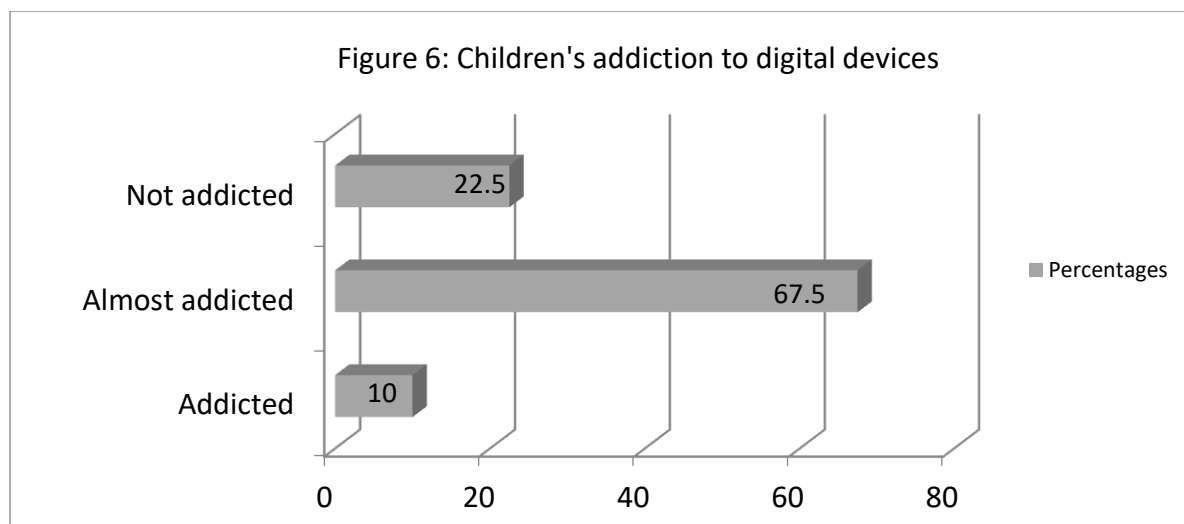


Figure 5 represents different types of behaviors changed because of exposing screen time. During pandemic mothers have noticed a huge number of children changing behavior due to prolonged screen time in lockdown period. 52.50%, 42.50%, 37.50%, 27.50%, 20% and 12.50% children exhibited hyperactivity, attention problem, reduced interest in learning, aggressive behavior, unable to control emotion and started hiding information respectively. Mothers also remarked, 10%, 7.5%, 2.5%, 27.5% children had been found less social,

avoiding tendency, less movement and others respectively. Mothers were allowed to indicate more than one consequence.

### ***Children's addiction to digital devices observed by mothers***

Figure 6 demonstrates children's addiction to digital devices observed by mothers. Mothers reported that 10% and 67.5% children were addicted and almost addicted to digital device respectively. On the other hand, 22.5 % children were not addicted to digital device.



### ***Children's difficulties behavior (SDQ)***

To understand the children's difficulties behavior, SDQ scale was used the survey. Mothers self-rating responses for their 3 to 6 years children's behavior were assessed by using SDQ scale. Table 5 displays, children's total Difficulties score and different types of behavior shows in SDQ subscales. The total Difficulties behavior had been found among 22.5% children. 20%, 32.5%, 7.5%, 42.5% and 20% children exhibited emotional problem, conduct behavior problem, hyperactivity, peer problem and prosocial problem respectively.

**Table 5: Distribution of child's behavior problem assessed by SDQ scale**

| SDQ Subscale       | Normal (%/ f) | Borderline (%/ f) | Abnormal(%/ f) |
|--------------------|---------------|-------------------|----------------|
| Emotional          | 75 (30)       | 5 (2)             | 20 (8)         |
| Conduct behavior   | 42.5 (17)     | 25 (10)           | 32.5 (13)      |
| Hyperactivity      | 82.5 (33)     | 10 (4)            | 7.5 (3)        |
| Peer Relationship  | 27.5 (11)     | 30 (12)           | 42.5 (17)      |
| Total Difficulties | 62.5 (25)     | 15 (6)            | 22.5 (9)       |
| Pro-social         | 80 (32)       | -                 | 20 (8)         |

To understand the behaviour problems of the children, the scores of borderline and abnormal categories of the SDQ were subtracted which represents as behaviour problem (Table 6).

**Table 6: Difference in children's behaviors between prolonged (more than 2 hours) and non-prolonged (2 hours or less) screen time group**

| SDQ (Sub scale)    | Behaviour Problem(% ,f) | Prolonged screen time group | Non prolonged screen time group |
|--------------------|-------------------------|-----------------------------|---------------------------------|
| Emotional          | 25(10)                  | 17.5(7)                     | 7.5(3)                          |
| Conduct behaviour  | 57.5(23)                | 32.5(13)                    | 25(10)                          |
| Hyperactivity      | 17.5(7)                 | 10(4)                       | 7.5(3)                          |
| Peer relationship  | 72.5(29)                | 42.5 (17)                   | 30(12)                          |
| Total Difficulties | 37.5(15)                | 20(8)                       | 17.5(7)                         |

Table 6 shows, difference in children's behaviors problem between prolonged (more than 2 hours) and non-prolonged (2 hours or less) screen time groups. About 25%, 57.5%, 17.5%,

72.5% and 37.5% of children displayed behaviour problem (as per SDQ subscale) such as emotional problems, conduct behaviour problem, hyperactivity, peer and total difficulties respectively. This table also shows that the above mentioned behaviour problems were found more in the prolonged screen time children than non-prolonged children.

**Table 7: Correlation between screen time and child’s behavior**

| SDQ Scale                | Screen time |
|--------------------------|-------------|
| Emotional                | .176        |
| Conduct                  | .017        |
| Hyperactivity            | .004        |
| Peer Relationship        | -.121       |
| Total Difficulties score | .020        |
| Prosocial                | -.444*      |

*Note.* \*\* Correlation is significant at the 0.01level (2-tailed).

Table 7 indicates correlation between screen time and child behavior. A significant correlation has been found between children’s prosocial behavior and screen time. An increase in screen time decreases children's prosocial behaviour ( $r=-.444$ ). There is no statistical correlation found between emotional, conduct, hyperactivity, peer relationship and screen time.

***Consequences on children's health issues observed by mothers***

Table 8 displays different types of children's health issues observed by mothers. About 57.50% of the mothers have reported that they had not observed any health issue in their child due to prolong screen time, whereas 42.50% mothers had observed health issues. 27.50%, 20%, 15%, 5% and 10% children exhibited Sleeping problem, Vision problem, Tiredness, Obesity and others respectively.

**Table 8: Distribution of children's health issues**

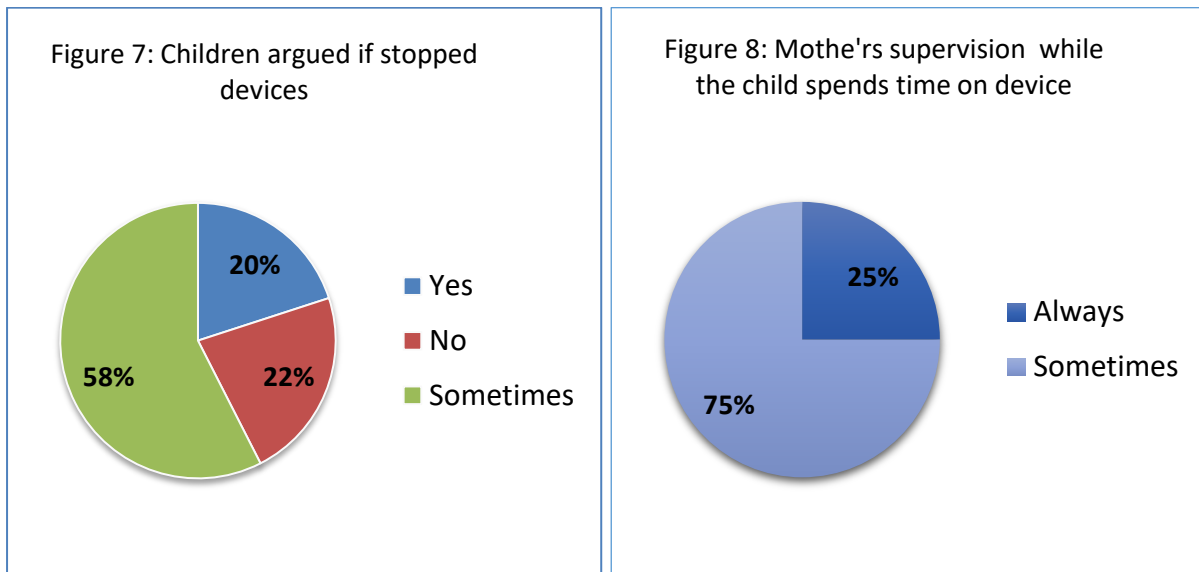
| <b>Variables</b>                      | <b>Frequency (f)</b> | <b>Percentage</b> |
|---------------------------------------|----------------------|-------------------|
| <b>Consequences on child's health</b> |                      |                   |
| Yes                                   | 17                   | 42.50             |
| No                                    | 23                   | 57.50             |
| <b>Child's health problem</b>         |                      |                   |
| Tired                                 | 6                    | 15                |
| Eye/Vision problem                    | 8                    | 20                |
| Sleeping problem                      | 11                   | 27.50             |
| Obesity                               | 2                    | 5                 |
| Others                                | 4                    | 10                |

**Mothers faced challenges regarding children's behavior resulting from prolong screen time during Pandemic**

***Children argued if stopped using device***

Figure 7 displays, children argued if stopped using device. Mothers had noticed children argued while they are asked to limit/ stop the device using. 58% and 20% children argued

‘sometimes’ and ‘always’ while they had been asked to stop or limit their screen time. On the other hand, 22% children had not argued at all.



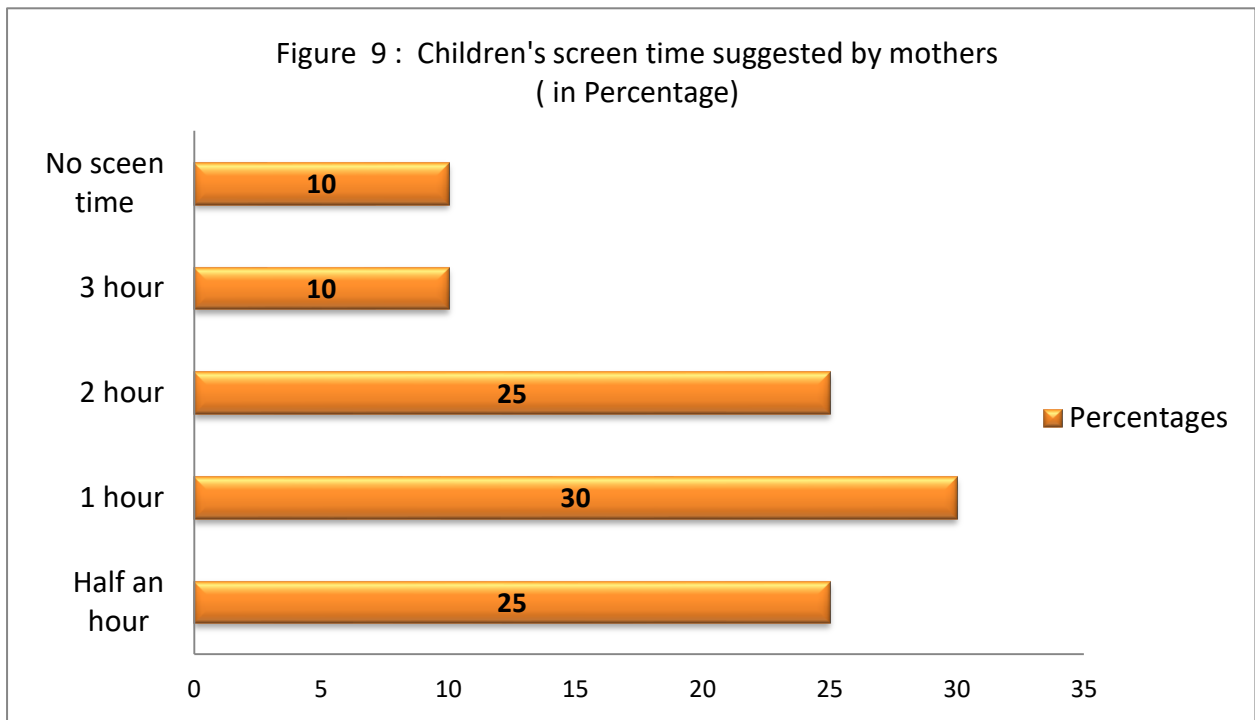
***Mother’s supervision while the child spends time on device***

Figure 8 represents mothers’ supervision regarding children’s screen time. 75% children were found to be spending time on screen being ‘sometimes’ supervised by mother and 25% children were ‘always’ supervised by mother.

***Mother’s suggestion regarding children’s screen***

Figure 9 represents mothers’ suggestion regarding children’s screen time. 25% mothers suggested 2 hours screen time for their children. 10%, 30%, and 25% and mothers believed that 3 hours, 1 hour and half an hour screen time should be appropriate time for children respectively. Interestingly, 10% mothers suggested for children no screen time.





## **Discussion**

The purpose of the research was to explore the consequences of prolonged screen time on children’s behavior of 3 to 6 year aged during COVID-19 crisis. The study investigated the mothers understanding and child practices regarding prolonged screen time. Additionally, it found out the challenges faced by mothers regarding children’s behavior resulting from prolonged screen time. With these objectives, the survey was conducted upon 40 mothers who responded on self-rating questionnaire in online platform.

### **Mother’s understanding about prolonged screen time**

Finding showed, 57.5% of the mothers had been reporting screen time as to be the time spent with TV watching, using mobile/ tab/ smartphone and all kinds of visual devices whereas 12.5% mothers thought screen time was a sedentary activity. It seemed that most of the

mothers had possessed a reasonable understanding on screen time which probably was a resultant of their better educational background.

In terms of duration of prolonged screen time, different opinions have been received when mothers were asked to give their view on amount of time spent on screen that can be termed prolonged screen time. 30% of them thought 2 hours and 47.5 % mothers thought more than 2 hours to 5 hours could be defined as prolonged screen time for their children. In terms of mothers' understanding about prolonged screen time, it was found that they had moderate level knowledge about prolonged screen time.

### **Mother's view about the effect of prolonged screen time on children**

One of the findings highlighted that, almost a unanimous view of the mothers existed about the effect of prolonged screen time on children, showing 91% of them appreciated that it had clear negative effects. Another parallel study revealed that, 88% parents believed excessive use of gadgets can have harmful effect for children (Qutoshi, et al., 2021). It was explicitly found that majority of the mothers recognized prolonged screen time to have absolute negative effects on their children.

### **Children's practices regarding screen time**

#### **Children's online class per day**

During pandemic, many of the schools adopted online classes as physical presence was impractical. This study showed that 45% of the children had been exposed to online schooling using digital devices. This phenomenon increased their daily screen time by an additional amount of time. The others 55% children were found to be not attending school due to their age. Moreover, pandemic barred many potential school going children not to get enrolled in last 2 years. Of those who were attending online classes, the duration varied between 1 to 4 hours. Similarly, two other studies also identified that, screen time has

increased resulting from online classes during COVID-19 (Carroll, et al., 2020 and Li & Lalani, 2020).

### **Children's screen time per day**

One of the major findings of this study about children's screen time per day revealed that, for academic or any other purposes children were found to be locked on screen on an average 3.02 hours which is beyond the guidelines set by many global concerns such as AACPA and WHO. According to the AACAP 2 to 5 years children's screen time is to be limited to 1 hour per day (AACAP, 2020). Similarly, another study on 'determining factors in children's screen time' reported on their research papers that, 63% of children (2 to 5 years) were excessively exposed to screen as they viewed screen more than 2 hours per day (Nogueira, et al., 2019). Another very recent study recorded that, average screen time among the children aged 4 to 12 years was 2.5 hours for boys and 2 hours for girls and preschooler had higher amount of user than school aged children (Ishtiaq, et al., 2021).

### **Gadgets used by children**

This study brings out another fact that most of (87.5%) children had used Smart / Mobile phone/ Tab and 35% had been watching TV and 10% used computer. Use of multiple gadgets is a common phenomenon in other places as well, as another study revealed, 61% children watched TV, smartphone and tab used by children in early childhood 41% and 22% respectively. (Nobre, et al., 2019). Findings indicate that a huge number of children had easy access to more than one kind of devices. Another study informed us, not only children's screen time has increased (87%) but also parents (74% mothers & 61% fathers) screen time has increased during lockdown (Carroll, et al., 2020). This may give us an assumption that children's increased screen time might be result of higher screen time of the parents. Guerreo mentioned in the result section of their study that, children's screen time with various types of

gadget is positively linked with children's behavior problem (Guerreo, et al., 2019). A study conducted on 'parental perception on screen time and psychological distress among young children' explored that, in South Asian culture, number of devices possibly used at home in joint family and children are allowed to using devices by senior members which is mostly unsupervised (Ishtiaq, et al., 2021).

### **Consequences of prolonged screen time on children's behavior**

In the current study findings referred to the mothers reporting that, their children had exhibited behavior problem during lockdown resulting from prolonged screen time. 42.5% children manifested inattention problem according to mothers self-rating responses. In line with the present findings, another recent study evident that average 1.4 hours per day time spent with screen in preschool children was found in their study and they found whose spending time was over 2 hours had been linked with clinically significant in attention problem (Tamana, et al., 2019).

Findings projected mother's opinion that is more than half (52.50%) children became hyperactive. In line with our findings, another study showed that Children who used mobile phones showed more conduct problems and more signs of hyperactivity/inattention than children who did not use mobile phones (Poulain, et al., 2018). This study was conducted on German preschooler ( 2 to 6 years) who used devices at two time frames; first one was baseline and the other was a follow up after 12 months, both showing more signs of hyperactivity and increased risk for hyperactivity even one year later ( Poulain, et al.,2018). Apart from inattention and hyperactivity, 37.5% of the children in our study reflected less interest in learning. Another such study also pointed out that learning difficulty in children had connection with excessive use of digital gadgets by the children (Sundus, 2018).

Our study finding recognized that 27.5% and 20% of the children showed aggressive behavior and displayed their lack of ability or unable to control emotion due to prolonged exposed on digital devices. Correspondently, another study informed that, children habituated on using digital devices, are more aggressive and less able to control their emotion (Suhana, 2018).

Undoubtedly, these figures explicitly unveil matters of great concern that relates to our future generation. Findings indicated that, excessive screen time was linked with various behavioral problems that were reflected in mother's responses. Additionally, mothers also noticed that, hiding information, avoiding tendency, being prone to less social and less movement etc. features were also among the children which was not a negligible amount.

### **Children's addiction to digital devices observed by mothers**

Mothers have reported that due to overuse of digital devices, children had been found to be falling prey of addictive attitude. These study findings revealed that majority (67.5%) of the children were 'almost addicted' to digital device which was alarming for future generation.

One of the major findings in the current study asserted that, there had been an association between children's screen time and their behavior which was assessed by the SDQ scale. The correlation between screen time and child's behavior (prosocial behavior) was ( $r = -.444$ ). It determines that, an increase in children's screen time prosocial behavior decreases and vice versa. Correlation was found to be statistically significant at the level of 0.01 and relation was moderate and negative between the prosocial behavior and screen time. Similar finding was also observed in an another study that, children spending high screen time have been linked to reduced amount of prosocial behavior (Pouain, et al., 2019). We tried to identify if there was any correlation between screen time and child's behavior ( Total difficulties) but such correlation have not been found between total SDQ difficulties score and screen time in

current study and therefore it can be said that screen time alone does not pose significant risk in behavior problem of the children. Although mothers reflected in their opinion that such relation exist. Another study, by using SDQ subscales discovered finding in line with this present study that children of 5 years who were spending 2 hours screen time a day had not been in the risk of behavior problem (Griffiths, et al., 2010). A longitude study in Canada over the children of Quebec, examined that, 2 year toddlers who had been exposed in TV viewing one hour per day has linked them to aggressive behavior, peer problems and social difficulties at the age of 13 (Pagani, et al., 2016). Correspondingly, another very recent study demonstrated that, there is no significance in screen time between hyperactivity, conduct problem, prosocial behavior, peer problem and preschooler, although significance was observed in emotional behavior (Ishtiaq, et al., 2021).

Findings show 57.5% of children spent more than 2 hours screen time who exhibited behavior problem ( as per SDQ subscale) such as emotional problem, hyperactivity peer relationship problem, and total difficulties compare to those children who spent non 2 hours or less screen time. A similar result is found in another study conducted before pandemic over preschool children in China showed that children with screen time exposed approximately 2 hours per day had a significantly increased risk of having total difficulties, emotional symptoms, conduct problems, hyperactivity, peer problems, and pro-social problems (Wu, et al., 2017).

### **Consequences on children's health issues observed by mothers**

This study finding highlighted that, mothers complained about their children exhibiting some health issues. 15% of the children had been found suffering from tiredness, 20% from vision problem, and 27.5% with sleep disturbance. Mothers also noticed obesity and tiredness in their children. Aligned with the present study, excessive exposure of screen time among

preschooler was found to be linked with reduced sleep time in another study as well (Nathanson and Fries, 2014).

### **Mothers faced challenges regarding children's behavior resulting from prolong screen time during pandemic**

#### **Children argued if stopped using device**

Mothers have been facing challenges to limit or control the use of digital devices by their children once the later had been severely attracted to screen. The study findings showed, 57.45% children sometimes argued' while they were asked by parents to stop or limit using devices. As a result, mothers faced difficulties to manage their children. Another remarkably similar result was reflected in another study of Bangladesh where parents in 81% cases had to face arguments from their children when they asked to limit the screen time (Sadri, 2018).

#### **Mother's supervision regarding children's screen time**

Another challenge for the mothers is to ensure companies of adults while their children on screen. Only 25% mothers could always supervise their children when they had been using digital devices, whereas 75% children were not always supervised rather sometimes supervised. If children use digital devices in unsupervised state, often parents will remain unaware and unable to guide their children on the appropriateness of the contents, about the harmful sites or games they should avoid, the amount of time they should not exceed, the seating or viewing posture they must adopt for using screen etc.

#### **Mother's suggestion regarding children's screen time**

Mothers have suggested limiting their children's screen time, although this varied in a great deal starting from 30 minutes to 3 hours. 30% of the mothers believed that screen time should

be limited to 1 hour per day. 10% of the mothers also believed that children should not be regularly allowed for any screen time in early ages.

## **Conclusion**

Screen has always been fascinating to the children but the commonly known reasons for children's to get more dependent on screens of digital devices during COVID-19 induced lockdown were prolonged closure of schools, restriction on social gathering, limited physical activity, outdoor activities etc. Online classes came up as alternate learning method and that caused many of the children to remain more screen-binded. Evidence showed that many of the parents screen time has risen remarkably due to new work culture 'work from home', for being jobless or due to increased idle time during lockdown which also might have a direct bearing on increased screen time in the children. Consequently, be it for mere recreation, academic or for any other reasons screen time has increased among children during pandemic though the phenomenon had already been prevailing before pandemic.

As a result of too much of exposure of screen time at too early stage of life, many negative consequences have been found among the children. Mothers noticed several behavioral and health problems being exhibited in their children. The findings indicate that, many children had access to use one more gadgets and on average their screen time was prolonged. Some children showed addiction on using digital device. Mothers could not always supervise their children. Mothers had been struggling to control or limit their children's screen time. As a result, mothers faced challenges and difficulties to manage their children.



Mothers reflected that behavioral outcome included hyperactivity, attention problem, peer problem, less interest in learning, aggression, less social, less movement, inability to control emotion, hiding information and avoiding tendency among their children. In terms of health issues, mothers noticed many negative effects on their children due to prolonged screen time. Children were suffering from sleeping problem, vision problem, tiredness and obesity.

Young children are foundation on future generation and parents are prime mentors to their children. We found prolonged screen time exacerbated children's behavior and health problem. Though it is almost impossible to stop the use of digital device among the children but surely it can be reduced or limited to a justifiable scale. Children's behavior and health problem should be taken into consideration and those should be treated effectively. It should be our collective and greatest concern to protect our young children for better tomorrow.

## **Recommendations**

Based on the findings of the research, the followings are recommended to reduce the effect of screen time on children:

- Children, while on screen are needed to be accompanied by the adults. Parents should monitor, supervise and assist their children for the period they are engaged with screen.
- Parents should try and remain educated on the usage of children's screen time to ensure mindful use. This may include but not limited to daily dose of screen time, keeping track of the amount of time, making sure of the eye and sitting position of the children.

- Parents ought to discipline their children regarding use of screen time by setting it to an acceptable daily limit and ensure their children following it by remaining physically in touch with them.
- It must be the parent's priority to choose healthy alternatives of screen time for their children. Playing with them, keep them engaged in activity like drawing, painting, encouraging them to pet animal, indulging in household chores, doing physical exercise etc.
- Special awareness programme is a necessity how to educate the parents, teachers and educators regarding the short and long term effects of prolonged screen time on children.
- Further research is needed to examine the causes, factors that trigger the children to grow and addictive level of dependence on screens leading to their behavioral problems. More researches are expected focusing on the long term effects on the same group of children in post COVID-19 pandemic scenario that was diagnosed with behavioral consequences resulting from prolonged screen time during COVID-19.

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## Annex-A

### Survey Questionnaire Survey on Child Behavior during COVID-19 Pandemic

Mother's name ..... Age.....

Education..... Occupation.....

Email ID.....

Father's Name:..... Age.....

Education..... Occupation.....

Child's gender (The child reported upon the survey)

Male  Female

What is the age range of your child?

2-3years  3-4 years

4-5 years  5-6 years

How many children do you have?

One child  Two children

Three children  Four children

Does your child go to school?

Yes  No

Which class is your child currently enrolled?

Playgroup  Nursery  K.G  Grade -1/Class-1  Others

What kind of school is your child currently enrolled?

Govt.  Primary  Kindergarten  English medium

I am conducting a research as a part of Master's in ECD from IED, BRAC University. You are requested to answer the following questions regarding screen time and its effect on child.



In this research, spending screen time means spending time with mobile phones/ computers/ laptop/tablets/ games consoles/ smart TVs etc. - any electronic gadgets that has a digital display monitor.

1. What do you mean by screen time for children?

- Screen time can be described as the time spent with viewing of TV/mobile/tab/video, computer, playing video/ electronic games, hand-held devices or other visual devices.
- Screen time is a sedentary activity
- I do not have any idea

2. How long screen time is called prolonged screen time?

- Less than 2 hours per day
- 2 hours per day
- 3 hours per day
- 4 hours per day
- 5 hours per day
- More than 5 hours per day

3. How much time does your child spend with screen per day?

- 1 hour
- 2 hours
- 3 hours
- 4 hours
- More than 4 hours

4. How much time does your child spend with screen in weekends?

- 1 hour
- 2 hours
- 3 hours
- 4 hours
- More than 4 hours

5. How frequently does an adult supervise while the child spends screen time?

- Always
- Sometimes
- Never

6. What type of gadget does he/she use for watching? (Answer can be more than one)

- T.V
- Mobile/ Smart phone/Tab
- Computer (Desktop/ Laptop)
- Gaming device/ others

7. During pandemic period, how much time do your child spend online learning class in a day?

- Not applicable                       1 hour                       2 hours
- 3hours                       4 hours                       More than 4 hours

8. a) Have you observed any health issue of your child due to prolong screen time?

- Yes                       No

b) If yes, what kind of health issues have you observed?

- Tired                       Eye / vision problem                       Sleeping problem
- Obesity                       Others

9. Does your child often argue when you limit or stop him/ her using the device?

- Yes                       No                       Sometimes

10. Do you think your child is addicted to digital device?

- Almost addicted                       Addicted                       Not addicted

11. a) Have you noticed any behavior change in your child during this lockdown period?

- Yes                       No

b) If yes, what kind of behavior changes have you noticed?

- Inattention or less attention                       Hyperactivity
- Less interest in learning/ studying                       Less interaction
- Less movement                       Less social
- Less or Unable to control emotion                       More Aggressive
- Hide information                       Avoiding tendency
- Others

12. Do you think you need to control/ limit your children's screen time usages?

- Yes                       No                       No need

13. How long screen times in a day do you suggest for the child? \_\_\_\_\_

14. Do you think prolong screen time has positive effect on children?

- Not agree                       Neutral                       Agree

15. Do you think prolong screen time has negative consequences on children?

Not agree

Neutral

Agree

To answer each question, please mark the box for ‘Not True’, ‘Somewhat True’, ‘Certainly True’ tick.

Strength and Difficulties Questionnaire (SDQ)

| Item  | Not True | Somewhat True | Certainly True |
|---|----------|---------------|----------------|
| 1. Does your child value other people’s feelings?                                 |          |               |                |
| 2. Is your child restless, overactive, cannot stay still for long?                |          |               |                |
| 3. Does your child often complain of headaches, stomach-aches or sickness?        |          |               |                |
| 4. Does your child shares readily with other children (treats, toys, pencils etc) |          |               |                |
| 5. Does your child often have temper tantrums or hot tempers?                     |          |               |                |
| 6. Does your child tend to play alone rather than solitary?                       |          |               |                |
| 7. Is your child generally obedient and usually does what adults request?         |          |               |                |
| 8. Does your child have many worries, and often seem worried?                     |          |               |                |
| 9. Is your child helpful if someone is hurt, upset or feeling ill?                |          |               |                |
| 10. Does your child constantly fidget or squirm?                                  |          |               |                |
| 11. Does your child have at least one good friend?                                |          |               |                |
| 12. Does your child often fight with other children or bully them?                |          |               |                |
| 13. Does your child often remain unhappy and                                      |          |               |                |

|  |  |  |  |
|--|--|--|--|
| downhearted or tearful?  |  |  |  |
| 14. Is your child generally liked by other children?                                       |  |  |  |
| 15. Does your child get easily distracted, concentration wanders?                          |  |  |  |
| 16. Does your child feel nervous or clingy in new situations, and easily loses confidence? |  |  |  |
| 17. Is your child kind to younger children?  |  |  |  |
| 18. Does your child often lie or cheat?  |  |  |  |
| 19. Is your child picked on or bullied by other children?                                  |  |  |  |
| 20. Does your child often volunteer to help others (parents, teachers and other children)? |  |  |  |
| 21. Does your child think out before acting?   |  |  |  |
| 22. Does your child steal from home, school or elsewhere?                                  |  |  |  |
| 23. Does your child get on better with adults than with other children?                    |  |  |  |
| 24. Is your child usually fearful or gets easily scared?                                   |  |  |  |
| 25. Does your child see tasks through to the end, and have good attention span?            |  |  |  |

## Annex-B

### Survey Questionnaire Survey on Child Behaviour during COVID-19 Pandemic

আমি ব্রাক বিশ্ববিদ্যালয়ের অধিনে ইসিডি তে মাস্টার্স এর অংশ হিসাবে একটি গবেষণা পরিচালনা করতে যাচ্ছি। আপনার শিশুর স্ক্রিন টাইম এবং তার উপর প্রভাব সম্পর্কে নিম্নলিখিত প্রশ্নের উত্তর দেওয়ার জন্য আপনাকে অনুরোধ করা হচ্ছে। আপনার দেওয়া সমস্ত তথ্য গোপন রাখা হবে এবং শুধুমাত্র গবেষণার জন্য ব্যবহার করা হবে।

| উত্তরদাতা সম্পর্কিত তথ্য |                   |
|--------------------------|-------------------|
| মায়ের নাম:              |                   |
| বয়স:                    | শিক্ষাগত যোগ্যতা: |
| পেশা:                    | ইমেইল আইডি:       |

| উত্তরদাতার পারিবারিক তথ্য                               |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|
| বাবার নাম:  |                                  |                                  |                                  |
| বয়স:   | শিক্ষাগত যোগ্যতা:                |                                  |                                  |
| পেশা:   |                                  |                                  |                                  |
| আপনার যে শিশুর ব্যাপারে তথ্য দেয়া হচ্ছে তার বয়স সীমা- |                                  |                                  |                                  |
| <input type="checkbox"/> ২-৩ বছর                        | <input type="checkbox"/> ৩-৪ বছর | <input type="checkbox"/> ৪-৫ বছর | <input type="checkbox"/> ৫-৬ বছর |

|  |  |   |  |
|--|--|---|--|
| শিশুটি একজন -                                |  | <input type="checkbox"/> মেয়ে              | <input type="checkbox"/> ছেলে              |
| শিশুটির ভাইবোন -                             |  |   |  |
| <input type="checkbox"/> নেই                 | <input type="checkbox"/> একজন                  | <input type="checkbox"/> দুইজন              | <input type="checkbox"/> তিনজন             |
| শিশুটি কি কোন শিক্ষা প্রতিষ্ঠানে পড়ে?       |  | <input type="checkbox"/> হ্যাঁ              | <input type="checkbox"/> না                |
| শিশুটি কোন শ্রেণীতে পড়ে?                    |  |   |  |
| <input type="checkbox"/> প্লে গ্রুপ          | <input type="checkbox"/> নার্সারি              | <input type="checkbox"/> কেজি               | <input type="checkbox"/> প্রথম শ্রেণী      |
| শিশুটি কোন ধরনের স্কুলে পড়ে?                |  |   |  |
| <input type="checkbox"/> সরকারী<br>প্রাইমারী | <input type="checkbox"/> বেসরকারী<br>প্রাইমারী | <input type="checkbox"/> কিন্ডার<br>গার্টেন | <input type="checkbox"/> ইংলিশ<br>মিডিয়াম |

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এখানে স্ক্রিন টাইম বলতে মোবাইল ফোন, কম্পিউটার, ট্যাব , ল্যাপটপ, টেলিভিশন অর্থাৎ যে কোন ইলেক্ট্রনিক/ ডিজিটাল স্ক্রিনে সময় কাটানো কে বোঝানো হয়েছে।

১। স্ক্রিন টাইম বলতে আপনি কি বুঝেন?

- টিভি/ মোবাইল ফোন/ ট্যাব/ ভিডিও/ কম্পিউটার গেমস/ অন্যান্য ভিজ্যুয়াল ডিভাইসের স্ক্রিনে কাটানো সময়।
- স্ক্রিন টাইম হল বসে থাকা সময়।
- আমার এ ব্যাপারে কোন ধারণা নাই।

২। দীর্ঘ স্ক্রিন টাইম বলতে কতক্ষণকে বুঝায়?

- প্রতিদিন ২ ঘণ্টার কম
- প্রতিদিন ২ ঘণ্টা
- প্রতিদিন ৩ ঘণ্টা
- প্রতিদিন ৪ ঘণ্টা
- প্রতিদিন ৫ ঘণ্টা
- প্রতিদিন ৫ ঘণ্টার বেশি

৩। আপনার শিশু দৈনিক কতক্ষণ স্ক্রিন এর সামনে থাকে?

- এক ঘন্টা    দুই ঘন্টা    তিন ঘন্টা    চার ঘন্টা    তার চেয়েও বেশি

৪। ছুটির দিনে সে কতক্ষণ স্ক্রিন এর সামনে থাকে?

- এক ঘন্টা    দুই ঘন্টা    তিন ঘন্টা    চার ঘন্টা    তার চেয়েও বেশি

৫। আপনার শিশু কতক্ষণ প্রাপ্ত বয়স্কদের তদারকিতে স্ক্রিন এর সামনে থাকে?

- পুরোটা সময়    মাঝে মাঝে    কখনোই না

৬। কোন ধরনের গেজেট সে ব্যবহার করে?(একাধিক উত্তর হতে পারে)

- টিভি    মোবাইল/ স্মার্ট ফোন/ ট্যাব

- কম্পিউটার (ডেস্কটপ/ ল্যাপটপ)    গেমিং ডিভাইস/ অন্যান্য

৭। কোভিডকালীন সময়ে আপনার শিশুর দৈনিক অনলাইন ক্লাসের মেয়াদ-

- এক ঘন্টা    দুই ঘন্টা    তিন ঘন্টা    চার ঘন্টা    তার চেয়েও

বেশি

৮। (ক) দীর্ঘক্ষণ স্ক্রিন এর সামনে থাকার ফলে আপনার শিশুর কোনো স্বাস্থ্যগত সমস্যা লক্ষ করেছেন কি?

- হ্যাঁ    না

(খ) যদি হ্যাঁ হয়, কি ধরনের স্বাস্থ্যগত সমস্যা লক্ষ করেছেন?

- ক্লান্তি    চোখ/ দৃষ্টির সমস্যা    ঘুমের সমস্যা

- মেদবহুলতা (Obesity)    অন্যান্য সমস্যা

৯। শিশুকে যখন স্ক্রিন টাইম সীমিত/ বন্ধ করতে বলেন, সে কি আপনার সাথে তর্ক করে?

- হ্যাঁ  না  মাঝে মাঝে

১০। আপনি কি মনে করেন আপনার শিশু ডিজিটাল ডিভাইসে আসক্ত?

- আসক্ত  প্রায় আসক্ত  আসক্ত নয়

১১। (ক) এই লকডাউনে দীর্ঘক্ষণ স্ক্রিন এর সামনে থাকার ফলে আপনার বাচ্চার আচরণে কোনো পরিবর্তন লক্ষ করেছেন কি?

- হ্যাঁ  না

(খ) যদি হ্যাঁ হয়, কি ধরনের আচরণগত পরিবর্তন তার মাঝে লক্ষ করেছেন?

(একাধিক উত্তর হতে পারে)

- মনোযোগের ঘাটতি বা কম মনোযোগী  অতি চঞ্চলতা বা অস্থিরতা  
 পড়াশোনায় কম আগ্রহ  স্থবিরতা  
 সামাজিক মেলামেশায় অনাগ্রহ  এড়িয়ে যাবার প্রবণতা  
 আবেগ নিয়ন্ত্রণে অপারগতা  আক্রমণাত্মক মনোভাব  
 তথ্য গোপন করার প্রবণতা  অন্যান্য

১২। আপনি কি মনে করেন আপনার শিশুর স্ক্রিন টাইম নিয়ন্ত্রণ করা উচিত?

- হ্যাঁ  না  প্রয়োজন নেই

১৩। আপনি শিশুদের জন্য দিনে কতক্ষণ স্ক্রিন টাইম পরামর্শ দেন?



১৪। দীর্ঘক্ষন স্ক্রিনের সামনে থাকা - আপনি কি মনে করেন তা শিশুদের উপর কোন পজেটিভ প্রভাব ফেলে?

হ্যাঁ

না

নিরপেক্ষ

১৫। দীর্ঘক্ষন স্ক্রিনের সামনে থাকা - আপনি কি মনে করেন তা শিশুদের উপর কোন নেগেটিভ প্রভাব ফেলে?

হ্যাঁ

না

নিরপেক্ষ

প্রত্যেকটি প্রশ্নের উত্তর দেওয়ার জন্য 'সত্য নয়', 'কিছুটা সত্য' বা 'নিশ্চিতভাবে সত্য' ঘরে টিক চিহ্ন দিন।

| আইটেম   | সত্য নয় | কিছুটা সত্য | নিশ্চিত ভাবে সত্য |
|---|----------|-------------|-------------------|
| ১। আপনার সন্তান কি অন্যদের অনুভূতিকে মূল্য দেয়?  |          |             |                   |
| ২। আপনার সন্তান কি অস্থির, ছটফটে, বেশিক্ষণ চুপ করে থাকতে পারে না ?                                |          |             |                   |
| ৩। আপনার সন্তান কি প্রায়ই মাথাধরা, পেট ব্যথা, বা বমি বমি ভাবের কথা বলে?                          |          |             |                   |
| ৪। আপনার সন্তান কি অন্য ছেলেমেয়েদের সাথে খাবার, খেলনা, পেন্সিল, ইত্যাদি সহজেই ভাগাভাগি করে নেয়? |          |             |                   |
| ৫। আপনার সন্তান কি জেদি আচরণ করে বা গরম মেজাজ দেখায়?   |          |             |                   |
| ৬। আপনার সন্তান কি অনেকটা একা থাকে, একা একা খেলতে ভালোবাসে?                                       |          |             |                   |
| ৭। আপনার সন্তান কি বেশ বাধ্য, সাধারণত বড়দের  |          |             |                   |

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| কথা শোনে?   |  |  |  |
| ৮। আপনার সন্তান কি অনেক দুশিচন্তা করে, তাকে কি প্রায়ই চিন্তিত দেখায়?                    |  |  |  |
| ৯। কেউ ব্যথা পেলে, মন খারাপ করলে বা অসুস্থ বোধ করলে আপনার সন্তান সাহায্য করে কি?          |  |  |  |
| ১০। আপনার সন্তান কি সারাক্ষণ উসখুস করে বা গা-হাত মোড়ামুড়ি করে ?                         |  |  |  |
| ১১। আপনার সন্তানের অন্তত একজন ভালো বন্ধু আছে কি?  |  |  |  |
| ১২। আপনার সন্তান কি অন্য ছেলেমেয়েদের সাথে মারামারি করে বা গায়ের জোর দেখায়?             |  |  |  |
| ১৩। আপনার সন্তান কি প্রায়ই বিষণ্ণ, মন মরা ও কাঁদো কাঁদো থাকে?                            |  |  |  |
| ১৪। সাধারণভাবে অন্য ছেলেমেয়েরা আপনার সন্তানকে পছন্দ করে কি?                              |  |  |  |
| ১৫। আপনার সন্তান কি সহজেই অন্যমনস্ক হয়ে পড়ে, মনোযোগ ধরে রাখতে পারে না?                  |  |  |  |
| ১৬। আপনার সন্তান কি অচেনা পরিবেশে ঘাবড়ে যায় বা আড়ষ্ট থাকে, সহজেই সাহস হারায়?          |  |  |  |
| ১৭। আপনার সন্তানের ছোটদের প্রতি মায়্যা মমতা আছে কি?                                      |  |  |  |
| ১৮। আপনার সন্তান কি প্রায়ই মিথ্যা বলে বা ধাপ্লা দেয়?                                    |  |  |  |
| ১৯। অন্য ছেলে মেয়েরা আপনার সন্তানকে পেছনে লাগে বা তার উপর গায়ের জোর দেখায় কি?          |  |  |  |
| ২০। আপনার সন্তান কি অপরকে সাহায্য করতে এগিয়ে যায়(বাবা- মা, শিক্ষক, অন্য ছেলে মেয়েদের)? |  |  |  |
| ২১। আপনার সন্তান কি ভেবে চিন্তে কাজ করে?  |  |  |  |
| ২২। আপনার সন্তান কি বাড়ি, স্কুল বা অন্য জায়গা থেকে চুরি করে?                            |  |  |  |
| ২৩। আপনার সন্তান কি ছোটদের বড়দের সাথে ভালো   |  |  |  |

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| মিশতে পারে?   |  |  |  |
| ২৪। আপনার সন্তান কি অনেক ভয় পায়, একটুতেই চমকে যায়?       |  |  |  |
| ২৫। আপনার সন্তান কি কাজ ধরলে শেষ করে, মনোযোগ এর পরিমান ভাল? |  |  |  |