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Response to the needs of students with ASD (autism spectrum disorder) during the COVID-19 outbreak in Bangladesh

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Abstract

Purpose: The study exposes the challenging situation of students with ASD (Autism Spectrum Disorder) in the COVID-19 pandemic in Bangladesh and manageable strategies to meet the educational, physical and psychological needs of students with ASD.

Methodology: This qualitative research was conducted in two phases: information collection from parents of students with autism and looking for solutions from professionals. The snowball sample technique was selected for both phases due to the social distance rules.

Findings: After interviewing twenty parents, three major critical situations were identified including no proper routine, new challenging behavior, no awareness among parents to consult with specialists. Acknowledging the challenging situation, the professional panel recommended six strategies, namely maintaining a proper routine, spending quality time with students, engaging with various kinds of activities, providing services & creating awareness through media, future community rehabilitation centers, money and resources support.

Originality/value: This study provides evidence of challenging situations of students with ASD in the COVID-19 pandemic in Bangladesh since there is little research on ASD. It also provides the recommendation to confront difficult times like the COVID-19 pandemic.

Social Implication: The findings of the study can be effective for government and non-government organizations for a deeper understanding of encountering those challenging situations for students with ASD in future crisis cases.

Practical Implication: Students with ASD will be benefited by implementing the given recommendations in the pandemic as well as future educational crises.

Keywords: Autism spectrum disorder (ASD), COVID-19, challenging behaviors, strategies, Bangladesh

Introduction

ASD (Autism Spectrum Disorder) has always been separated for its uniqueness and characteristics from other disabilities. The term ASD is considered as a neurobiological developmental disorder characterized by social interaction, verbal and non-verbal communication, limited and repetitive interests and patterns (American Psychiatric Association [APA], 2013)^[5]. Watching ASD from the global perspective by zooming out, 52 million people out of 7 billion are found with autism around the world epidemiologically (Baxter *et al.*, 2014)^[11] which is affecting around 1% - 2% of children across the globe and one in 160 children has an autism spectrum disorder (Elsabbagh *et al.*, 2012)^[28]. According to the report of WHO (World Health Organization) ASDs symptoms are expressed in childhood and tend to remain for long runs such as adolescence and adulthood and also from the beginning of ASD intervention, with proper care and support persons with autism more precisely who have the mild and moderate disability can be independent, while one who has severe disabilities require lifelong care and support. The report further added, "Evidence-based psychosocial interventions, such as behavioral treatment and parent skills training programs, can reduce difficulties in communication and social behavior, with a positive impact on well-being and quality of life for persons with ASD and their caregivers (WHO, 2021)^[69]." It is also identified that early interventions and broader actions can make the environment physically, socially and attitudinally more accessible, inclusive and supportive for persons with ASD who are victims of stigma, discrimination and human rights violations over the world and the proposition of access to services and support for the persons with ASD are not sufficient around the world (WHO, 2021)^[69].

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Now focusing on Bangladesh, which is one of the developing countries of South Asia with a 150 million population (Bangladesh Bureau of Statistics [BBS], 2011)^[10] where approximately 3,00,000 children are affected by ASD, and one in 94 boys & one in 150 girls, reported by Autistic children's welfare foundation (2011)^[8]. The United Nations Children's Fund (UNICEF) published a report titled 'Situational Analysis on Children with Disability in Bangladesh' in June 2014. In the report, it was described that the main barriers faced by children with disability along with ASD were poverty, negative attitude society, limited knowledge & support from family members, inadequate access & assistive devices and they were often the victim of negligence, exploitation, violence and abuse. The report also added that legislation & policy were discriminatory, their implementations were slow and not funded, they were still deprived of human basic rights such as quality education rights, health and rehabilitation right, participation in cultural life, recreation, leisure, sports right and humanitarian response to emergencies right (UNICEF, 2014: pg: 12-10)^[65]. Another research identified infrastructural and cultural challenges of students with ASD in urban areas in Bangladesh such as lack of reliable information, tedious & digital connectivity life, stigma, stress, vulnerability and resilience in life, different kinds of mentality to hope due to different demographics structures and distance from the care professional (Ehsan *et al.*, 2018)^[27]. Despite of having barriers and challenges in the education sector for students with ASD, the Bangladesh government and NGOs are still working towards inclusive education for fulfilling the Sustainable Development Goals (SDGs) along with quality education within 2030. But in 2020, the whole world was introduced to the "Wuhan virus" or "novel coronavirus-2019" or "COVID-19" that had spread throughout the world very rapidly (Yarımkaaya and Esentürk, 2020)^[64]. Starting in China, it took on a terrible form before it was well known over the world. Although its symptoms are fairly certain, scientists are still unsure about its characteristics, preventions, remedies and vaccines which are under study. Right now, the best prevention strategy for any pandemic situation is to keep social distance, recommended by the World Health Organization (WHO, 2020)^[66, 68]. Following the strategy for saving students from contamination by COVID-19, all educational institutions in Bangladesh with 38.6 million students (Bangladesh Bureau of Educational Information and Statistics [BANBEIS], 2018), have been closed since March 17, 2020 while the first COVID-19 patient was found on 8 March, 2020. The closure of the institutions interrupted Higher Secondary School Certificate (HSC) examination (Grade 12 terminal examination) which was scheduled to start from April. The first term examinations of primary and secondary education as well as Primary Examination (PCE) & Junior School Certificate (JSC) have faced uncertainty as well. The government has been running a distance-learning program through Sangsad Television (A government-owned TV channel in Bangladesh) for schools and colleges. Classes are taking place on Facebook and YouTube for primary and secondary-level students as well (Ministry of Education and Ministry of Mass and Primary Education, 2020)^[49, 50]. But for the continuity of education for students with disabilities, no major attempts can be seen in Bangladesh. The Ministry of Education (MOE) along with the Ministry of Primary and Mass Education (MOPME) had published a report titled

"COVID-19 Response and Recovery Plan" in the education sector in May 2020. This report enlisted the impacts of COVID-19 in the educational field such as learning loss due to discontinuation, increasing risk to learning outcomes and assessment, inequality in learning, increase in dropout rate, resulting in more out-of-school children (OOSC), teacher engagement and development, health and nutrition of school children, increased risk of hygiene issues, gendered impact of school closures, impact on students in rural areas and from the poorest households, impact on students with disabilities, safety and psychosocial issues, disruption and uncertainty around non-formal education and increase in youth unemployment. Although this report also addressed the current challenges of COVID-19 for future educational initiatives as per reaching the whole student population, reaching younger children, low tech environment in the primary education sector, resource constraints, monitoring and assessment of remote learning initiatives, it did not mention anything about students with disabilities as well as students with ASD. Now, the question is whether Bangladesh is capable of ensuring education for all kinds of students, including special needs students in crises. In 2015, the Ministry of Women and Children Affairs, Ministry of Disaster Management & Relief and Ministry of Social Welfare organized an international seminar titled Dhaka Conference on Disability and Disaster Risk Management where it was observed that women and individuals with autism were more vulnerable than the non-autistic person, women and aged in the family and community during disaster (Ministry of Women and Children Affairs [MOWCA], 2017)^[51]. According to the World Bank, "COVID-19 could result in a loss of 0.6 years of schooling adjusted for quality, bringing down the effective years of basic schooling that students achieve during their schooling life from 7.9 years to 7.3 years" (World Bank [WB], 2020)^[66, 68] which is not only applicable for the non-autistic student, but also true for student with disabilities while students with ASD learn about their self-dependence and overcoming communication difficulties in school which will be ruined by creating learning loss due to long quarantine time duration. So, it is high time to take appropriate measures to continue their education in quarantine.

Although the government of Bangladesh has provided financial support to some portions of persons with disabilities, according to newspaper and government websites (Prothom Alo, 2020)^[56]. But yet it has not shown much support in academic activities in special educational institutions during this pandemic time. The government is not able to run special educational institutions in the same vein. Special education schools are different from one to another in Bangladesh. The process of inclusive education has begun, but it may take a long time to be implemented. As COVID-19 is completely new, no one knows what to do. There has been a lack of material support in special education in Bangladesh and also a lack of accurate data or information about students with autism, which makes it difficult to make sufficient provisions for students with ASD. To face the mentioned challenges before, it is needed to take strategies that need evidence-based research for proper actions. This paper will discuss what should be done or emphasized more for students with autism in quarantine. If there is any pandemic or epidemic in the future, this study will help those who work on this issue about management with proper measurement and necessary steps.

With the COVID-19 high spread rate, social situations are being changed and it is likely to create ASD individuals' difficulties (Collizzi *et al.*, 2020) [18]. Not only students, but also many autistic adults need help because there was no other option (Houting, 2020) [24]. Some international research has published on the roles of the family members of students with autism in the COVID-19 period in Italy (Espinosa *et al.*, 2020) [31], Canada (Ameis *et al.*, 2020) [4], and the USA (Szabo *et al.*, 2020) [63]. Students with autism are often afraid of routine breaks due to COVID-19 which may express major emotional and behavioral disruptions. Autistic students may experience difficulties depending on the seriousness of their intellectual disability. Some other researchers had published focusing on the mental health of students with autism and their families (Chawla *et al.*, 2020) [16] in India, (Asbury *et al.*, 2020) [6] in the UK, (Aishworiya and Kang, 2020) [2] in Singapore, (Alavi *et al.*, 2020) [3] in the USA, (Pelizza and Pupo, 2020) [55] in Italy and (Fegert *et al.*, 2020) [32] in Europe. The main features of effective educational activities for students with autism include some hours per day of different activities (Lai *et al.*, 2020; Eshragi *et al.*, 2020) [42, 30]. Some families having children with autism cannot provide home education because of some difficult situations and services like Applied Behavioral Analysis (ABA), social skill training methods, and physical therapy. It is hard for children with autism to adjust to the online platform (Jeste *et al.*, 2020; Pachner & Aranyi, 2021) [38, 54]. 59% parents considered online classes complicated for their children with ADHD in the epidemic period (Hai *et al.*, 2021). Parents found the effects of changing behavior within their children with autism for uncertainty to attend school, to meet teachers and friends (Vilelas, 2021). Despite the challenges children with autism have some advantages of online classes can also be found because those families can have the opportunity to enhance the improvement of self-care activities. (Ghosh *et al.*, 2020; Vilelas, 2021). And some parents emphasize home education as they have little confidence in school staff in case of looking after their children. Sometimes children with autism face bullying situations that affect their mental health (Pachner & Aranyi, 2021) [54]. Throughout the world, people are working on online school and using distant health care and autism support. This service should be increased to reduce the negative impacts of COVID-19 and future pandemic (Ameis *et al.*, 2020) [4]. In another study in the UK, it was exposed that adaptive steps were taken by support services and people living in the community were being careful and maintaining the rule of health. In this regard, the willingness from all agencies is essential. Family support can reduce the risk of infection and environmental consequences for any individual (Courtenay, 2020) [21].

Context of the study

Given that the COVID-19 outbreak reached Bangladesh, the government showed an immediate response to the situation such as closing the educational institutions, all kinds of offices, banks, industries, stores, shopping malls, etc. except the service provider institutes and essential materials (MOE & MOPME, 2020). Since lockdown and social distancing have been emphasized during the pandemic, normal activities and routines have been disturbed for students with ASD. It is very challenging for them. One study expressed that autistic people might have a negative mental impact during quarantine. The study further admitted that autistic

people developed positive coping strategies for the pandemic challenges. Individuals with ASD may have to continue adapting to new strategies if uncertainty and changes in the COVID-19 situation remain (Davidson *et al.*, 2021) [23]. In the UK, being adapted to the changes of the pandemic, specialist autism diagnostic services have moved to online services from face-to-face services such as video calls. This kind of sudden change will be challenging for autistic people. How the autistic people adapted to the changes were still unknown (Holmes *et al.*, 2020). A research in the USA also published that children, adolescents and adults with autism spectrum disorder (ASD) might be impacted by social distancing standards like lockdown or stay-at-home. Moreover, at this time, parents or caregivers were needed to support children with ASD with educational needs. Some of these parents were also working from home and had to take care of their families at the same time. Though, stay-at-home time was creating an opportunity to spend more time and know their children's strengths and needs. Parents might not have enough training to make education plans and apply the plan effectively. Since many individuals with ASD have limited interests, it makes more difficult for parents to create alternative routines, generate new ideas and incorporate them into daily routines (Lam *et al.*, 2008) [44]. The American study also stated that adults of the community as well as individuals with ASD had to cope with new restrictive procedures such as mask wearing and limited movements. The challenges of the pandemic do not end here. After the pandemic, parents or caregivers, school teachers have to reintroduce school, work and social locations to students with ASD once again gradually. Individuals with ASD has become vulnerable during this pandemic time, and it is essential to ensure behavioral health and other support services not only during this time but also future health emergencies and natural disasters. COVID-19 has proved the weakness in services, but also highlighted the scope for improvement. It is important to take sufficient measurement according to the unique needs of people with ASD locally and nationally. These supports should assist and empower individuals, their parents, all caregivers, organizations and service providers for future similar circumstances. (Baweja *et al.*, 2021) [12]. A study says that simplified parents-children interaction can reduce the deterioration of a child's wellbeing in the quarantine. There is a need to conduct more research because the evidence or situation of students with ASD varies from context to context. This study showed that one in every three children having behavioral problems and their parents were finding these behavioral problems and managing daily activities. It is predicted that these problems may increase during the pandemic. A study of Italian survey in April 2020 (Collizzi *et al.*, 2020) reported that the majority of parents (93.95%) pointed out the rising of disruptive behavior and the challenging situations of children with autism and another Italian study (Di Renzo *et al.*, 2020) showed that the symptoms of autism had been intensified (33.6%) during the lockdown period. A study in the United States (White *et al.*, 2021) reported that there was a lack of therapy during pandemic time and the level of benefit of telehealth was low that was the source of family concern (Pachner & Aranyi, 2021) [54]. Specialized services are needed to manage the disrupted behavior of children with autism. (Eshraghi *et al.*, 2020; Baweja *et al.*, 2021) [30, 12]. The importance of successful collaboration among

families, behavioral health professionals, and other bodies must be given priority in the pandemic period (Eidson *et al.*, 2020; Baweja *et al.*, 2021) [12].

One researcher commented that the COVID-19 response initiatives taken by the government towards education were shallow to the direct and visible problems with the closure of schools and running by television, radio and mobile instead of acknowledging the deeper & pre-existing problems of the education system which had been only increased by the pandemic situation. He further added that the recent education budget (2020-21) proposal focused on expenditures to keep the current educational system active. He questioned about missing the opportunity to rethink and focus on deeper holes and faults in the Bangladesh educational system. He also suggested that without taking account of the deeper challenges for action and only response to explicit & visible symptoms of the time, the problems of the education system would be just long-lasting (Ahmed, 2019) [1]. Some lessons have been learnt from Bangladesh's COVID-19 educational response such as a requirement of collaborative response, removal of stigmas about using technology in education, ensuring equity must be a priority, rethinking about pedagogy and assessment focusing on quality and multiple ways of learning should be retained and formalized (Kaye *et al.*, 2020). It can be determined that the government response to education is not adequate for not only non-disabled students but also students with disabilities. To meet the demands of learning loss for students with ASD in the pandemic, there should be a combination of pre-challenge and current challenges deeply for improvement.

COVID-19 was unanticipated, as a result, solving the problem has become a challenge for students, guardians, teachers, administration and also for the government. Besides, working towards inclusive education, present and future initiatives for any educational emergencies should include all kinds of students. Although COVID-19 is a big challenge, it is creating an opportunity to rethink our abilities to adapt in twenty-first century challenges which demand effective strategies, plan, program and their implementation for the upcoming days. Some researchers commented that individuals with autism may require extra support to adapt new changes (Hume *et al.*, 2020). The Disaster Management Act 2012 should be reviewed to include the problems, necessities and solutions for students with a disability as well as ASD for future educational emergencies like the COVID-19 situation. For future strategies, necessity of more research, case study, investigation, experiment, information and data, etc. has emerged. The researchers of this paper contacted the professionals (Special Educator, Child Psychologist, Educational Psychologist, Speech and Language Therapist, Physiotherapist, Parents' counsellor) to find out the solutions for every problem of students with autism and guardians which were learned during the interview. The professionals gave various kinds of suggestions for solving the current challenging situation for students with autism in the COVID-19 outbreak.

The objectives of this study are

1. To explore current challenging situations of students with ASD for social distance during the COVID-19 pandemic in bd
2. To identify challenging behaviors of students with ASD

for school closure during the COVID-19 pandemic in bd

3. To find out possible strategies for challenging situations of students with ASD for social distance during the COVID-19 pandemic in bd

Methodology

To accomplish the goals, including exploring the current situation and finding out the challenging behaviors of students with ASD in the COVID-19 outbreak, the research methodology was designed qualitatively with two phases. The first phase included guardian interviews (N=20) to collect the primary information about how the students with ASD were spending their days and what kinds of challenging behavior parents were facing at home in quarantine. In the second phase, professional-specialists' opinions had been collected following the guardian's mentioned problems to seek solutions to the problems. For this qualitative study, a semi-structured interview was designed for parents to gain their perspective, experience and knowledge (Sandelowski, 2000). In addition, the process also favoured researchers to build up a rapport with the participants (Guardians & Specialists) and researchers could change the sequence of the questionnaire in the demand of interview situations (Cohen *et al.*, 2007; Creswell, 2008) [17, 22]. To achieve a widespread understanding of the current situation of students with ASD in quarantine, a semi-structured questionnaire for guardians sketched with 20 questions. The key themes of the questionnaire are demonstrated below:

- 1) Health issues maintenance for COVID-19 situation.
- 2) Homeschool activities in quarantine.
- 3) Routine maintenance and daily activities in quarantine
- 4) Sleep, food habits and physical & entertainment activities in quarantine.
- 5) Confrontation of any challenging situation or critical behavior of students with ASD in quarantine.
- 6) Consultation with professionals for challenging behavior.
- 7) Strategies to deal with the challenging situation and requirement for support.

Participants

Being in lockdown conducting this study, it was challenging for the researchers to select the sample size by comparing the number of students with ASD in Bangladesh. As it is known that the students with ASD are under caregiver monitoring, for this reason, parents and caregivers were selected for the interview in phase one, who could provide the researchers with target information where all the parents were from Dhaka city. Before asking the main questionnaire, the guardians were asked about the students' characteristics to identify the level of autism of the students. In that case, clinician-rated severity of autism spectrum and social communication disorders were used approved by the American Psychiatric Association (Phillips, K. A., & Stein, D. J. (2015). Handbook on obsessive-compulsive and related disorders. American Psychiatric Pub.). With the snowball technique approach, twenty parents (Mother=17, Father=2, Sister=1) were selected for the interview in phase one where the number of male and female students was as respectively 17 and 3. According to table 1; guardians were between 61 and 20 years old, while students were between 4 and 30 years old. It can be seen that thirteen guardians were

housewives, two were doctors, one teacher, one student, one nurse, one parent counsellor, one executive officer. Moreover, the family size was between 8 and 3 members. In the student’s characteristics, six students with ASD were severe, moderate students were eight and mild students were six in number as claimed by the level of autism. Furthermore, in the additional comorbidities’ category, four

autistic students were found with non-verbal (Two of them also having Attention Deficit Hyperactivity Disorder (ADHD)), while two students had speech & sensory problems and one student with Attention Deficit Disorder (ADD) individually. In addition, twelve students with ASD have no additional comorbidities.

Table 1: Demographical characteristics of participants

Parents/Caregiver				Children					Family
Code	Gender	Age	Occupation	Gender	Age	Diagnosis	Level of Autism	Additional Comorbidities	Size
1	Female	42	House wife	Male	13	ASD	Mild	N	4
2	Female	35	Teacher	Male	6	ASD	Severe	Sensory problem	4
3	Female	32	House wife	Male	18	ASD	Moderate	N	5
4	Female	33	House wife	Male	7	ASD	Moderate	ADD	3
5	Female	39	Doctor	Female	12	ASD	Severe	Non-verbal	3
6	Female	34	Nurse	Male	6	ASD	Severe	Non-verbal	4
7	Female	40	House wife	Male	11	ASD	Severe	Speech problem	4
8	Female	40	House wife	Male	17	ASD	Moderate	N	4
9	Male	61	Executive Officer	Male	30	ASD	Mild	N	4
10	Female	20	Student	Female	8	ASD	Moderate	N	5
11	Female	39	House wife	Male	14	ASD	Mild	N	4
12	Female	50	House wife	Male	17	ASD	Severe	N	4
13	Female	35	House wife	Male	13	ASD	Mild	N	7
14	Female	50	House wife	Male	18	ASD	Severe	N	5
15	Female	50	House wife	Male	29	ASD	Mild	N	3
16	Female	50	Doctor	Male	13	ASD	Moderate	N	3
17	Female	32	Parent counselor	Male	4	ASD	Moderate	ADHD, Non-verbal	8
18	Female	55	House wife	Female	15	ASD	Mild	N	5
19	Female	35	House wife	Male	6.5	ASD	Moderate	ADHD, Non-verbal	3
20	Female	33	House wife	Female	5	ASD	Moderate	Speech & Sensory problem	3

Note: All names are hidden by numeric sequence. ASD: Autism Spectrum Disorders; ADD: Attention Deficit Disorder; ADHD; Attention Deficit Hyperactivity Disorder; N: None

For the second phase, to acquire the solutions to the report of parents narrated problems during the COVID-19, interviews were taken from six specialists, namely two special educators (Society for the Welfare of the Intellectually Disabled-SWID Bangladesh: Ramna Branch & Ramna Buddhi Protibondhi School), one child psychologist (Karondika Inclusive Football Academy), one educational psychologist (From Dept. of Educational & Counselling Psychology, University of Dhaka), one speech and language therapist (Centre for Intervention in Neuro-developmental Disorders and Research), one physiotherapist (Dept. Physiotherapy and Rehabilitation, Jashore University of Science and Technology) and one parent counsellor (Karondika Inclusive Football Academy) who had been working and providing their respective services in their field as much as possible since lockdown had been started in the COVID-19 period.

Data collection and analysis

In compliance with the emergency situation with the COVID-19, all kinds of educational institutes were closed from 17 March, 2020 and the government announced the lockdown of all kinds of intuitional works, events, public gatherings, garments, shopping-marketing etc. officially in 26 March, 2020 as a result transport communication were limited since then. For this reason, researchers couldn’t interview respondents face to face. As claimed by the objectives of the research to know the quarantine situation of students with ASD, the researchers first started with their acquainted parents where one researcher had intern experience in SWID (Society for the Welfare of the

Intellectually Disabled), other researcher worked as training associate of ‘Advance course of disability, autism and inclusive education at IER in the University of Dhaka. Their first sting parents led the researcher to connect with other guardians for the study, in total 20 parents were selected in Dhaka city. Following the snowball technique, again, the professional panel was selected. As WHO (World Health Organization) demanded social distance, parents were interviewed by phone call in Bangla and the audio was recorded with the interviewee’s permission. Participants were previously given a thorough idea of the interview and why this data would be necessary and who would have access to it. Moreover, the interview calls were on average 25-30 minutes for parents and 15-20 minutes for the professional panel making ensured the participants’ convenient time and comfort. Researchers had been very careful to keep participants’ personal information confidential and also conscious to make the questionnaire bias -free, and authentic so that participants could give their answer without any hesitation. The researchers also tried to give the right to maintain the privacy of participant’s interviews so that no harm or privacy was violated. Secondary information and reference have been collected after identifying authentic and legal sources so that information is accurate and reliable. In this, the researchers have maintained honesty and carefulness. Afterwards the information was analyzed thematically and the themes were generated from the data of interview through coding (Denzin and Lincoln, 2000) [25] and the data are represented in tabular frequency according to its problem arena. In phase two, the frequent solutions had been selected for

thematic analysis too.

The data and themes were transmitted from Bangla to English which had been checked by another expert researcher to make sure the trustworthiness of the information.

Results

The findings of the study demonstrated in this article are

categorized into two broad divisions: COVID-19 challenging situation and strategies. Three themes were generated from the information of the study: no proper routine, new challenging behavior and parents have no awareness to consult with specialists. Under the theme of no proper routine, there were two sub-themes reached subsequently because of routine disruption in the COVID-19 pandemic.

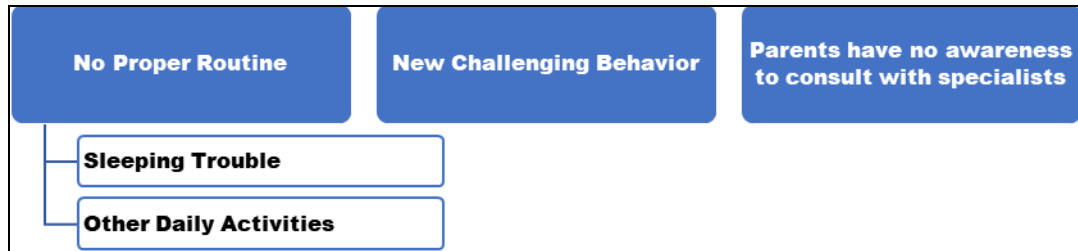


Fig 1: Demonstration of the theme and sub-themes.

Table 2: No proper routine

Topic area	Response	Frequency	Total
Home-schooling in quarantine	Yes	13	20
	No	07	
Making routine for student in quarantine	New routine	01	20
	Flexible routine	04	
	No routine	15	
Following the new/old/flexible routine regularly	Yes	03	20
	No	17	
Evaluating the development of student	Yes	02	20
	No	18	

It is known that to make students with ASD self-dependent, they are gone through a daily routine. In the sequence of questions about making new a routine, it has revealed that no routine formed for the students with ASD in fifteen cases out of twenty in the study. Four parents had made their old routine flexible, by contrast, only one parent made a new routine for her child with ASD. Only making a new routine or flexible routine is not enough but also following the routine regularly is crucial where the ratio between following the routine regularly and not following the routine was 3:14 in the study. In the case of evaluating the outcomes of the routine activities for children with ASD, two parents evaluate the improvement of their children's learning, adapt to new activities, understand the new situation, and reduce repetitive behavior. In addition, awareness of making new routine cannot be seen but home-schooling has conducted in eleven homes while six students were under no home-schooling in quarantine following the study. (Table 2).

Table 3: Sleeping trouble

Topic Area	Response	Frequency	Total
Doing physical exercise in quarantine	Yes	10	20
	No	10	
Having adequate sleep in quarantine	Yes	12	20
	No	08	
Taking medicine in quarantine	Yes	09	20
	No	11	
Eating routine in quarantine	Healthy/ nutrition food	07	20
	As family eats	08	
	Chosen food	04	
	No interest in food	01	

In the interview, maximum parents were concerned about their children with autism had not enough sleep and the sleeping schedule had been changed which became a frequent problem for parents. It can be notified that twelve students with ASD out of twenty having adequate sleep, in opposition, eight students have trouble with sleeping. (Table 3) Parent-5 stated,

“...She is non-verbal... Now I am facing more of her sleeping problem at night. For this problem, my health is also getting worse. She frequently awakes at night. A few weeks ago, it has increased too much. Now she sleeps in the evening instead of at night. After dinner, she again still awakes. If I make her get up early in the morning, she cries. That’s why I let her sleep in the morning. If she does not sleep properly, she does not want to work at all. Now I keep her awake engaging her in watching TV. or listening to music at the daytime.”

According to table 3, in the study, it can be stated the current physical exercise percentage is 50% among students with ASD in quarantine which is essential for human metabolism (Martinez-Ferran *et al.*, 2020). Nine students were found taking medicine while eleven students did not take any kind of medicine in the quarantine. Some parents also mentioned that they gave medicine to their children with ASD for proper sleep. Parent-16 was a doctor and her son’s age were 13. She said frustratedly:

“if I don’t give medicine, hyperactivities are being increased. All night, he disturbed me and the neighbors could not sleep well for his hyperactivities. Now I give medicine which help him to sleep.”

Additional reasons found in the interview for providing medicine to their children with ASD in quarantine, were for reducing hyperactivities and when their children were detected with fever or cold. In the eating routine area, seven students with ASD were eating healthy or nutritious food at the same time, eight families were providing for their children as they ate at their home. Four guardians provided food to their children with ASD following the food chart and also one student was found with no interest in food (Table 3).

Table 4: Others Daily Activities

Topic Area	Response	Frequency	Total
Spending time with family members in quarantine	Yes	18	20
	No	02	
Learning new activities in quarantine	Domestic work	05	20
	Memory & puzzle games	05	
	Drawing	05	
	Crafting	03	
	Filling beads with thread	02	
	Spending time with pet	01	
	Doing nothing	06	
Activities for entertainment in quarantine	Computer or laptop	08	
	TV	07	
	Playing	08	
	Random Movement	01	

In the study, parents stated that their children with ASD (N=5; Table 4) were helping their parents because of the helping hand or home maid had to stop coming for the COVID-19 restrictions and the parents thought that it would be a great time to spend time with their children and also involve them into domestic work for self-learning. Moreover, few parents informed that their children spending their time at memory & puzzle games (N=5), drawing (N=5), crafting (N=3), filling beads with thread (N=2), spending time with pet (N=1), nevertheless, six students out of twenty found doing nothing at all in their quarantine time according to the table 4. Parent-1 expressed that her child learned how to swim in his quarantine time. Parent-1 stated: "When we were in our village home, he played himself there. He likes to go different places and is learning how to swim. Now he is quite good in swimming. He understands well and his speech is good too. He just wants to do things in his own."

One of the concerning issues was that screen time would be

increased during quarantine, which was true in activities for entertainment category that twelve students spent their time on screen (Computer or laptop=8, Television=7), eight students played with themselves or others and one student did random movement whenever she liked at home (Table 4). Being in lockdown, it made a good opportunity for spending time with family members. Parent-1 expressed:

"He does not have to go to school that's why he is very happy. He spends most of the time with his father. Despite he went to school before, he could not write the Bangla & English alphabet. Now he can write them well for his father's teaching. It has become good for him. He is not interested in phone or video call that's why he doesn't attend recent online class; he learns from his father now."

Following table 4, it can be seen that eighteen students spent time with their other family members while two students did not spend or did not like to spend their time with family members.

Table 5: New challenging behavior

Topic Area	Response	Frequency	Total
Feeling any kind of fear, impatience or frustration	Yes	09	20
	No	11	
Doing more echolalia, hyperactivities or aggressive behavior in quarantine	Yes	15	20
	No	05	
New challenging behavior	Feeling sad	08	20
	Reacting to instruction	05	
	Talking oneself too much	03	
	Repetitive behavior	03	
	No attention to study or anything else	05	
	Do not like video call	02	

As one of the main purposes of the study was to find out the challenging behavior of students with ASD, because of the coronavirus outbreak students with ASD have to be in the home for safety issues which making them remained in the same environment day by day. Suddenly staying in a limited place leads to routine breaks for students with ASD, which can promote hyperactivities or aggressive behavior. During the interview, some parents informed that their children were insisting on going to school or playing outside indicating students with ASD missed their school where students with autism could be together with their classmates which had been restricted by the COVID-19 pandemic. On the contrary, two parents also notified that their children were happy having not to go to school. Parent-17 (Mother of 4 years old, Non-verbal) said,

"He misses his school so much. At school time, he wears school dress and cries for going to school and becomes very

impatient."

Another Parent-14 described,

"My son is addicted to going outside. He loves to be on road, see cars and people. But people do not understand it. They often beat my son. My son doesn't care about my instructions. This behavior has increased because the school is closed."

According to table 5, the number of students with ASD having fear, impatience, or frustration was nine among 20 students, on the opposite, eleven students with ASD didn't feel any kind of fear, impatience, or frustration during the COVID-19 period. It also can be seen that 15 students with ASD out of 20 did more echolalia, hyperactivities or aggressive behavior in quarantine while four students with autism did not show mentioned kind of activities. Moreover, parents mentioned many kinds of challenging behavior they were facing at home, narrating eight students were found

getting upset easily, another five students were found reacting to any kind of instruction or correction for mischief from caregivers. Three students talking themselves too much, repetitive behavior had been seen in 3 students, staying in his/her world and paying no attention to anything were found in five students, conversely, two students didn't

like video call in the result being unable to take any therapy and no class appearance on online. In addition, two parents added that their children with ASD have inappropriate behaviors such as reluctance to put on any clothes, tearing curtains and eating more dirty things than before.

Table 6: Parents have no awareness to consult with specialists

Topic Area	Response	Frequency	Total
Informing about COVID-19 & hygiene	Yes	15	20
	No	05	
Having contact with professional in quarantine	Educational psychologist	00	20
	Child psychologist	01	
	Speech and language therapist	01	
	Physiotherapist or occupational therapist	00	
	Parent counselor	00	
	Teacher	06	
	None	14	
Having contact with friends & relatives online in quarantine	Yes	13	20
	No	07	
Sharing parents' quarantine experience with other parents who have autism child	Yes	13	20
	No	07	

During the interview, questioning about informing students with ASD about COVID-19 health guidelines, parents' response was 15 in positive to contrary negative was 5. Investigating the reason why not informing the sensitive issue like COVID-19 to their children, parents replied that their children wouldn't understand because of their children being non-verbal. Differently, informing her child about COVID-19 hygiene issues, Parent-17 (Mother of 4 years old son, Non-verbal) said:

"... Making him watch Duronto TV (A television channel in Bangladesh for children) awareness advertisement program about COVID-19 and using pictures. I made him understand why we have to be home now. Still returning home from the grocery, he wants to touch the products but I always say to him not to touch them until washing the products."

From table 6, it can be stated that consulting with professional specialists has been ignored in the time of quarantine. In that table, only six guardians had been consulted with teachers because the school had been started the online class. Only one parent was found who had been contacted with the speech therapist, child psychologist and teachers at the same time. Fourteen parents out of twenty were found not consulting with any specialist for their children with ASD in the COVID-19 pandemic. Interestingly, again Parent-16 who was a doctor shared the most recent experience of her life. She expressed:

"A few days ago, I along with my son paid a visit to the bank of a pond. A sudden change took place in him. He looks upward when it's night, laughs & speaks alone, gets angry., To deny eating, he hits tweaks me instead of saying so verbally. When I go near a river or pond with him, it seems that something has been fitted over him. Then I can't control him although he is only thirteen. I think something mysterious or invisible being controls him."

In table 6, thirteen guardians were found in two categories as per contact with relatives or friends via phone calls or social media platforms (Messenger, What's App, Imo) in quarantine and parents' share experience and knowledge with other parents having students with ASD separately. The remaining seven students neither connected with relatives or friends via phone calls or social media platforms

nor shared their experience or knowledge with other parents having students with ASD.

Possible strategies to overcome challenges

In phase two, being finishing interviews with parents, the researchers talked to the expert panel about parents' mentioned problems and opinions to seek solutions and strategies for future educational emergencies situation. They suggested many strategies to cope with the current situations which are framed into six approaches. They are:

- a) maintaining a proper routine
- b) spending quality time with students
- c) engaging with various kinds of activities
- d) providing services and creating awareness through media
- e) future community rehabilitation center
- f) money and resources support

Maintaining a proper routine

At the part of the interview with professionals, after hearing the challenging behavior of students with ASD in phase one, most of the professionals suggested maintaining a routine daily. It is understood that the main purpose of maintaining a proper routine is keeping students with autism active. As stated by the special educator, the routine will be formed with activities of daily life (ADL) as self-dependent activities according to their level of autism which will define what kind of ADL is needed to form the routine for each student with ASD (Autism Training and Technical Assistance Project, 2020, p. 15). She described:

"First of all, it should be counted that the children with ASD are not self-dependent, for the reason, the tasks should be followed making them self-dependent and if we do the tasks by following the routine, I think that's enough.....in which tasks the children with ASD need full help, fulfil help should be provided to them, in where they need partial help, we should provide partial help, and in where they don't need any help only talking from distance will help them enough, we should help them in that way. That's all you have to do." The speech and language therapist also suggested adding the rules of hygiene for the novel coronavirus in their routine

which was related to the current real-life situation. Focusing on the guardian's lack of knowledge, the parent counselor suggested that if the guardians didn't know how to make a proper routine for their autistic children, they could change their old routine according to their needs with the help of school teacher or professionals for student development in quarantine. The educational psychologist also proposed that the routine had to be flexible which could be changed in keeping with students' needs. The parent counselor further added that the routine had to be enjoyable and playful and the family members must to work together helping the student with ASD to follow the routine and the family member also could divide the routine task themselves to assist the student properly (Autism Training and Technical Assistance Project, 2020, p. 5-8).

Spending quality time with students

In phase one, it was found that guardians were having a hard time understanding their children's emotions, they didn't know what to do for their children's challenging behaviors. As human beings, it is frightening for both parents and students if they don't feel physical and psychological security in any kind of emergency. In the COVID-19 pandemic situation, sudden surrounding changes is much easier for the non-autistic student than for the student with ASD. In this situation, the parent counselor advised to create comfortable environment to make their children feel secure and make them understand that family members are always with them in any kind of challenging situation (Autism Training and Technical Assistance Project, 2020, p. 14). She stated:

"Parents should spend quality time with children for a particular time. The family members will sit down with the child with ASD together only to gossip, there will be no methodology or therapy only gossiping or group activities around the child will work. Before sleeping and after waking up, parents should show affection to the child. Not only if the child does anything wrong but also doing anything, parents should praise the child in positive way, not with chocolate or food but with facial gesture. Because our children with ASD understand the gestures well. The praise, facial gestures are more effective than anything. Now we cannot ignore the children's behavior problems and tantrums all the time. Because sometimes they do self-introducing behavior if we ignore them, it can be harmful to the child. The children do this kind of behavior for getting affection or implying their existence. It has to be made them understood by hugging them and showing affection that we are understanding that you are having the problem and we are always with you."

By her suggestion, spending quality time was always required for them, there would be a specific time when all the family members would be together to talk about nothing serious but just to play with the student with ASD, gossip with him in a funny way making him comfortable. However, in Bangladesh context in Dhaka city, the majority of families are nuclear, where fathers are outside for most of the time for their profession. Following the situation, the educational psychologist suggested mothers (Housewife) would make a specific time to play with their children where both mother and child could enjoy and after returning from work, fathers would spend little time with his child regularly and for professional mothers, she would make her working time flexible to spend quality time with her child

(Education in New Zealand, 2020).

Engaging with activities

Focusing on the sleeping problem of students with ASD from phase one in COVID-19 situation, the physiotherapist commented that the lack of physical activities in quarantine led to digestion problems, heart-lung malfunction, inactiveness, lack of concentration which promoted insomnia and aggressive behaviors in person. He suggested designing a daily routine for students with ASD, in which many kinds of activities should be considered for students' development. He further added that physical exercise twice a day and games & play therapy would be included in their routine for physical movement. Moreover, the educational psychologist advised parents or caregivers to play with autistic students in a friendly way and any kind of pressure or hardness to follow the routine shouldn't be pressed on students in quarantine. In the addition, the parent counselor proposed that homemade materials or daily used materials could be used for games and play therapy. She also added that for managing sensory overwhelming or tantrums, students' favorite materials had to be provided and repetitive behavior could be turned into fun games (Autism Training and Technical Assistance Project, 2020). She expressed:

"Now the repetitive behaviors have been increased like for example hand flapping, circling or random movements. For this behavior I suggest that these kinds of behaviors are not harmful so we do not need to be panic about this. For decreasing this behavior, we can make it meaningful such as if child flap their hands rapidly, it can be turned into bird's flying. In round and round circling situations, it can be turned into dancing and finger flickering turning into 'what do we see between the fingers?' games. We can play with this play with repetitive behavior child as a result he/she will take this behavior as a game."

The child psychologist also shared an innovative idea in the interview that engaging more individuals with ASD in sports would be a dimensional decision. She believed that individuals with autism were able in a different way, engaging them in sports would exemplarily event to show their abilities. She also added that sports would relieve their stress as well as it would make a path for individuals with autism to be socialized (Murat AKYÜZ *et al.*, 2016)^[52]. She stated:

"Now few schools are working on sports for children with autism. This is a very helpful way to encourage children with autism. If it starts in a holistically, it will be very good. It has just started now in Bangladesh but if it starts with the help of all, the wrong ideas or thoughts about them can be removed and it will bring good results in future."

Providing services and creating awareness through media

In phase one, it was noticeable that maximum parents did not have enough knowledge about maintaining a student with ASD and they did not realize to contact professionals not even with school teachers which drove making the guardians unable to maintain challenging behavior. Some experts suggested that parents should contact with professionals or receive online services from the respected area and in future, parents were needed to be trained (Lam *et al.*, 2008)^[44]. With the question of developmental work for students with ASD, the child psychologist commented:

“We cannot say that many measurements have been done but it has been started, it is hope for us. At present, a lot of work on human mental soundness and awareness about autism is being conducted which were not seen before. Over the past few years, a good awareness has been created. Now we can understand that autistic children can be wealth for us in a different way, that’s been believed now. We can go forward with children with ASD, if general people cooperate.”

By reaching out to professionals, the conscious guardians will be benefited, on the contrary, the remained guardians who have little knowledge about the management of ASD will be in the same situation for lack of awareness. Creating awareness through media and acknowledging students’ physical and mental health fitness will not only help students with disabilities but also non-autistic students. The physiotherapist proposed that government and non-government organizations could easily provide core guidelines and hotline services through TV media, radio, network companies and newspapers. He expressed:

“Let me tell you an interesting thing. Bangladeshi people who do not know the English alphabet, cannot speak English properly and also do not understand well, can run phone or smartphone well, use Facebook and also watch different kinds of videos on YouTube. From those platforms, there is an opportunity to get information.”

First of all, these media will create awareness about students’ physical and mental health soundness and then provide the guidelines to follow based on situation demand. In the addition, the educational psychologist recommended that conscious guardians might make the awareness by sharing their activities with their children with ASD on Facebook and YouTube for other guardians’ acknowledgment and the professionals also might provide their services by making a content video on precise timing in quarantine.

Future community rehabilitation center

According to phase one, some parents asked for physical visiting support such as their inadequacy of management knowledge about their children in quarantine time, they didn’t have enough knowledge for following any proper routine or any kind of therapy knowledge. They suggested that if anyone would give any advice or instruction it would be beneficial for them. During the interview, following the lack of knowledge as the guardian’s problem, the physiotherapist suggested that like the present community clinic center, a community rehabilitation service center should be built up in near future in every community, village, ward or sub-district based on the situation demands (Mann *et al.*, 2020) ^[46] & (Kornack *et al.*, 2020) ^[41], (Aishworiya and Kang, 2020) ^[2]. He stated:

“In future community rehabilitation services should be run like community clinics where complete rehabilitation will be provided. There will be every kind of professional worker starting with the physiotherapist, educational psychologist, speech and language therapist, special educator, social worker etc. which name will be Community Rehabilitation Service. It will be set up in communities, villages, wards, sub-districts across the country according to necessary. They will not only provide services to autism but also any kind of disability or symptom arise in the community.”

Following his opinions, the center would have proper data

and information about every student with a disability in their community and they would have special educators, child psychologists, physiotherapists, speech and language therapists, educational therapists and social workers etc. and they would not only provide service to students with disabilities but also every challenging purpose about students comes in their community. Besides, already some parents demanded the professional service provider for a physical visit to their house in quarantine giving those guidelines and also the students with ASD would love their companies. In line with this situation, the educational psychologist suggested that visiting home one-to-one services by maintaining hygiene rules would be possible if the government or non-government organization took proper measures in the future considering this situation (WHO, 2021) ^[69]. Providing one-to-one services will be much easier if the community rehabilitation center builds up in the future.

Money and Resources Support

During the interview in phase one with parents, some parents expressed their helplessness about not having enough money in their hands because of losing their job in the COVID-19 situation making them frustrated which affected students’ mental health too. Some guardians’ age was 50+ which also indicated dependency on others who worry about their children’s future with ASD. Hence, having a lack of knowledge about students with ASD maintenance, they do not know what kind of equipment they need for their children’s therapy. For attending online classes, receiving therapy or professional services, parents need electronic devices which few families can afford. According to one guardian’s suggestion, the government should provide allowance as well as relief assistance in an emergency and also electronic devices for students’ holistic development (OECD, 2020) ^[53].

Discussion

In the study, the researcher tried to figure out the quarantine situation of students with ASD and find out the possible strategies for resolving the COVID-19 situation by taking interviews with professionals for both parents and students in the COVID-19 pandemic. Maximum students with ASD were informed about hygiene issues & practices in the COVID-19 pandemic and they seemed to understand the situation. In a few cases, they were not informed assuming they would not understand for being non-verbal. Non-verbal students with ASD are known to understand any type of instruction with pictorial cues. (Lal & Sanghvi, 2015) ^[43]. Routine breakdown became challenging for the students with ASD which influenced students sleeping hours and daily activities resulting in accelerating challenging behavior and changes in food habits. In the interview, a good number of students with autism spent their time on screen (Computer or laptop, TV & Mobile), they continued their prior learning like memory & puzzle games, drawing, crafting, filling beads with thread or doing nothing at all in their daily activities. With the investigation for new learning, it was discovered that they were engaged in domestic works, one student was found learning swimming. One of the astonishing findings was most of the guardians did not develop any routine for the new situation because of not having adequate knowledge in that area and they also did not consult with any professionals for continuity of their

children's development in the COVID-19 situation because of lack of awareness which indicated that parents thought it was only school's responsibility to ensure development of their children. However, being in lockdown, the physical exercise of students with ASD was fifty percent in the study. In a study in Turkey, it was revealed that parents realized that physical activities had positive effects on the development milestones of their children with ASD and although they wanted to involve their children with autism in physical activities, they had barriers including the occupation of family members, security concerns, the insufficient distance of education infrastructure, anxiety of routine disruption (Esentürk, 2020) ^[64]. In a study, it was revealed that by participating in physical activities, the level of mental stress and anxiety was reduced at a great point for students with ASD (Hillier *et al.*, 2011) ^[35].

The researchers' foremost concern was the acceleration of challenging behavior in students with ASD which turned true. In the interview, maximum parents notified the researchers about their children's unfavorable behavior, on the other side of the coin, few parents were enthusiastic about their children and they were managing their children in their way which turned into effective instead of complaining which was beyond the researchers' expectation. Some parents were sharing their experiences on social media involving his/her child with ASD as well as they were encouraging other parents to be positive and suggesting them the manageable ways as much as they could, although they realized that every student with ASD was different. During the interview, two parents were reluctant to give the interview, oppositely some parents were thrilled by getting a phone call about their child with autism, some parents were giving more information willingly about their children, and two parents almost cried worrying about their children's situation and their future. As far, it was mentioned before using of snowball technique, parents were giving other guardians' contact numbers happily.

In the interview, feeling sad, reacting to instruction, talking themselves too much, repetitive behavior, no attention to study or anything else, no interest in video calls are found as challenging behaviors. With the question of challenging behavior, two guardians expressed their frustration, one of them also believed that some spirit had over her child and she was thinking to send him to boarding school, another student's age was six and went to school only for two months before the pandemic, she had become frustrated about her child's behavior, losing her nursing job and she also expressed her need for financial support in the pandemic situation. In a study by Yarımkaş and Esentürk in 2020 ^[64], the authors commented that staying at home for a long time can create a lot of problems along with mental health. In another study, it was revealed that parents' adjustment to COVID-19 might be decreased by anxiety about being jobless, insufficient financial support, lack of access to health care facilities or treatment and extension of wait-lists for early intervention programs (Smile, 2020). On the other hand, some parents were so positive about their children, they were coping with the new situation and sharing their ideas and daily experiences with others through the social media platforms. One parent opined that she did not afraid to share, if she did not share, other parents would not know. Moreover, one parent suggested being well-dressed with a smile in front of students helping the

students to be beautiful and happy too. Although being in lockdown, all family members can be together, and this opportunity was positive for some students while maximum guardians' opinions were for maintaining social distance and remaining parents prefer to be at home which was negative for them and their children with autism too. It is said that in holistic development for students with ASD, all family members' efforts are required equally. An author recommended that home education was good for students with autism because homeschool provided optimal learning (Gusman, 2006). In Philipians, the authors suggested that many are better than one in home education during isolation and recommended to participate all family members in homeschooling for the student with autism. All the family members do not mean only joint family it can be only father and mother. In the study, it was also found that parents were attending online therapy classes for their children and later applying to students with autism and paying attention to other siblings too (Cahapay, 2020) ^[14]. A few guardians stated that their children's hyperactivity had not increased during lockdown because all the family members helped their child with autism in every aspect of management way. They seemed satisfied with that help. One researcher emphasized the importance of the role of the families and professional consultants in the home education of students with autism (Cook *et al.* 2013) ^[20]. Another guardian said that her relatives lived in the same buildings in consequence the student's cousins played with him in leisure times in lockdown for this reason her child did not feel bored at all. It is observed that two students (Age 29 & 30) out of twenty students were adults who did not show any kind of challenging behavior, on the other hand, they were curious about the new norms and helped their families to maintain the hygiene issues. Comparing with the adult group, the teenager group did moderate type hyperactivities but they were manageable as well as understandable with help of the parent's instruction in the study. In general, hyperactivities (talking too much, repetitive behavior, being naked, eating dirty food) and aggressive behavior (reacting, showing tantrums) were found more in younger students (N=7, under 10 years old; Table 1) than other two groups. It can be determined that receiving institutional education after a specific time, influenced students (for adults & teenagers) well to be understood their social situation.

In the present situation, the Bangladesh government also declared that until the whole risk of COVID-19 would not be eliminated, the educational institutes would not be open. For this reason, when the full educational system will be run entirely again and the students with autism will be back in their school background, is still uncertain. In Bangladesh, for persons with disability the Ministry of Social Welfare, Ministry of Women and Children Affairs and especially inclusive education by the Ministry of Primary and Mass Education (MOPME) & Ministry of Education (MOE) ensured human rights, education and other development. Now adding the health issues in the COVID-19 period, the safety of all kinds of people is monitored by the Ministry of Health and Family Affairs. According to MOE & MOPME initiatives, they mentioned students with disabilities learning continuity and special teachers were instructed to teach online and kept communication with students with disabilities. In future plans, after reopening school, the school administration would maintain hygiene issues and teachers would be careful and flexible with students with

disability. Ministry of Education and Ministry of Primary & Mass Education (MOE & MOPME, 2020, pp. 10-15) published their short, mid and long-term initiatives for the COVID-19 pandemic. The short-term initiatives (immediate - 6 months) include students' and teachers' health safety by maintaining hygiene practices and teachers will use online platforms to continue the teaching by modifying the content of the curriculum to reduce learning loss so that students can cope with the learning when the school reopens. It is mentioned to give extra focus on marginalized students especially girls, out of school children and students with disabilities. It also enlists that giving a strong message to parents and students to minimize the drop-out rate and raising awareness to practice health and safety issues and to ensure the effectiveness of remote distance learning and continuity, it is instructed to arrange teacher training to learn online teaching-learning pedagogy by making the peer group or small groups of teachers through mobile, radio and internet. Mid-term initiatives (immediate - 12 months) emphasize on preparedness of school re-opening plan, financial or non-financial support to disadvantaged and low-income families for post-pandemic recovery ensuring the health, safety, hygiene and school cleanliness with the help of the school, teachers, head teachers and local administration and also teachers need to take advance readiness for making special lessons plans and assessment system, reviewing textbook and curriculum once school opens. The teachers have to be careful with students who are lag behind and students with disabilities as well as with students' mental conditions and nutritious food will be provided to students. Long terms initiatives (immediate - 12 months) consist of future sustainable systems such as developing crisis response & recovery plans, sustainable remote learning platforms, low-cost learning packages, remote teacher professional development, online assessment system and health tracking system. Following MOSW along with NDDF (National Disabled Development Foundation) announced financial support and other assistance for people with disabilities in the crisis moment but there was no mention of anything or any instruction about a special need child or student in the COVID-19 pandemic. However, it can be observed that government directives about relief assistance and necessary measurement to disabled person and children but no mark about education and mental help for students with disability or ASD. Besides, others significant government organs like MOHFA (Ministry of Health and Family Welfare), NDDF websites contained only general guidelines about COVID-19, parenting or prevention from COVID-19 for students with disabilities nothing details about education, mental support and other assistance. On the contrary, two non-government organizations named Autistic Children's Welfare Foundation (ACWF) and Society for the Welfare of Autistic Children (SWAC) did not upload anything relating to the COVID-19 pandemic on their websites (ACWF, 2020; SWAC, 2020) [9]. Although Bangladesh is working on inclusive education, the nature & needs of students with disabilities and special schools are different from non-disabled schools. For this reason, there should be separate consideration of education, aid, assistance, plan and initiative for students with disabilities as well as ASD. It is also identified that government websites related to disability are not well developed and had not enough information, data, videos or posters etc. related to disability. These

websites can be updated and can provide necessary information and services for parents having students with ASD in an emergency in the future.

During the interview, discussing the professionals about parents' information and opinions, they suggested major six strategies: maintaining a proper routine, spending quality time with students, engaging with various kinds of activities, providing services and creating awareness through media, future community rehabilitation center, money and resources support. The first four of them (maintaining a proper routine, spending quality time with students, engaging with various kinds of activities, providing services and creating awareness through media) can be applied right now with the help of government and non-government organizations by providing the proper guidelines like other hotline services which are active now for other services. Nevertheless, building a community rehabilitation center will take much time for ensuring all services due to the arrangement of proper training and assembling the professional persons will be time consuming. In 2013, the necessity of creating a community-based program was felt by American researchers. They commented that by making a parent-professional network, it would be easy for family counselors to know their clients' needs and assisting in a variety of sources to support their clients and a community-based program would help as an adjunct to family counseling (Lock *et al.*, 2013) [45]. Some researchers are found the necessity of community-based programs for students with autism; (Mann *et al.*, 2020) [46] & (Kornack *et al.*, 2020) [41] in the USA, (Aishworiya and Kang, 2020) [2] in Singapore. Two kinds of research were revealed on telehealth services (Health-related services and information via telecommunications and digital communication technologies) in the COVID-19 period for students with autism; (Solomon and Soares, 2020) & (Cameron *et al.*, 2020) [15] in the USA. Some other research on distance support services in the COVID-19 situation was found (Frederick *et al.*, 2020), [33] (Colombo *et al.*, 2020) [19] & (King *et al.*, 2020) [40] in the USA. In a study in India, the relationship between parents of students with autism and professionals did not nurture because of parents' cultural barriers which did not lead to increase parents' efficacy and made parents unable to take care of their children with autism. For this reason, the researcher suggested for parent-mediated interventions better parent professional partnership (Ramachandran, 2020) [57]. Consequently, further researches are needed on parent-professional relationship for creating community-based program which will be effective for not only the COVID-19 pandemic but also any kind of emergency like flood, earthquake, landslides, cyclones and other disasters in Bangladesh.

Recommendation

There are some suggestions to face the COVID-19 pandemic situation effectively like focusing on being connected, creating awareness, increasing internet literacy, creating active communities, modifying acts & policies, etc.

1. All family members of a student with ASD should work together not only to confront the challenging time but also all the time. Parents' networks are needed to be united and share their knowledge (Autism Speaks, 2018) [7]. They should take the necessary steps by understanding the needs of the students. Parents who have enough materials and can take online services

- from the doctor, therapist, school teacher & seminar and then they can spread this information to everyone. By doing this, parents who are suffering from a lack of different types of materials can benefit and treat their children in that way.
2. Parent training can be arranged to improve their knowledge and abilities about how to get internet services. In these services, college and university students can work together temporarily in their free time to help the parents who need help.
 3. In this grievous time, mass media, social media can arrange instructive programs like talk shows, dramas, cartoons, and awareness advertisements for developing the knowledge of parents of autistic students. Websites should be developed in Bangla for the guardians' convenience containing informative data, knowledge, routine & other tips, effective videos and podcasts about therapy, learning contents, awareness and contact numbers in case of interpretations.
 4. Hotline services, crisis text services should be developed for emergency with help of the government. Bangladesh government already has launched some emergency hotline services in that case it won't be difficult to include this kind of service for the emergency help for the parents of disabilities. For the persons who lost their jobs for the COVID-19 situation, the government can include them in these services contemporarily.
 5. The district officer can include youth voluntaries to collect data about students with disabilities in his communities and sub-districts. According to the data and information, they can distribute awareness leaflets with significant information and contact numbers for emergency supplies.
 6. During this transitional period, special teachers should contact their students and guardians regularly and also provide the proper guidelines. Teachers can create groups to exchange their knowledge and help each other with online pedagogies. They can prepare their learning video following guardians and students with ASD's needs and share them with others using social media platforms.
 7. More research should be done for effective implementation and the Disaster Management Act 2012 should be amended to ensure students with ASD security and educational rights. Government and non-government organizations should work together to meet every student with ASD's needs in a crisis moment.

Limitation of the study

With the new term like COVID-19 and conducting the research maintaining health guidelines, there are some limitations were appeared in the study, they are described below:

1. The small budget is one of the limitations of this study. As this research sampling technique is a snowball, searching guardians of students with autism, taking interviews from guardians and suggestions from expert panels were made by phone calls. All call rates are covered by the researchers' poor funds.
2. The small sampling size is another limitation of this study. It was very difficult to get in contact with the students with ASD and some parents were not interested to give interviews in this pandemic period of

COVID-19.

3. Some parents didn't give information spontaneously and some older age parents could not understand the questions properly during the phone call. So, there is a lack of expected information on some issues.
4. It was very difficult to get access to the members of professional especially government representatives. Because getting permission was not easy and there had a lot of processing that could not be done at this pandemic time. If the researchers could *get all* significant government representatives from different ministries or directorates connecting with a disability, this study would be more resourceful.
5. The deficiency of the literature review of this research area is another limitation of this study. As past studies of this area are not available, so researchers didn't get the chance to collect other research and could not able to compare important variables (Place, Age, Sex, Services) with this paper.
6. Time allotment, work schedule and sharing knowledge are great challenges for the researchers. It was quite difficult to work together from the different places in the situation of COVID-19.

Conclusion

In a developing country like Bangladesh, COVID-19 has brought disaster above all. Parents or guardians and students with ASD faced different types of behavioral and situation challenges in this pandemic period. In this study, it was found that some parents were not conscious at all and had no adequate knowledge about ASD that's why day by day they were procrastinating in terms of their children's development and facing unexpected barriers. On the other hand, some parents were adjusting to the situation, teaching new things and handling their children sincerely and strategically through their initiatives. As a result, these parents were able to successfully overcome the barriers and see improvement in their children. Remembering the old proverb:

"Where there is a will, there is a way"

It is known that creating awareness about disability has been started for the last two decades in Bangladesh as a result, it is determined that few parents' innovative initiatives were found because of awareness in the study. This study is a little contribution to the journey of the educational revolution towards inclusive education. The challenges in other disabilities areas can be figured out following the procedures of this study. If this research could bring out the whole students with ASD and their current critical situations in Bangladesh in the study, it could be representative of the COVID-19 situation as a part of South Asia. In that case, it is essential to carry out more research in that area to know their real situations and take preparation for their future needs. One of the hopes of this study is that by taking effective and time-demanded strategies in educational emergencies, Bangladesh will be exemplary for other countries in the world in the COVID-19 outbreak.

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