Behavioral and Emotional Problems in Children with Pre-existing Psychiatric and Neurodevelopmental Problems during COVID-19 Pandemic

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Abstract

Objectives: The present study aimed to explore the prevalence of various emotional and behavioural changes associated with the COVID-19 outbreak experience on children with pre-existing psychiatric or neuro developmental illness.

Methods: Following ethical approval, data was collected in July-August, 2020. Parents of children receiving treatment from child mental health services in a tertiary care hospital were contacted and a structured questionnaire was used to collect data on emotional and behaviour changes noticed in their child, impact on daily routine and educational activities since the lockdown. Data was analyzed by SPSS-26.

Results: parents participated. The Mean age of children was 8.67 + 4.25 and 59% were male. Neurodevelopmental disorders and emotional problems were the predominant diagnoses in children. A significant proportion of parents (143; 63.6%) noticed changes in their children's emotional state and behaviors during the lockdown. Two-thirds of the parents believed that their child's anger has worsened during lockdown with increased likelihood of getting into arguments with family (49.8%), more behavioural problems (43.1%), and being more irritable (39%). Every fourth parent reported worsening anxiety and nervousness in their children. Majority of parents mentioned disruption in children's routines with increased screentime and less physical activities and adverse impact on educational activities. 35% parents admitted to feeling stressed and facing difficulties in managing their children's behaviour in the prevailing situation.

Conclusions: Significant worsening of emotional and behavioural problems was noted during COVID-19 outbreak among children with preexisting psychiatric problems. Policies should take into consideration the implications of the lockdown for this most vulnerable group and supportive interventions for the immediate and the future should be promoted.

Keywords: COVID-19, neurodevelopment; child and adolescent psychiatry; mental disorder; children.

Introduction

The COVID-19 pandemic has impacted the mental and physical well-being of people across the globe.[1] A particular population at risk of psychological morbidity is the children who rely on schools and out-of-home interactions to fulfill their social drives and groom their practical skills.[2] As a result, parents have reported increased screen time, agitation, irritability, fear of infection, decreased physical activity, sleep disturbances, and mood and appetite changes in children.[1,3,4,5] Children may develop acute stress disor-der or post-traumatic stress disorder in response to quarantine.[6,7] Multiple studies on children in COVID-19 showed an increase in emotional and behavioral problems.[1,8,9] These psychological effects in children may also manifest as nightmares, clinginess, separa-tion anxiety, or regression.

The effect of COVID-19 becomes even more pronounced in children with any pre-existing psycho-logical or neurodevelopmental morbidity.[10] Closure of schools has led to a loss of a source of learning of their communication and social skills.

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With the closure of hospital outpatients, it becomes difficult to access mental health services, especially in popula-tions living in rural areas.[4] Literature suggests that children with an autism spectrum disorder or intellec-tual disability are at 4 times higher risk of developing psychosis or other psychological morbidities even in normal conditions.[11] Loss of routine and regular therapy services, increased screen time and lack of physical activity due to confinement at home and limited availability of entertainment resources also contribute to psychological problems in these children.[8,10]

Limited literature is available regarding the mental well-being of children with pre-existing psychological and neurodevelopmental morbidities in the previous pandemics as well as in COVID-19. It is therefore important to assess the prevalence of emotional and behavioral problems in these children. We were unable to find any study from Pakistan which address this topic. To fill this information gap, our study aims to find the prevalence of different emotional and behavioral changes in children with pre-existing psychological or neurodevelopmental morbidity during COVID-19 in Pakistan.

Methods

The study was conducted through July-August 2020. The study was conducted in compliance with the ethical principles for medical research involving human subjects of the Helsinki Declaration and ethical approval was sought from the Institutional Review Board, KEMU. The study sample included parents of children who had one or more children aged<18 years with a history of psychiatric or neurodevelopmental disorder and had visited the Child Psychiatry Department of Mayo Hospital for the treatment of their children in a month before the COVID-19 related lockdown. Contact details were accessed from the departmental database and telephonic interviews were conducted by a trained psychologist. Telephonic Interviews were conducted to limit unnecessary exposure to infection. Informed consent was taken before an interview. Anonymity and confidentiality were ensured. Purposive sampling technique was used. Exclusion criteria included parents who did not give consent, and the presence of any language barrier.

A structured questionnaire used by Orgiles et al was used to interview the parents.[1] It had various sections including socio-demographic information form for parents and children, parents' perception of how quarantine is affecting their child, changes in child's routine including screen time and physical activity and information on engagement with educational activities during lockdown. Parental perception of the impact of quarantine on the emotional well-being included 32 questions comprising of themes like anxiety (my child is restless, my child is anxious, my child is uneasy), irritability (my child is irritable, my child argues with the rest of the family), sleep disturbances (my child sleeps little, my child wakes up frequently), appetite changes (my child has no appetite, my child eats a lot), fear (my child is afraid of COVID-19, my child has nightmares, my child is easily alarmed), clinginess (my child is very dependent on us), mood changes (my child is angry, my child cries easily, my child has behavioural problems) and regression (my child has shown deterioration/ regression in behaviour and function). All questions were assessed on a 3-point scale ranging from 1-3 where 1 indicated 'less compared to before', 2 indicated 'no change' and 3 indicated 'more compared to before'. Changes in the child's routine included questions about screen time, physical activity, and sleep before and during the lockdown. Educational activity during lockdown was also assessed regarding tuition outside the home, home tuition, teaching by family members, online education by schools, school assignments, religious education at home, or in mosques (Yes, No).

Data was entered into SPSS-26. Descriptive statistics were done to analyse variables of interest for the study. Data is presented as frequencies and percentages. Chi-square was used to assess any significant differences among gender. P-value <.05 was considered as statistically significant.

Results

Two hundred and twenty-five parents agreed to participate. The mean age of children was 8.67 + 4.25 with majority being males (59%) and belonging to urban areas. Almost half of the participants (51.6%) were living in joint family system. Table 1 presents the socio-demographics of the children and their parents.

A significant proportion of parents (143; 63.6%) noticed changes in their children's emotional state and behaviors during the lockdown and school closures and 35% admitted to feeling stressed and facing difficulties in managing their children behaviour in the prevailing situation. The most common changes were that, during quarantine, their children were angrier (67.6%), more likely to get into arguments with family (49.8%), had more behavioural problems (43.1%), afraid to sleep alone(40%), cries easily (41.8), more irritable (39%), more dependent on parents (38.7%) and had more difficulties in concentration (37.3%). Table 2 provides more details about the percentage of the parents who noticed emotional and behavioural changes in their children during the lockdown. Chi-square revealed no significant difference between emotional and behavioural problems in gender except that being afraid of COVID-19 and physical complaints (like stomachache) were significantly higher in females and concentration problems were reported more in boys (P-value <.05). Parents (183; 81.3%) also reported that during the lockdown, their children were spending much more time daily using screens such as (iPads, TVs, mobiles, or computers), spending less time doing physical activity (121;53.8%), however not much change in sleep duration was noted. Among the screens, television and mobile were being used by 42% and 40% of children respectively. Information provided by parents about children educational activities during the lock down and school closure is given in Figure 1.

Table 1: *Socio-Demographics of Children and Parents. (N=225)*

Variable			N (%)
Child's Information	Gender	Male	133 (59.1%)
		Female	92 (40.9%)
	Residence	Urban	197 (87.6%)
		Rural	28 (12.4%)
	Diagnosis	Intellectual Disability	60 (26.6)
		ADHD	20 (8.8)
		Autism Spectrum Disorder	07 (3.11)
		Behaviour Problems(Conduct, disorder, ODD)	18(8)
		Conversion Disorder and other psychosomatic presentations	30 (13.3)
		Emotional Problems (Depression, anxiety,OCD etc)	30(13.3)
		Psychosis (Schizophrenia, Acute Psychotic episode)	25(11.1)
		Bipolar disorder	10(4.4)
		Miscellaneous	25(11.1)
Parents Information	Father employment Status	Self Employed	74 (32.9)
		Full time Job	53 (23.6)
		Part-time job	34 (15.1)
		Unemployed	46 (20.4)
		Lost Job due to COVID-19	05 (2.2)
	Mother Employment status	House wife	201 (89.3)
		Skilled Worker	15 (6.7)
		Unskilled Worker	04 (1.8)

ODD, Oppositional defiant disorder; OCD, Obsessive Compulsive disorder.

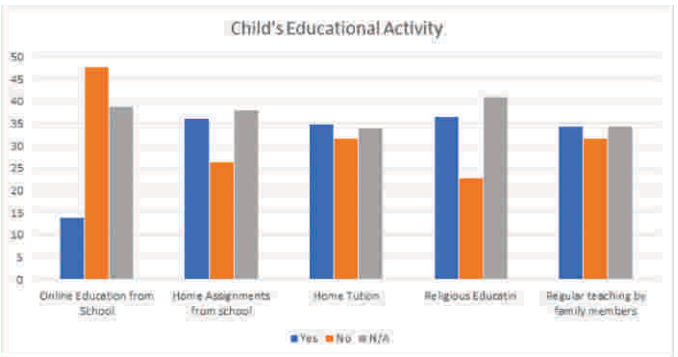

Figure 1: *Children's Engagement in Education during Lockdown among the Sample*

Discussion

According to our knowledge, this is the first study in Pakistan that specifically focused on the psychological effects of COVID-19 Pandemic on the children with pre-existing emotional, behavioral and neurodevelopmental problems. COVID-19 Pandemic has affected almost every human on the globe and children are not immune to the devastating psychological impact of the disease. Mental well-being has suffered a lot during the pandemic due to lockdown and other practices of social isolation. Children with emotional and behavioral problems, in particular, are increasingly vulnerable to the adverse effects of the prolonged social seclusion.

In times of social isolation, it has become increasingly difficult to provide children with positive social interactions to develop behavioral and emotional health.[2] Our results revealed a significant worsening of the behavioral problems during lockdown among children with pre-existing psychiatric problems. Two-thirds of the parents believe that their child's anger has worsened and half of the parents have reported that their child argues with the rest of the family. Almost 43% of the parents have reported increasing restlessness and every third parent has

Table 2: *Parents Perception of the Emotional and Behavioral Effects of the Quarantine in their Children with Preexisting Psychiatric Difficulties*

S. No	Questions	Less as compared to before lockdown		No Change before and after lockdown		More as compared to before Lockdown	
		N	%	N	%	N	%
1	My Child is worried	05	2.2	180	80.0	39	17.3
2	My Child is restless	15	6.7	113	50.2	96	42.7
3	My Child is anxious	13	5.8	153	68.0	57	25.3
4	My Child is sad	24	14.8	148	65.8	52	23.1
5	My Child has nightmares	19	8.4	175	77.8	30	13.3
6	My Child is reluctant	13	5.8	171	76.0	35	15.6
7	My Child feels lonely	16	7.1	177	78.7	27	12.0
8	My Child wakes up frequently.	21	9.3	175	77.8	29	12.9
9	My Child sleeps little.	09	4.0	182	80.9	31	13.8
10	My Child is very indecisive	09	4.0	161	71.6	53	23.6
11	My Child is uneasy	21	9.3	119	52.9	83	36.9
12	My Child is nervous	21	9.3	147	65.3	56	24.9
13	My Child is afraid to sleep alone.	08	3.6	125	55.6	90	40.0
14	My Child argues with the rest of family	21	9.3	91	40.4	112	49.8
15	My Child is very quiet	11	4.9	181	80.4	32	14.2
16	My Child cries easily	16	7.1	114	50.7	94	41.8
17	My Child is angry	27	12.0	46	20.4	152	67.6
18	My Child asks about death	04	1.8	201	89.3	18	8.0
19	My Child feels frustrated	18	8.0	134	59.6	72	32.0
20	My Child is bored	22	9.8	156	69.3	46	20.4
21	My Child is irritable	22	9.8	112	49.8	88	39.1
22	My Child has sleeping difficulties	08	3.6	167	74.2	46	20.4
23	My Child has no appetite	15	6.7	168	74.7	41	18.2
24	My Child is easily alarmed.	04	1.8	203	90.2	17	7.6
25	My Child has difficulty concentrating.	05	2.2	132	58.7	84	37.3
26	My Child is afraid of COVID-19 infection	05	2.2	210	93.3	08	3.6
27	My Child is very dependent on us	10	4.4	127	56.4	87	38.7
28	My Child has physical complaints like headache, stomachache	38	16.9	146	64.9	40	17.8
29	My Child has behavioral problems	13	5.8	115	51.1	97	43.1
30	My Child eats a lot	04	1.8	195	86.7	25	11.1
31	My Child worries when one of the parents leave the house	09	4.0	143	63.6	72	32.0
32	My child has shown deterioration/ regression in behavior and functioning (Bedwetting/ decrease vocabulary/ daily skills).	10	4.4	192	85.3	22	9.8

reported increasing frustration. The magnitude of the psychological impact can be felt with 39% of the parents reporting irritability and increased dependence of the children. These results are in line with studies from China, Italy and Spain reporting high levels of irritability, restlessness, clinginess and inattention among children in quarantine during COVID-19.1.5.9 Literature suggests that defiant behaviour is one of the common reactions noticed by parents, when children are worried.[2] Worsening of behavioral problems can be explained with the fact that significant proportion of our sample has varying degrees of intellectual disability and other neurodevelopmental disorders. These children have impairment in communication skills and their worsening behavioral problems may be a manifestation of their inability to express and communicate in a stressful environment. A study done on children with an autism spectrum disorder in COVID-19 showed a magnified psychological impact as well as difficulties for parents to deal with them.[12] Similar studies were done in children with ADHD, eating disorders and OCD which revealed high levels of anxiety, irritability, anger, fear, nervousness, mood changes, sleep distur-

bances, appetite changes and signs of regression.[13-16] Children with emotional difficulties may feel overwhelmed with fear, deaths and morbidity associated with COVID-19. Similarly, disease containment measures can worsen Obsessive-Compulsive symptomatology in children and adoelscents.[2] Prolonged stressful environment with the interruptions in medical treatment and psychotherapies multiplies the magnitude of the problems these children and their parents are facing. Although Telehealth services have been functional, some parents may find it inconvenient to discuss their problems on a telephonic interview. Lack of face-to-face services and peer support groups can lead to higher levels of psychological problems in the current scenario.[4]

Studies suggest that children as young as 2 years can sense changes in their surroundings and are subject to mood and behavioural changes in response to it.[17] Hence, anxiety in parents and family members due to COVID-19 can lead to anxiety in children as well.[18] In this study, we have found that 36% of the parents were experiencing significant stress in the current pandemic. Increase distress in parents can affect their ability to be supportive caregivers, in turn leading to worsening of psychological problems in children.[19] Excessive exposure to information regarding COVID-19 can also lead to high levels of anxiety in children.[17] In our study, every fourth parent reported worsening anxiety and nervousness in their children, while 37% of the children were having difficulty in concentration and a feeling of uneasiness. The children were also facing anxiety about their parents as evident by every third child becoming worried when parents leave the house. In our study, 40% of the children were afraid to sleep alone while 13% were having nightmares. Every fourth child was feeling increasing sadness and 40 % of the children were crying excessively indicating that children with pre-existing psychiatric and developmental problems have been significantly affected by the COVID-19 Pandemic. Literature from previous disasters and pandemics also suggests an increased incidence of anxiety and PTSD in children and their parents and regression of previously attained milestones.[20,21]

With the closure of schools, there has been an increasing difficulty for children to maintain their everyday routines.[3,4] As highlighted by Wang et al, we also found that with school closure and lockdown, parents noted increased screen time, decreased physical activity, irregular sleep patterns and diet changes in their children.[3] Although one-third of the children have continued their education at home through home tuition and regular teaching activities by the family members. but schools play an important role in building routine as well as social skills for most patients of ASD or other psychiatric problems.[4,10] School routines also help in coping in children with existing psychiatric issues.[22] Companionship is also severely affected by the quarantine in COVID-19 as they depend on their daily classmates' and friends' interactions to improve their social functionality.[8] An increase in screen time and lack of physical activity also contribute to the symptoms of anxiety and depression in children with a pre-existing psychological disease.[8,10,23] Thus, unhealthy lifestyle alongside increase risk of abuse and neglect during quarantine can contribute to further worsening of mental health problems in these vulnerable children.[24]

Our study results need to be seen in the context of various limitations. Study sample is small and limited to children receiving psychiatric treatment from one tertiary care hospital setting. Majority of respondents belonged to urban area. Children living in rural areas may exhibit more behavioural and emotional changes due to limited services available during COVID-19 Pandemic, however, given the fact that the burden of Coronavirus was seen more in urban areas, more space and outdoor activities in rural areas means thus it may not necessarily be the case. We did not assess parental response to Pandemic, which can understandably affect children's reactions in stressful situations. To conclude, children with preexisting psychiatric issues are vulnerable to worsening of their illness and behaviours during COVID-19. Parents, healthcare providers and policymakers need to be aware of these risks and need for mental health support during lockdown. Further large scale research on impact of COVID-19 Pandemic on emotions and behaviours of children with mental health issues is necessary, so that supportive interventions can be offered.

Authors Contribution

ZHB, NI: Conceived the idea of this study, c
ZHB, NB, SL: Collected Data
NI, ZHB, NB, SL: helped with writing-reviewing & Editing.
NI: was responsible for the supervision of this project
All authors are approved the final version of this article.

Conflict of Interest: None

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