



Difficulties of Families with Children and Adolescents with Psychiatric Disorders During the COVID-19 Outbreak: A Cross-Sectional Study

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Abstract

Background: The COVID-19 crisis has confronted parents with significant challenges in the field of child and adolescent psychiatry that must be addressed.

Objectives: The current study aimed to evaluate the burden of the pandemic on families with children and adolescents diagnosed with psychiatric disorders.

Methods: This descriptive study used a cross-sectional design. A total of 92 children and adolescents (age range: 2 - 18 years; mean age: 9.49 ± 4.72) diagnosed with psychiatric disorders participated in the study. The parents (father or mother) of the children were asked to complete an informed consent form, a questionnaire to obtain demographic data, and a questionnaire to gather information about the difficulties parents faced with their children and adolescents during the COVID-19 pandemic. Data were analyzed using descriptive statistics, chi-squared tests, and Fisher's exact test.

Results: The most common challenges parents faced included sleep problems (disruption of the sleep-wake cycle; 58.7%), excessive use of media (54.3%), and significant challenges with eLearning (53.33%). Inactivity (41.3%), difficulty accessing a psychiatrist (32.6%), difficulty accessing other therapists (23.9%), and worsening symptoms (23.9%) were the next most prevalent issues. The results also showed that 80.8% of parents of children with sleep-wake cycle disruptions, 83.5% of parents of children with excessive social media use, and 79.3% of parents of children with educational problems reported conflict with their children; the intensity of the conflict was moderate in most cases. A history of psychiatric disorders in parents did not predict parent-child conflict over the children's problems during the quarantine (all $P > 0.05$).

Conclusions: Attention to the impact of the pandemic on these patients should guide the care provided by clinicians.

Keywords: COVID-19, Child, Adolescence, Parent, Psychiatric Disorder

1. Background

According to the World Health Organization (WHO), psychiatric disorders are the leading cause of disability among youth. These conditions impact children's development, academic performance, and their potential to lead productive and fulfilling lives (1). A review of several studies (published from 2000 to 2007) in the US found that approximately one-third of children and adolescents experience a psychiatric disorder during their lifetime, and about one-fourth experience one within the last year (2). In a study by Riahi et al. on a community sample of children and

adolescents in Khuzestan province, 22.66% of participants were diagnosed with at least one psychiatric disorder (3).

The COVID-19 outbreak has presented parents with significant challenges in the field of child and adolescent psychiatry. It has disrupted the daily routines of everyone, including children and adolescents (4-9). In Iran, as in other countries, routine services have been limited. Numerous public and clinical services, including schools, social services, psychiatric offices, and others, have been restructured or closed to reduce close social contact.

The pandemic and the associated limitations are expected to result in a variety of consequences for children and adolescents (9-11). Mental health responses include boredom, isolation, uncertainty, anxiety, depression, and post-traumatic symptoms among children and adolescents (9-11). They may also experience fear and grief-related symptoms due to the impact of the virus on their families (12). These effects are especially significant for youth with psychiatric disorders; the pandemic may also worsen specific types of disorders, such as OCD, GAD, and specific phobias (10, 12). In a study in the UK, 83% of adolescents (including 61% with ongoing mental health difficulties) reported that the pandemic had worsened their mental health (13). In a study on patients with eating disorders, Davis et al. found an increase in health-related anxiety related to COVID-19 (14). Individuals with attention deficit hyperactivity disorder (ADHD) may also exhibit more behavioral problems (15), and patients with autism spectrum disorder (ASD) may have greater difficulty adjusting to disruptions in daily life routines (16).

It has also been suggested that psychotic disorders and suicide may result from the fear of COVID-19, especially in individuals who have previously experienced psychiatric disorders (17). The disruption of mental health care is another important concern for patients with psychiatric disorders and their families (11).

On the other hand, home confinement may trigger domestic violence during the COVID-19 outbreak (11), and domestic violence predicts children's psychopathology (18). Moreover, children and adolescents with psychiatric disorders are at greater risk for neglect or abuse when they live in homes where intrafamilial violence occurs.

2. Objectives

Based on the above premises, it is essential to assist parents in coping constructively with difficulties related to their children during the COVID-19 pandemic. To achieve this, the responses of children and their families to this crisis should be understood. The present study aimed to investigate the difficulties faced by families with children and adolescents who have psychiatric disorders during the COVID-19 outbreak.

3. Methods

The investigation was a descriptive cross-sectional study conducted from 2020 to 2021. A total of 92

children and adolescents (age range: 2 - 18 years; mean age: 9.49 ± 4.72) diagnosed with psychiatric disorders were selected from an outpatient clinic specializing in child and adolescent psychiatry in Ahvaz, Iran, using judgmental sampling.

The diagnosis of psychiatric disorders was confirmed by a child and adolescent psychiatrist based on the diagnostic and statistical manual of mental disorders, fifth edition (DSM-5) criteria. After explaining the procedures and purpose of the study, the parents (father or mother) of the children were asked to complete an informed consent form, a questionnaire to obtain demographic data, and a questionnaire to gather information about parents' difficulties with their children and adolescents during the COVID-19 pandemic and the existing restrictions. The history of psychiatric disorders in parents was also checked with a specific question. Approximately 95% of the questionnaires were completed by the children's mothers. It should be noted that the data was gathered by a trained psychologist.

The inclusion criteria were an age range of 2 to 18 years and the completion of informed consent by parents. The exclusion criterion was the inability to take a precise history due to the absence of a parent or primary caregiver with detailed information about the child. One child was excluded from the study because they were brought to the clinic by their aunt. The sample size was calculated using the following formula:

$$n = \frac{Z_{1-\alpha} \cdot P(1-P)}{d^2}$$

3.1. Instruments

To diagnose psychiatric disorders, a clinical interview was used. It was conducted by a child and adolescent psychiatrist based on DSM-5 criteria.

A researcher-made questionnaire was used to measure the difficulties faced by families with children and adolescents who have psychiatric disorders. The questionnaire consists of 10 sections, including access to clinical services; worsening of symptoms; changes in eating patterns (overeating); changes in physical activity (inactivity); overweight (resulting from overeating and inactivity); hygiene issues; alcohol, smoking, and substance use; education (academic issues and the use of virtual education); media (excessive use of social media); sleep problems; and communication with family members. The severity of each problem, conflicts with the child regarding the

problem, and conflicts with the spouse concerning the child's problem are assessed in each item.

To assess the validity of the questionnaire, it was reviewed by an expert panel, and the face validity of the questionnaire was well supported. Reliability was assessed using Cronbach's alpha, and the questionnaire demonstrated high internal consistency ($\alpha = 0.7$) across different sections.

3.2. Data Analysis

Data were analyzed using descriptive statistics (to summarize and describe the distribution of the dataset), the chi-squared test, and Fisher's exact test (to compare the distribution of categorical variables in two groups). Gender was identified as a potential confounder; therefore, we compared samples of men and women separately to provide more clarity in the research. A probability level of 0.05 was accepted as statistically significant. Statistical analyses were conducted using SPSS 16 software.

4. Results

The demographic characteristics of participants and the distribution of psychiatric disorders are presented in Tables 1, and 2, respectively. As shown in Table 3, the most common challenges that parents faced were sleep problems (disruption of the sleep-wake cycle; 58.7%), excessive use of media (54.3%), and significant challenges with eLearning (53.33%).

Inactivity (41.3%), difficulty accessing a psychiatrist (32.6%), difficulty accessing other therapists (23.9%), and worsening symptoms (23.9%) were the next most prevalent challenges.

Among parents of children with disruption in the sleep-wake cycle, 80.8% reported that this issue caused conflict with their children (conflict intensity: 25.6% low; 41.9% moderate; 30.2% high; 2.3% very high). Among these parents, 31.9% reported conflict with their spouses over the sleep problem of their child.

Among parents whose children had excessive use of social media ($n = 50$), 83.5% reported parent-child conflict over this issue (conflict intensity: 36.6% low; 36.6% moderate; 22% high; 4.9% very high), and 33.3% reported spouse conflicts (conflict intensity: 45.5% low; 27.3% moderate; 27.3% high).

Among parents of children with educational problems, 79.3% reported conflict with their child over this issue (conflict intensity: 27.3% low; 36.4% moderate;

27.3% high; 9.1% very high). In 21.73% of these children, the issue resulted in conflict between the parents (conflict intensity: 40% low; 20% moderate; 40% high).

Among the parents, 18 fathers (19.6%) and 11 mothers (12%) reported a history of psychiatric disorders (Table 1). A history of psychiatric disorders in parents did not predict parent-child conflict over the children's problems during the quarantine (all $P > 0.05$; Table 4). A history of psychiatric disorders in parents also did not predict spousal conflict over the children's problems during the quarantine (all $P > 0.05$; Table 5).

5. Discussion

The purpose of this study was to highlight the challenges faced by families of children and adolescents with psychiatric disorders during the COVID-19 outbreak, with the aim of providing clinicians and behavioral scientists with useful insights. We hope this will stimulate subsequent efforts to alleviate the burden of the pandemic on these families. The most common challenges that parents faced were sleep problems (disruption of the sleep-wake cycle), excessive use of media, and significant challenges with eLearning.

Regarding the disruption of the sleep-wake cycle, it is recommended to educate parents (especially mothers) and/or children on sleep hygiene and stimulus control, or to use cognitive-behavioral therapy or pharmacotherapy as needed (19-27).

Some of the challenges parents faced with their children's education included the child's/adolescent's adaptation to eLearning, an inadequate learning environment, the lack of structure at home during self-isolation, difficulties with self-motivation and self-discipline, low computer literacy, and technical issues (28, 29).

Several studies have offered suggestions to address these challenges. For example, Shahzad et al. noted that the quality of the system and the quality of information are directly related to students' satisfaction with eLearning (28). Nabih et al. found that eLearning could be improved by making it more interactive (30), and Soni suggested designing detailed lesson plans to create satisfactory study materials (29).

Guidance has also been provided for parents and caregivers of children who are learning at home through virtual education during the COVID-19 pandemic. However, this guidance is insufficient for children and adolescents with psychological disorders. Mental health professionals should educate parents on

Table 1. Frequency of Demographic Variables in Children and Adolescents (6-18)

Variables	No. (%)
Gender	
Male	66 (72.5)
Female	23 (25.3)
Age	
<7	29 (31.5)
7 - 12	25 (27.2)
12 - 18	35 (38.0)
Father's education	
Illiterate	1 (1.1)
Primary school	6 (6.5)
Guidance & high school	3 (3.3)
Diploma	32 (34.8)
Bachelor's degree	33 (35.9)
MSc or higher	9 (9.8)
Missing	8 (8.7)
Mother's education	
Illiterate	2 (2.2)
Primary school	4 (4.3)
Guidance & high school	5 (5.4)
Diploma	36 (39.1)
Bachelor's degree	29 (31.5)
MSc or higher	14 (15.2)
Missing	2 (2.2)
Father's job	
Public sector	46 (50.0)
Private sector	37 (40.2)
Unemployed	1 (1.1)
Missing	8 (8.7)
Mother's job	
Public sector	17 (18.5)
Private sector	16 (17.4)
Unemployed (housewife)	55 (59.8)
Missing	4 (4.3)
History of psychiatric disorder in parents of children	
Father	
Yes	18 (19.6)
No	68 (73.9)
Missing	6 (6.5)
Mother	
Yes	11 (12.0)
No	75 (81.5)
Missing	86 (6.5)
Total	92 (100)

how to effectively manage their children's education. For example, parents can create a structured learning environment at home, involve both parents in the child/adolescent's educational program, and stay in

touch with the child's teacher, asking for cooperation to increase supervision over their children.

Most parents reported excessive media use in their children, particularly among teenagers. This finding is consistent with studies (31, 32) that report the overuse of

Table 2. Prevalence of Psychiatric Disorders in Children and Adolescents

Variables	No. (%)
ADHD	22 (24)
ADHD + intellectual disability	2 (2.2)
ADHD + LD	2 (2.2)
ADHD + anxiety disorder	4 (4.4)
ADHD + anxiety disorder + depression	2 (2.2)
ADHD + depression	1 (1.1)
ADHD + OCD	4 (4.4)
ADHD + OCD + LD	2 (2.2)
ADHD + OCD + Tic	1 (1.1)
ADHD + ODD	6 (6.6)
ADHD + ODD + anxiety disorder	1 (1.1)
ADHD + CD	1 (1.1)
ADHD + PTSD	2 (2.2)
ADHD + Tic	1 (1.1)
ADHD + Tic + anxiety disorder	1 (1.1)
ADHD + Tic + BMD	1 (1.1)
ADHD + SAD + pathological masturbation	1 (1.1)
ASD	12 (13.2)
ASD + ADHD	6 (6.6)
GAD	1 (1.1)
Social phobia	3 (3.3)
Anxiety disorder + Tic	1 (1.1)
Anxiety disorder + trichotillomania	1 (1.1)
BID	3 (3.3)
MDD + GAD	1 (1.1)
Mood + anxiety disorder	3 (3.3)
OCD	3 (3.3)
OCD + depression + anxiety disorder	1 (1.1)
OCD + schizophrenia	1 (1.1)
Impulsivity control disorder + paranoia	1 (1.1)

Abbreviations: LD, learning disorder; OCD, obsessive compulsive therapy; ODD, oppositional defiant disorder; CD, conduct disorder; PTSD, post-traumatic stress disorder; BMD, borderline mood disorder; ASD, autism spectrum disorder; GAD, generalized anxiety disorder; BID, bipolar I disorder; MDD, major depression disorder.

digital technologies in children and adolescents as an outcome of the COVID-19 pandemic. A longitudinal study conducted by Zhou et al. suggests that individuals with ADHD are more likely to overuse the internet. These tendencies could be heightened during lockdowns, social distancing, and in-home confinement related to COVID-19 (33, 34).

Since excessive screen time may lead to detrimental consequences in youth, such as psychopathological states, reduced empathic skills, lower social competencies, and diminished motor skills (35-37), it is important to help parents find the right balance—specifically, how to reduce screen time in children and adolescents during the pandemic—and to monitor the potentially harmful aspects of their behavior. Parental supervision of children's media use is a key factor in

determining desirable programming, fostering positive outcomes from media use, controlling harmful effects, and regulating appropriate media use durations (38). Children should be allowed to use media under the supervision of their parents. Therefore, educating parents on how to monitor and manage their children's media use is essential.

Another challenge for parents during the outbreak was a change in physical activity, specifically inactivity. Encouraging children to be active within the constraints of existing restrictions is recommended. Some parents also reported temporarily losing access to clinical services, trained caregivers, or community service providers. Therefore, it is crucial to plan and advocate for resources and services that deliver high-quality psychiatric care. In Iran, mental health professionals

Table 3. Prevalence of Parents' Difficulties with Their Children and Adolescents

Difficulty	No. (%)
Access to clinical services	
Difficulty in finding medication	
Yes	6 (6.5)
No	80 (87.0)
Missing	6 (6.5)
Difficulty in access to psychiatrist	
Yes	30 (32.6)
No	56 (60.9)
Missing	6 (6.5)
Difficulty in access to other therapists (psychologist, speech therapist, physiotherapist, occupational therapist, and etc.)	
Yes	22 (23.9)
No	58 (63.0)
Missing	12 (13.0)
Change in symptoms of the psychiatry disorder	
Worsening of symptoms	
Yes	22 (23.9)
No	58 (63.0)
Missing	12 (13.0)
Return of symptoms	
Yes	20 (21.7)
No	47 (51.1)
Missing	25 (27.2)
Change in eating pattern (overeating)	
Yes	27 (29.3)
No	56 (60.9)
Missing	9 (9.8)
Change in physical activity (inactivity)	
Yes	38 (41.3)
No	44 (47.8)
Missing	10 (10.9)
Overweight (because of overeating or inactivity)	
Yes	23 (25.0)
No	56 (60.9)
Missing	13 (14.1)
Hygiene issues	
Lack of hygiene	
Yes	24 (26.1)
No	51 (55.4)
Missing	17 (18.5)
Alcohol/smoking/substance use	
Yes	3 (3.3)
No	81 (88.0)
Missing	8 (8.7)
Education (academic issues and the use of virtual education)	
Yes	32/60 (53.33)
No	22/60 (36.66)
Missing	8/60 (13.33)
Media	
Excessive use of social media	
Yes	50 (54.3)
No	34 (37.0)
Missing	8 (8.7)
Sleep problems	
Disruption of the sleep-wake cycle	
Yes	54 (58.7)
No	30 (32.6)
Missing	8 (8.7)
Nightmare	
Yes	16 (17.4)
No	68 (73.9)
Missing	8 (8.7)
Difficulties related to communication with family members	
Problem with siblings	
Yes	18 (19.6)
No	58 (63.0)
Missing	16 (17.4)
Problems with parents	
Yes	24 (26.1)
No	53 (57.6)
Missing	15 (16.3)

have considered telepsychiatry as a means of delivering services to minimize patients' exposure to hospitals and other mental health centers. People are also encouraged to seek support through telehealth services. It is urgent to ensure that clients have access to the internet and necessary devices.

One-fifth of the responders reported a return of symptoms, and about a quarter reported a worsening of symptoms in their child. This may be due to difficulties in adjusting to lockdown, fear of infection, and/or disruption of professional mental health care. Parent-focused interventions and/or patient-focused non-

Table 4. Parent-Child Conflicts Over Media Use, Academic Problems, and Sleep Problems Based on History of Psychiatric Disorder in Parents

Variables	History of Psychiatric Disorder in Father		Sig.	OR	CI 95
	Yes	No			
Parent-child conflict over media use			0.3	0.84	0.96 - 0.74
Yes	6	33			
No	0	8			
Parent-child conflict over academic problems			0.59	0.9	1.03 - 0.78
Yes	2	19			
No	0	6			
Parent-child conflict over sleep problems			0.1	0.8	0.93 - 0.68
Yes	8	32			
No	0	9			
History of psychiatric disorder in mother					
Parent-child conflict over media use			0.45	2.06	0.22 - 19.35
Yes	10	29			
No	1	6			
Parent-child conflict over academic problems			0.1	0.11	1.54 - 0.008
Yes	1	18			
No	2	4			
Parent-child conflict over sleep problems			0.58	0.84	4.88 - 0.14
Yes	8	33			
No	2	7			

Table 5. Spouses Conflicts Over Media Use, Academic Problems, and Sleep Problems in Child Based on History of Psychiatric Disorder in Parents

Variables	History of Psychiatric Disorder in Father		Sig.	OR	CI 95
	Yes	No			
Spouses conflict over media use in child			0.1	3.54	0.51 - 24.25
Yes	3	11			
No	2	26			
Spouses conflict over academic problems in child			0.7	1.14	0.95 - 1.37
Yes	0	3			
No	2	14			
Spouses conflict over sleep problems in child			0.14	3.39	0.65 - 17.69
Yes	4	11			
No	3	28			
History of Psychiatric Disorder in Mother					
Spouses conflict over media use in child			0.36	1.76	0.38 - 7.98
Yes	4	10			
No	5	22			
Spouses conflict over academic problems in child			0.7	1.14	0.95 - 1.37
Yes	0	3			
No	2	14			
Spouses conflict over sleep problems in child			0.3	1.89	0.42 - 8.4
Yes	4	11			
No	5	26			

pharmacological interventions should be implemented, and the risks and benefits of pharmacological treatment under the COVID-19-specific situation should also be considered (39).

When addressing individuals with intellectual and neurodevelopmental disabilities, social distancing during COVID-19 has had a disproportionate impact. These individuals have been disproportionately isolated during the pandemic (40). While people around the

world have embraced virtual interactions, screen-based technologies are inadequate substitutes for individuals with intellectual and neurodevelopmental disabilities. These individuals may also not benefit from electronic substitutes for education and therapy (40). Special education for this community often requires interpersonal prompting, nuanced physical contact and redirection, close attention to the motivational structure of the environment, and enhanced teacher-to-student ratios. It places a disproportionate burden on families to attempt to replicate the conditions of an “appropriate” education at home and to prevent negative outcomes such as individuals with disabilities falling behind in training or academic achievement and struggling to compensate behaviorally in the absence of the structure provided by school (40). The burden of COVID-19 on individuals with intellectual and neurodevelopmental disabilities should receive more attention from clinicians, scientists, and advocates. They should recognize and seek opportunities to mitigate the burden of COVID-19 on this community.

Our results did not confirm an association between parental psychiatric disorders and an increased risk of child-parent conflict or spouse conflict over the problems of the children. This finding may be due to the use of a self-report measure to assess parental psychopathology, or psychopathological symptoms may be underdiagnosed in some parents. Further studies are recommended to determine the precise relationship between these two conditions using more reliable assessment instruments.

5.1. Conclusions

In conclusion, the COVID-19 pandemic and its limitations are expected to result in a variety of consequences for children and adolescents. These consequences are particularly significant for youth with psychiatric disorders. Therefore, it is essential to support families with children and adolescents who have psychiatric disorders. The main objective of this research was to investigate the burden of the COVID-19 pandemic on these families. The most common challenges that parents faced were sleep problems, excessive use of media, and significant challenges with elearning. Inactivity, difficulty accessing psychiatrists and other therapists, and worsening of symptoms were the second most prevalent issues.

Based on these results, it is the responsibility of mental health professionals, scientists, and advocates to

recognize the opportunity to alleviate the burden of COVID-19 on children and adolescents with psychiatric disorders and their families.

The findings should be interpreted in the context of several limitations. The sample size was relatively small; future research with a larger sample size is recommended. Moreover, the majority of the participants were women, which affects the generalizability of the findings. Another limitation of the study is the sampling method (i.e., convenience sampling); therefore, the findings should be generalized to other populations with caution. Finally, the study sample consisted of children and adolescents with psychiatric disorders, meaning the findings should be generalized to other age groups or healthy individuals with caution. These limitations should be addressed in future research.

Footnotes

Authors' Contribution: Study concept and design: M. I. and F. R.; Acquisition of data: F. R.; Analysis and interpretation of data: M. I. and F. R.; Drafting of the manuscript: M. I.; Critical revision of the manuscript for important intellectual content: F. R.; Statistical analysis: M. I.

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Data Availability: The dataset presented in the study is available upon request from the corresponding author during submission or after its publication. The data are not publicly available due to privacy and ethical considerations.

Ethical Approval: This study was approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences ([IR.AJUMS.REC.1399.963](#)).

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References

1. World Health Organization. *Mental health*. Geneva, Switzerland: World Health Organization; 2018. Available from:

- https://www.who.int/health-topics/mental-health#tab=tab_1.
2. Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. *Dialogues Clin Neurosci*. 2009;**11**(1):7-20. [PubMed ID: 19432384]. [PubMed Central ID: PMC2807642]. <https://doi.org/10.31887/DCNS.2009.11.1/krmerikangas>.
 3. Riahi F, Mohammadi MR, Izadi Mazidi M, Khaleghi A, Hooshyari Z. Prevalence of Psychiatric Disorders among Children and Adolescents: A Study from Khuzestan. *Iran J Child Neurol*. 2022;**16**(3):95-107. [PubMed ID: 36204445]. [PubMed Central ID: PMC9531189]. <https://doi.org/10.22037/ijcn.v15i4.27319>.
 4. Golberstein E, Wen H, Miller BF. Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents. *JAMA Pediatr*. 2020;**174**(9):819-20. [PubMed ID: 32286618]. <https://doi.org/10.1001/jamapediatrics.2020.1456>.
 5. Xie X, Xue Q, Zhou Y, Zhu K, Liu Q, Zhang J, et al. Mental Health Status Among Children in Home Confinement During the Coronavirus Disease 2019 Outbreak in Hubei Province, China. *JAMA Pediatr*. 2020;**174**(9):898-900. [PubMed ID: 32329784]. [PubMed Central ID: PMC7182958]. <https://doi.org/10.1001/jamapediatrics.2020.1619>.
 6. Hageman JR. Can Students Safely Return to School in the Age of COVID-19? *Pediatric Annals*. 2020;**49**(9). <https://doi.org/10.3928/19382359-20200818-01>.
 7. Patrick SW, Henkhaus LE, Zickafoose JS, Lovell K, Halvorson A, Loch S, et al. Well-being of Parents and Children During the COVID-19 Pandemic: A National Survey. *Pediatrics*. 2020;**146**(4). [PubMed ID: 32709738]. <https://doi.org/10.1542/peds.2020-016824>.
 8. Marques de Miranda D, da Silva Athanasio B, Sena Oliveira AC, Simoes EA. How is COVID-19 pandemic impacting mental health of children and adolescents? *Int J Disaster Risk Reduct*. 2020;**51**:101845. [PubMed ID: 32929399]. [PubMed Central ID: PMC7481176]. <https://doi.org/10.1016/j.ijdrr.2020.101845>.
 9. Danese A, Smith P. Debate: Recognising and responding to the mental health needs of young people in the era of COVID-19. *Child Adolesc Ment Health*. 2020;**25**(3):169-70. [PubMed ID: 32812356]. [PubMed Central ID: PMC7461529]. <https://doi.org/10.1111/camh.12414>.
 10. Nissen JB, Højgaard DRMA, Thomsen PH. The immediate effect of COVID-19 pandemic on children and adolescents with obsessive compulsive disorder. *BMC psychiatry*. 2020;**20**(1):1-10.
 11. Guessoum SB, Lachal J, Radjack R, Carretier E, Minassian S, Benoit L, et al. Adolescent psychiatric disorders during the COVID-19 pandemic and lockdown. *Psychiatry Res*. 2020;**291**:113264. [PubMed ID: 32622172]. [PubMed Central ID: PMC7323662]. <https://doi.org/10.1016/j.psychres.2020.113264>.
 12. Sinaei R, Pezeshki S, Yazdani M, Sabzevari F, Yeganeh MH. The psychological consequences of COVID-19 on children's world. *Iran J Child Neurol*. 2021;**15**(2):97. [PubMed ID: 36213154]. <https://doi.org/10.22037/ijcn.v15i1.31668>.
 13. Youngminds. *Coronavirus: Impact on young people with mental health needs*. 2020. Available from: <https://www.youngminds.org.uk/about-us/reports-and-impact/coronavirus-impact-on-young-people-with-mental-health-needs/>.
 14. Davis C, Ng KC, Oh JY, Baeg A, Rajasegaran K, Chew CSE. Caring for Children and Adolescents With Eating Disorders in the Current Coronavirus 19 Pandemic: A Singapore Perspective. *J Adolesc Health*. 2020;**67**(1):131-4. [PubMed ID: 32381385]. <https://doi.org/10.1016/j.jadohealth.2020.03.037>.
 15. Cortese S, Ferrin M, Brandeis D, Holtmann M, Aggensteiner P, Daley D, et al. Neurofeedback for Attention-Deficit/Hyperactivity Disorder: Meta-Analysis of Clinical and Neuropsychological Outcomes From Randomized Controlled Trials. *J Am Acad Child Adolesc Psychiatry*. 2016;**55**(6):444-55. [PubMed ID: 27238063]. <https://doi.org/10.1016/j.jaac.2016.03.007>.
 16. Sharon C. *Supporting Autism Spectrum Disorder in the face of the COVID-19 pandemic*. 2020. Available from: <https://www.cmaj.ca/content/resupporting-autism-spectrum-disorder-face-covid-19-pandemic>.
 17. Secer I, Ulas S. An Investigation of the Effect of COVID-19 on OCD in Youth in the Context of Emotional Reactivity, Experiential Avoidance, Depression and Anxiety. *Int J Ment Health Addict*. 2021;**19**(6):2306-19. [PubMed ID: 32837429]. [PubMed Central ID: PMC7293436]. <https://doi.org/10.1007/s11469-020-00322-z>.
 18. McCloskey LA, Figueredo AJ, Koss MP. The effects of systemic family violence on children's mental health. *Child Dev*. 1995;**66**(5):1239-61. [PubMed ID: 7555214].
 19. Siebern AT, Suh S, Nowakowski S. Non-pharmacological treatment of insomnia. *Neurotherapeutics*. 2012;**9**(4):717-27. [PubMed ID: 22935989]. [PubMed Central ID: PMC3480569]. <https://doi.org/10.1007/s13311-012-0142-9>.
 20. Sharma MP, Andrade C. Behavioral interventions for insomnia: Theory and practice. *Indian J Psychiatry*. 2012;**54**(4):359-66. [PubMed ID: 23372241]. [PubMed Central ID: PMC3554970]. <https://doi.org/10.4103/0019-5545.104825>.
 21. Chan NY, Chan JWY, Li SX, Wing YK. Non-pharmacological Approaches for Management of Insomnia. *Neurotherapeutics*. 2021;**18**(1):32-43. [PubMed ID: 33821446]. [PubMed Central ID: PMC8116473]. <https://doi.org/10.1007/s13311-021-01029-2>.
 22. Maczaj M. Pharmacological treatment of insomnia. *Drugs*. 1993;**45**(1):44-55. [PubMed ID: 7680984]. <https://doi.org/10.2165/00003495-199345010-00005>.
 23. Ebben MR, Spielman AJ. Non-pharmacological treatments for insomnia. *J Behav Med*. 2009;**32**(3):244-54. [PubMed ID: 19169804]. <https://doi.org/10.1007/s10865-008-9198-8>.
 24. Riemann D. [Non-pharmacological treatment of insomnia]. *Ther Umsch*. 2014;**71**(11):687-94. [PubMed ID: 25377293]. <https://doi.org/10.1024/0040-5930/a000611>.
 25. Lie JD, Tu KN, Shen DD, Wong BM. Pharmacological Treatment of Insomnia. *Pharmacy Therapeutics*. 2015;**40**(11):759-71. [PubMed ID: 26609210]. [PubMed Central ID: PMC4634348].
 26. Schweitzer PK, Feren SD. Pharmacological Treatment of Insomnia. In: Attarian HP, editor. *Clinical Handbook of Insomnia*. Cham: Springer International Publishing; 2017. p. 97-132. https://doi.org/10.1007/978-3-319-41400-3_7.
 27. Richey SM, Krystal AD. Pharmacological advances in the treatment of insomnia. *Curr Pharm Des*. 2011;**17**(15):1471-5. [PubMed ID: 21476952]. <https://doi.org/10.2174/138161211796197052>.
 28. Shahzad A, Hassan R, Aremu AY, Hussain A, Lodhi RN. Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Qual Quant*. 2021;**55**(3):805-26. [PubMed ID: 32836471]. [PubMed Central ID: PMC7402545]. <https://doi.org/10.1007/s11335-020-01028-z>.
 29. Soni VD. Global Impact of E-learning during COVID 19. *SSRN Electronic Journal*. 2020;**Preprint**. <https://doi.org/10.2139/ssrn.3630073>.
 30. Nabih AH, El Naggar ME, Mohamed MA. Adaptive Social Learning Management System to Develop University Students Achievement. *Egyptian Computer Sci J*. 2020;**44**(1):35-47.
 31. Montag C, Elhai JD. Discussing digital technology overuse in children and adolescents during the COVID-19 pandemic and beyond: On the importance of considering Affective Neuroscience Theory. *Addict*

- Behav Rep.* 2020;**12**:100313. [PubMed ID: 33364321]. [PubMed Central ID: PMC7752706]. <https://doi.org/10.1016/j.abrep.2020.100313>.
32. DAK-Studie. *DAK-Studie: Gaming, Social-Media & Corona.* 2020. Available from: https://www.dak.de/dak/unternehmen/reporte-forschung/studie-mediensucht-2020_12652.
 33. Zhou B, Zhang W, Li Y, Xue J, Zhang-James Y. Motivational but not executive dysfunction in attention deficit/hyperactivity disorder predicts internet addiction: Evidence from a longitudinal study. *Psychiatry Res.* 2020;**285**:112814. [PubMed ID: 32036155]. <https://doi.org/10.1016/j.psychres.2020.112814>.
 34. Reuter M, Sariyska R. Attention Deficit/Hyperactivity Disorder is a Better Predictor for Problematic Internet use than Depression: Evidence from Germany. *J Addict Res Ther.* 2015;**6**(1). <https://doi.org/10.4172/2155-6105.1000209>.
 35. Melchers M, Li M, Chen Y, Zhang W, Montag C. Low empathy is associated with problematic use of the Internet: Empirical evidence from China and Germany. *Asian J Psychiatr.* 2015;**17**:56-60. [PubMed ID: 26233696]. <https://doi.org/10.1016/j.ajp.2015.06.019>.
 36. Keles B, McCrae N, Grealish A. A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents. *Int J Adolescence Youth.* 2019;**25**(1):79-93. <https://doi.org/10.1080/02673843.2019.1590851>.
 37. Lachmann B, Sindermann C, Sariyska RY, Luo R, Melchers MC, Becker B, et al. The Role of Empathy and Life Satisfaction in Internet and Smartphone Use Disorder. *Front Psychol.* 2018;**9**:398. [PubMed ID: 29636714]. [PubMed Central ID: PMC5881138]. <https://doi.org/10.3389/fpsyg.2018.00398>.
 38. Nikken P. *Parenting in the digital age-empowering Dutch parents with a practical screen guide.* 2020. Available from: <https://eprints.lse.ac.uk/106405/>.
 39. Sonuga-Barke EJ, Brandeis D, Cortese S, Daley D, Ferrin M, Holtmann M, et al. Nonpharmacological interventions for ADHD: systematic review and meta-analyses of randomized controlled trials of dietary and psychological treatments. *Am J Psychiatry.* 2013;**170**(3):275-89. [PubMed ID: 23360949]. <https://doi.org/10.1176/appi.ajp.2012.12070991>.
 40. Constantino JN, Sahin M, Piven J, Rodgers R, Tschida J. The Impact of COVID-19 on Individuals With Intellectual and Developmental Disabilities: Clinical and Scientific Priorities. *Am J Psychiatry.* 2020;**177**(11):1091-3. [PubMed ID: 32854530]. [PubMed Central ID: PMC8040931]. <https://doi.org/10.1176/appi.ajp.2020.20060780>.