

# Impact of COVID-19 on Mental Health of Children and Adolescents: A Narrative Review

SHARIKA ASHRAF<sup>1</sup>, ARJIMAND YAQOUB<sup>2</sup>

## ABSTRACT

Coronavirus Disease 2019 (COVID-2019) pandemic created havoc on our planet, affecting all aspects of human life. It has resulted in human mortality and morbidity worldwide. It did not spare social and economic fabric of societies. It has resulted in huge psychosocial impact on human race. Various disease containment measures such as quarantine, physical distancing, complete lockdowns imposed by Governments across the globe has severely affected mental health of children and adolescents. The present article is aimed at reviewing various articles published regarding COVID-2019 pandemic impact on mental health of children with or without previous mental health problems. Different electronic databases, such as Science Direct, PubMed and Google Scholar were searched for articles describing impact on mental health of children and adolescents with/without previous mental health problems due to COVID-19. Search strategies included terms such as: "COVID-19", "SARS-CoV-2", "mental health", "children", "adolescent", "behavioural impact", "depression" and "anxiety." The majority of children and adolescents experienced deterioration in their mental health as emergency measures were implemented throughout the world. Children diagnosed with pre-existing mental health problems or Autism Spectrum Disorder (ASD) experienced more negative changes compared with children/adolescents without pre-existing psychiatric diagnosis. There is increased anxiety, depression, irritability, sleep disorders, lethargy, dissatisfaction and fear of death. There is need to plan and implement strategies to provide easy and early access to mental health services for which various stakeholders should come together.

**Keywords:** Anxiety, Coronavirus disease-2019, Lockdown, Loneliness, Pandemic, Physical distancing, Quarantine

## INTRODUCTION

Outbreak of COVID-2019 came to limelight on December 31, 2019 when World Health Organisation (WHO) was appraised by China about cluster of cases of pneumonia in Wuhan city in Hubei province of unknown cause. Subsequently, more provinces in China got involved, and spread to the rest of the world from Thailand, Japan, the Republic of Korea, to the United States, Vietnam, Singapore, Australia, Nepal, Europe (first cases in France and later in Finland, Germany Italy etc.), Canada, Malaysia, the Middle East, and other countries of the Western Pacific Region and South-East Asia Region, and onwards to Russia, Africa, and Latin America [1]. The WHO declared it as pandemic. The virus was named Severe Acute Respiratory Syndrome 2 (SARS-CoV-2) and the disease is now called Coronavirus Disease 2019 (COVID-19) [1].

Globally, as on 2<sup>nd</sup> June 2021, there have been 170,812,850 confirmed cases of COVID-19, including 3,557,586 deaths, reported to WHO. As of 1<sup>st</sup> June 2021, a total of 1,581,509,628 vaccine doses have been administered [2]. SARS-CoV-2, the virus that led to COVID-19 pandemic, has had a major impact on human health. Large number of people have been infected, causing severe disease and subsequent long-term health sequelae, resulting in death and excess mortality, especially vulnerable and older populations and also causing disruptions to travel, trade, education, interrupting routine healthcare services, and many other societal functions and leaving negative impact on peoples physical and mental health [3]. In order to contain the disease, governments all over the globe are implementing various measures such as school closures, physical distancing, home quarantine and complete lockdowns. In India, lockdown was announced on 24<sup>th</sup> March 2020. Lockdown measures have limited opportunities for social interaction effecting mental well being as ability to receive the social support has decreased [4]. Schools have been closed, leading to disruption of daily routine of children and they are not able to take part in day-to-day activities and there is loss of social connection with friends which is further detrimental to their mental health and increases

feeling of loneliness [5]. School children of primary classes might be most affected by suspension of outdoor activities or school closures as interpersonal relationships and autonomous, extra-family experiences are important in this stage of development in life [6]. Even young children aged 2-5 years were aware of the virus and considered it bad, children aged 6-10 years seem to be more aware about psychological and medical impact due to COVID-19 pandemic [7]. The aim of the present review was to analyse and evaluate the data published regarding the impact of COVID-19 on mental health of children and adolescents with or without previous mental health problems.

## LITERATURE SEARCH

Different electronic databases, including Science Direct, PubMed and Google Scholar were searched, from January, 2020 till May, 2021 for articles describing impact on mental health of children and adolescents with/without previous mental health problems due to COVID-19. Search strategies included terms such as: "COVID-19", "SARS-CoV-2", "mental health", "children", "adolescent", "behavioural impact", "depression" and "anxiety." Our search showed 102 results. Studies were selected according to the following inclusion criteria: Published between January 2020 to May 2021, included children and adolescents and based on these inclusion criteria, 14 articles were included [6-19]. Exclusion criteria comprise of the studies that included adults or older people. Bibliographic references in the articles were manually searched and reviewed.

## IMPACT ON YOUNG CHILDREN

Implementation of containment measures have major impacts on the psychology of young children. Several studies have shown the negative effects on the mental health in children [6-13,17-19]. Anxiety, depression, lethargy, agitation and inattention, impaired social interaction, clinginess, and separation problems, poor sleep including nightmares, reduced appetite, are commonly reported manifestations [9-11,13].

A preliminary study conducted in China showed children belonging to younger age group (3-6 years) were more likely than older children to manifest symptoms, such as clinginess and fear that family members could contract the infection [8]. A study in Ireland, concluded that children's adverse mental conditions were provoked by the lack of social interaction with their peers. Stress to complete their home-schooling was another cause of negative mental health outcome. Coverage by media about pandemic and the lack of access to family and friends facilitated anxiety among children [9]. A Canadian study revealed that many children and adolescents had deterioration across various mental health domains. Mental health experienced negative impact in about two thirds of children and adolescents in that study.

Children in age group of 6 to 9 years were mostly affected leading to anxiety and irritability. Lowest rates of deterioration and highest rates of improvement was seen in preschool children. Thus, greater impact on mental health was seen in school-aged children. Experience of increased stress from social isolation resulting from loss of in-person social interactions was found to be as the strongest predictor of deterioration of mental health [10]. One study in the Netherlands, revealed that mental and social health of children and adolescents during the COVID-19 lockdown was poor as compared to before. In addition to the effects on anxiety and depressive symptoms, anger, sleep related impairment and peer relationships were negative impacts due to lockdown. Children and adolescents with certain risk factors like negative change in work situation of parents due to COVID-19 regulations, family composition (children from single-parent family or families with three or more children), relative or friend infected with COVID-19 are more vulnerable to mental health problems. Negative impact of the COVID-19 regulations was reported by majority of children on their daily life, missing contact with friends was most important, closure of schools, sense of absence of freedom, closure of sports activities, missing social and joyful activities (for example, holidays, birthdays, shopping, parties), difficulties and disorientation with home-schooling, missing support of extended family, and boredom were the other impacts [11]. Younger children are more negatively impacted by the pandemic than older children but emotional problems in girls seem to increase by age during the pandemic [12].

The prevalence of mental health problems has increased from 7.4% before pandemic to 26.8% during pandemic in 7 to 10-year-old in one of the studies carried out in Germany. Children with low parental education, low socio-economic status, and migrant status are more affected by the pandemic. This study did not found any increased incidence of depression during the COVID-19 lockdown but there was a greater level of generalised anxiety. Although clinically relevant depressive symptoms did not increase, but findings reveal that children feel highly burdened and have a significantly increased risk of mental health problems and children particularly young suffer from psychosomatic complaints [12].

In another study in Chinese students, 20.7% children experienced Post-Traumatic Stress Disorder (PTSD) and 7.16% depressive symptoms due to the COVID-19 pandemic. The PTSD symptoms were found to be more prevalent in boarding school and middle school students, while symptoms were less in day school and primary school students. Living status, provincial background and profession of father, school system (day or boarding school), education level (primary or middle school) are significantly linked with PTSD symptoms. Study revealed that, one in 14 children showed depressive symptoms and one in five children were found to have PTSD [13].

## IMPACT ON ADOLESCENTS

Adolescents experience negative mental health issues like younger children, but they exhibit mental health experiences differently [9]. One of the studies carried out in China, showed lifestyle changes and fear of getting infected may cause anxiety among adolescents. The

elder adolescents aged 13-14 years were more depressed than the younger ones aged 9-12 years. Also, female adolescents showed higher risk of depression and anxiety than males. Depression and anxiety during COVID-19 was found more in adolescents without companion on workdays. Adolescents who were involved in some sort of physical exercise showed fewer depressive symptoms and anxiety [14]. A study published in January 2021 in Ireland, showed depression and anxiety as commonly reported experiences for adolescents during the lockdown. The closure of schools, lack sense of freedom and home quarantine due to restrictions increases loneliness and anxiety among adolescents. Mental health was negatively impacted due to loss of routine activities and cancellation of milestone events. There was increase in screen time correlating with disruption of routine activities [9].

In study carried in Canada, depression was highest reported among 10-12 years children while attention problems, obsession/compulsions and hyperactivity were found to be highest in adolescents 13-18 years [10]. In another study in Germany, there was an increase in the prevalence of noticeable mental health problems from 12.8% before the pandemic to 14.5% during pandemic in 11-13 years. Adolescents aged between 11-17 years self-reported substantial psychosomatic complaints like irritability, sleeping problems, headaches, feeling low and stomach aches. Headaches, stomach aches and feeling low were found to be more in girls than boys [12]. In a Chinese study, results showed symptoms of depression in 20.9% of junior high school students and 29.7% of high school students. Prevalence of anxiety symptoms was higher (28.4%) in high school students than junior high school students (25.4%) [15]. One study carried out by Zhou S et al., (2020), revealed that among children 12-18 years, 43.7% showed significant rates of depression and 37.4% reported clinically significant rates of anxiety [16].

## IMPACT ON CHILDREN AND ADOLESCENTS WITH PRE-EXISTING MENTAL HEALTH CONDITIONS

A study carried out in China, showed that loss of daily routine, lack of interpersonal, social interaction and parent's mood state could work as potential risk factors that could worsen Attention-Deficit Hyperactivity Disorder (ADHD) symptoms. This study also revealed that with longer study time, there was reduction in ADHD symptoms [17]. Another study in Canada, showed worsening in attention, depression, hyperactivity and irritability highest among children and adolescents diagnosed with Autism Spectrum Disorder (ASD) while among children and adolescents with mental health+ASD diagnosis deterioration in anxiety and obsession/compulsions was highest [10].

One of the studies in Italy, indicated that the pandemic led to increased difficulty in managing daily activities and more intense behavioural problems in children with ASD individuals. The study also suggested that compared to young children, behavioural problems may be less in older. Another finding was that children living with single or separated parent showed better outcome in terms of intensity of behavioural problems [18]. The COVID-19 pandemic has led to worsening of existing mental health problems among children and adolescents. Many adolescents with pre-existing mental conditions received mental health services only from school settings and closure of schools caused loss of access to mental health services and disruption in mental healthcare [6].

In one of the studies carried out in Barcelona, Spain, symptoms such as irritability, attentional problems, oppositional behaviours, sleep problems, sadness, fatigue, anxiety, isolation, body disturbances, dissatisfaction and fear of death increased especially in children and adolescents with ASD and behavioural disorders. Boys showed increased social isolation and inflexibility while girls exhibited lesser self-injurious behaviours and better eating habits, with increased body dissatisfaction. There was an increase in the use of electronic devices among adolescents with boys spending more time than girls.

Almost half of the children and adolescents showed difficulties in concentration due to loss of routine and less physical activity [19].

A study on Irish children and adolescents, indicated disruption in routines due to restrictions which provoked anxiety in children with ASD. Adolescents having better understanding of virus provokes fear which leads to maladaptive existential anxiety [9].

## RECOMMENDATIONS

In order to ensure mental well-being of children and adolescents, various stakeholders like parents, teachers, healthcare workers, policy makers should come together and collaborate and plan strategies accordingly [6,8,10,12,14].

1. Parents play a major role in life of their children and can act as support system in these stressful times. They should devote time and engage in various activities with their children and keep them busy especially younger children [8,12].
2. Parents should address the anxiety of their children regarding the current situation and ensure them that this will not last forever [8].
3. Children should be encouraged to follow a consistent daily routine and extra care should be taken about creating healthy food and sleeping habits [8].
4. Adolescents should be encouraged to be in touch with their friends and communicate with them frequently [9].
5. Due to lockdown and physical distancing online classes are conducted by the school. Teachers through these classes should create awareness about mental health. They should interact with every student in the class and encourage them to express their feelings [15].
6. Teachers should engage students in various creative activities in order to break the monotony of online classes.
7. Policy makers in Government should frame policies keeping in view the long-term effect of pandemic on mental health [6-9].
8. In order to provide easy access to counselling and treatment of mental health ailments, Government should rope in healthcare workers and psychiatrists in both rural and urban areas.

## CONCLUSION(S)

The majority of children and adolescents after COVID-19 pandemic experienced deterioration in their mental health due to implementation of the emergency measures throughout the world. Various cross-sectional studies showed that children as well as adolescents were burdened significantly by physical distancing measures, homeschooling and frequent lockdowns, as well as increased stress from social isolation. Lethargy, agitation and inattention, impaired social interaction, clinginess, and separation problems, poor sleep including nightmares, reduced appetite are commonly reported manifestations in young children. On younger children, there was more impact by the pandemic as compared to older children and with increasing age, emotional problems among girls tend to increase. Children and adolescents with traits like low socio-economic status, single-parent families, low education status of parents and migrant status were found more vulnerable to mental health problems. Also, children who had pre-existing mental health problems or who were diagnosed

with ASD, experienced more negative changes compared with children/adolescents without pre-existing psychiatric diagnosis. There is increased anxiety, depression, irritability, sleep disorders, lethargy, dissatisfaction and fear of death. Although various studies have been performed to assess the short-term impact on mental health of children and adolescents, there should be follow-up studies to evaluate the long-term impact, this pandemic will have on psychological health of children and adolescents.

## REFERENCES

- [1] World Health Organization. Coronavirus Disease (COVID-2019) Situation Reports. Accessed: May 23, 2021. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-report>.
- [2] WHO coronavirus disease (covid-19) dashboard. (2020). Accessed: June 5, 2021. <https://covid19.who.int/>.
- [3] Coronavirus disease (covid-19) pandemic. (2020). Accessed: June 2, 2021: <https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON305>.
- [4] Goldenberg L-MMaG. Education in times of crisis: The potential implications of school closures for teachers and students. Chartered College of Teaching. 2020. Accessed: June 15, 2021. [https://my.chartered.college/wp-content/uploads/2020/05/CCTReport070520\\_FINAL.pdf](https://my.chartered.college/wp-content/uploads/2020/05/CCTReport070520_FINAL.pdf)
- [5] Young Minds Coronavirus: Impact on young people with mental health needs, 2020. Accessed: June 19, 2021. <https://www.youngminds.org.uk/media/355gyqcd/coronavirus-report-summer-2020-final.pdf>
- [6] Golberstein E, Wen H, Miller B. Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents. *JAMA Pediatr.* 2020;174(9):819-20.
- [7] Idoiaga N, Berasategi N, Eiguren A, Picaza M. Exploring Children's Social and Emotional Representations of the COVID-19 Pandemic. *Front Psychol.* 2020;11:1952.
- [8] Jiao W, Wang L, Liu J, Fang S, Jiao F, Pettoello-Mantovani M, et al. Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic. *Pediatric pharmacology.* 2020;17(3):230-33.
- [9] O'Sullivan K, Clark S, McGrane A, Rock N, Burke L, Boyle N et al. A Qualitative Study of Child and Adolescent Mental Health during the COVID-19 Pandemic in Ireland. *Int J Environ Res Public Health.* 2021;18(3):1062.
- [10] Cost KT, Crosbie J, Anagnostou E, Birken C, Charach A, Monga S, et al. Mostly worse, occasionally better: Impact of COVID-19 pandemic on the mental health of Canadian children and adolescents. *Eur Child Adolesc Psychiatry.* 2021;01-14.
- [11] Luijten M, van Muilekom M, Teela L, Polderman T, Terwee C, Zijlmans J, et al. The impact of lockdown during the COVID-19 pandemic on mental and social health of children and adolescents. *Quality of Life Research.* 2021;30(10):2795-2804.
- [12] Ravens-Sieberer U, Kaman A, Erhart M, Devine J, Schlack R, Otto C. Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany. *Eur Child Adolesc Psychiatry.* 2021;01-11.
- [13] Ma Z, Idris S, Zhang Y, Zewen L, Wali A, Ji Y et al. The impact of COVID-19 pandemic outbreak on education and mental health of Chinese children aged 7-15 years: An online survey. *BMC Pediatr.* 2021;21(1):95.
- [14] Chen F, Zheng D, Liu J, Gong Y, Guan Z, Lou D. Depression and anxiety among adolescents during COVID-19: A cross-sectional study. *Brain, Behavior, and Immunity.* 2020;88:36-38.
- [15] Zhang C, Ye M, Fu Y, Yang M, Luo F, Yuan J et al. The Psychological Impact of the COVID-19 Pandemic on Teenagers in China. *J Adolesc Health.* 2020;67(6):747-55.
- [16] Zhou S, Zhang L, Wang L, Guo Z, Wang J, Chen J, et al. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. *Eur Child Adolesc Psychiatry.* 2020;29(6):749-758.
- [17] Zhang J, Shuai L, Yu H, Wang Z, Qiu M, Lu L, et al. Acute stress, behavioural symptoms and mood states among school-age children with attention-deficit/hyperactive disorder during the COVID-19 outbreak. *Asian Journal of Psychiatry.* 2020;51:102077.
- [18] Colizzi M, Sironi E, Antonini F, Ciceri M, Bovo C, Zocante L. Psychosocial and Behavioral Impact of COVID-19 in Autism Spectrum Disorder: An Online Parent Survey. *Brain Sciences.* 2020;10(6):341.
- [19] Lopez-Serrano J, Díaz-Bóveda R, González-Vallespí L, Santamarina-Pérez P, Bretones-Rodríguez A, Calvo R, et al. Psychological impact during COVID-19 lockdown in children and adolescents with previous mental health disorders. *Rev Psiquiatr Salud Ment (Engl Ed).* 2021;S1888-9891(21)00035-5.

### PARTICULARS OF CONTRIBUTORS:

1. PhD Scholar, Department of Zoology, Deshbhagat University, Mandi Gobindgarh, Gobindgarh, Punjab, India.
2. Senior Resident, Department of Neurology, Sher-i-Kashmir Institute of Medical Sciences, Soura, Srinagar, Jammu and Kashmir, India.

### NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Sharika Ashraf,  
SKIMS, Soura, Srinagar, Jammu and Kashmir, India.  
E-mail: drarjmandyaqoob@gmail.com

### PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Aug 23, 2021
- Manual Googling: Jan 03, 2022
- iThenticate Software: Jan 25, 2022 (19%)

### ETYMOLOGY: Author Origin

### AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? NA
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Aug 21, 2021**  
Date of Peer Review: **Nov 18, 2021**  
Date of Acceptance: **Jan 04, 2022**  
Date of Publishing: **Mar 01, 2022**