

Impact of coronavirus pandemic on mental health of children

Jyoti Bagla¹, Mahima Rajan², Ananya Maheshwari³, Sangeeta Chaudhry⁴, Anand Prakash Dubey⁵

From ¹Professor and Head, Department of Pediatrics, ESI Post Graduate Institute of Medical Sciences and Research, Basaidarapur, New Delhi, India, ²Senior Resident, Department of Pediatrics, ESI Post Graduate Institute of Medical Sciences and Research, Basaidarapur, New Delhi, India, ³Student, Bal Bharati Public School, Delhi-110060, ⁴Post Graduate Student, Department of Pediatrics, Post Graduate Institute of Medical Sciences and Research, Basaidarapur, New Delhi, India, ⁵Professor, Department of Pediatrics, Post Graduate Institute of Medical Sciences and Research, Basaidarapur, New Delhi, India

ABSTRACT

Background: The outbreak of coronavirus disease 2019 (COVID-19) pandemic has forced the children to stay indoors and minimize social interaction that has impacted their mental health. **Aim:** This study aims to assess the psychological impact of COVID-19 pandemic on children. **Methods:** This observational cross-sectional study was conducted in the Department of Pediatrics, ESIC PGIMSR, Basaidarapur, New Delhi, in the month of June 2020. Parents of children aged 6–17 years were asked to answer a questionnaire comprising questions from Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition scale and questions regarding COVID-19 pandemic which were structured by the authors. The data were analyzed using descriptive statistics. **Results:** Among the 150 responses, 57% were boys and 43% were girls with mean age of 11.62±3.5 years. The most common source of information about the pandemic was a family member (80%). About 99.7% of children were worried about getting infected. Inattention was the most common psychiatric symptom (49%), followed by mania (29%), anxiety (23%), and depression (23%). Predisposition to substance abuse and suicidal thoughts was majorly observed in adolescents. **Conclusion:** The pandemic is definitely causing psychosocial impact on children. The government and community need to be aware of such effects so that they can be dealt well in time.

Key words: Children, Coronavirus disease 2019, Health care workers, Mental health

In December 2019, cases of 2019-novel coronavirus started emerging from Wuhan, China. It has been by far the largest outbreak of atypical pneumonia since the severe acute respiratory syndrome (SARS) in 2003, however, number of cases and deaths have far exceeded those of SARS [1]. By the end of March 2020, the virus had spread across the globe leading to nationwide lockdowns, contact restrictions, school closures, and isolation to halt the spread of the virus leading to unprecedented changes in our lifestyles. These measures may be associated with adverse effects on mental health in the form of panic, anxiety, depression, and anger among others. These psychosocial issues have been studied in the past during the pandemics of H1N1 and SARS. These studies revealed several concerns regarding fear, post-traumatic stress disorder, and a raise in depression and anxiety [1,2]. Likewise, studies across the globe have highlighted the negative impact of coronavirus disease 2019 (COVID-19) pandemic on mental health of people from all strata of society [3]. Unpredictability of situation, non-availability of a vaccine, and

spread of unreliable information through social media only worsen the scenario.

Children are not indifferent to this impact. They experience all kinds of repercussions of the pandemics, be it physical or mental. Decreased outdoor activities and social interaction, school closures, parents' concerns toward the disease, inadequate information, increased screen time, and irregular sleep patterns have negatively impacted their health [4]. The psychosocial impact and resulting negative coping mechanism are more evident in the young and therefore it is important that families and governments pay attention to mental health-care needs of children during such testing times.

Due to paucity of data concerning mental health of children in India, the study was conducted to evaluate knowledge, attitude, and psychosocial issues during this current pandemic and social isolation thereof.

METHODS

This observational cross-sectional study was carried out by the Department of Pediatrics, ESI PGIMSR, Basaidarapur,

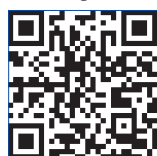
Correspondence to: Dr. Sangeeta Chaudhry, Department of Pediatrics, Post Graduate Institute of Medical Sciences and Research, Basaidarapur, New Delhi, India. E-mail: sangeetachaudhry730@gmail.com

© 2021 Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC-ND 4.0).

Access this article online

Received - 12 May 2021
Initial Review - 05 June 2021
Accepted - 15 July 2021

Quick Response code



DOI: 10.32677/IJCH.2021.v08.i08.2989

New Delhi, in June 2020. Necessary approval was taken from the Institutional Ethics Committee and the study was registered with Clinical Trials Registry-India.

Parents of school-going children (age: 6–17 years) were recruited through snowball sampling technique. A consent form attached with the online questionnaire was provided and the willing parents/guardians were asked to fill the questionnaire about their children online. Children with known psychiatric, neurological, developmental, and other chronic illnesses were excluded from the study.

The complete questionnaire comprising demographic details, questions regarding COVID-19 and Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (*DSM-5*) were prepared using Google Forms and were circulated online to eligible candidates through e-mail and phone messaging services (WhatsApp). They were encouraged to circulate it further to increase the recruitment. As per the requirement of the symptom measure; parents/guardians of children were encouraged to fill out the questionnaire. If a guardian had more than 1 child who fulfilled the eligibility criteria, he/she was asked to answer the questionnaire separately for each child. Responses were sought from general population as well as health care workers (HCWs) belonging to high-risk areas (places with higher case load of COVID-19, like Delhi-NCR) and other areas. A subgroup analysis was done to find out whether the children of HCWs had more concerns regarding the disease as their parents were fighting it on the battlefield. All the complete responses received during the study period were included in the study.

Questionnaire

A structured questionnaire comprising demographic details and questions regarding COVID-19 was prepared. Following questions were included: (1) Does your child know about COVID-19 pandemic? (2) Source of information, (3) Is he/she worried about getting infected? (4) Does your child ask questions about COVID-19? (5) Has your child become more concerned towards health and hygiene? and (6) How is your child coping with school closure and reduced social interaction? Parents were asked to choose the appropriate answer from the given choices.

DSM-5 parent/guardian-rated level 1 cross-cutting symptom measure questionnaire for children aged 6–17 years was used for the evaluation of various psychiatric domains. It is a copyright-free measure and is allowed to reproduce without permission for use with patients. It consists of 25 questions that assess 12 psychiatric domains including depression, anger, irritability, mania, anxiety, somatic symptoms, inattention, suicidal ideation/attempt, psychosis, repetitive thoughts and behaviors, sleep disturbance, and substance use.

Parent/guardian was asked to rate how much (or how often) his/her child had been bothered by the specific symptom during the past 2 weeks. Nineteen items on the measure were each rated on a 5-point scale (0=none or not at all; 1=slight or rare, less than a day or 2; 2=mild or several days; 3=moderate or more than

half of the days; and 4=severe or nearly every day). The suicidal ideation, suicide attempt, and substance abuse items were each rated on a “Yes, No, or Don’t Know” scale. The score on each item within a domain was then reviewed by investigators. A guide provided in the manual helped in outlining the threshold score to interpret whether the symptom was worrisome or not.

Statistical Analysis

Data were entered into Microsoft Excel sheet and analyzed descriptively. We further divided children into two groups; Group A comprising children of HCWs and Group B comprising children from general population. The data were analyzed using descriptive statistics. Means and percentages were calculated. Chi-square test was used to compare the nominal data. $p < 0.05$ was considered statistically significant.

RESULTS

A total of 162 responses were received over 10 days. Twelve respondents did not complete the questionnaire. Eventually 150 responses (Boys: 57%; girls: 43%; mean age: 11.62 ± 3.5 years) were included for statistical analysis. More than half (56%) of the guardians had an educational level of postgraduation or above. About 33% (50) of the guardians/parents were HCWs and 67% were from other professions. About 45% of respondents were from high-risk areas.

Table 1 indicates the attitude of children toward COVID-19 pandemic. Majority of children (92.7%) did enquire about the pandemic.

Table 2 describes the comparison of symptoms appeared zone wise and based on parents’ profession.

Table 3 describes the difference in prevalence of symptoms among various age groups.

DISCUSSION

Epidemics affect the mental health of children as much as any other traumatic experiences do. Stressors such as fear of infection, isolation, inadequate information, lack of in-person contact with classmates and friends, boredom, frustration, and family financial losses have more lasting effects on children and adolescents [5]. This study attempted to evaluate the attitudes and mental health-care needs of the children during the current COVID-19 pandemic. In the present study, all the children knew about the ongoing pandemic, the most common source of information being digital media platforms. Almost all the children were worried about getting infected and 88.7% of children had positive impact regarding health and hygiene in the form of washing hands and cleanliness.

Our study reported that 49% of children suffered from inattention, 29% had mania, and the incidences of anxiety and depression were 23% each which were higher as compared to previous Indian surveys reporting general prevalence of

psychiatric disorders in this population [6-8]. Similarly, a surge in psychosocial symptoms among children has been evident during other epidemics from different parts of the world [9], suggesting that infectious disease epidemics affect the mental health of children just like any other adverse events do. Xie *et al.* [10]

Table 1: Knowledge and attitude regarding COVID-19

Information regarding COVID-19	n=150 (percentage)
Awareness about COVID-19 pandemic	
Yes	150 (100)
No	0
Source of information (multiple answers)	
TV	102 (68)
Friends	44 (29.3)
Family	120 (80)
Social media	69 (46)
Concerned about getting infected?	
Quite worried	36 (24)
Moderately worried	36 (24)
Slightly worried	73 (48.6)
Not worried	5 (0.3)
Does your child ask questions about COVID?	
Consistently	30 (2)
Sometimes	109 (72.6)
Never	11 (7.3)
Concerned toward health and hygiene?	
Yes, very much	46 (30.6)
Yes, some positive impact is there	87 (58)
No	17 (11.3)
How is your child coping?	
Watching TV/playing video games	90 (60)
Has adopted new hobby	28 (18.6)
Helps in daily chores	43 (28.6)
Physical activity/yoga	43 (28.6)

have cited a similar incidence of depressive (22.6%) and anxiety (19%) symptoms in school-going children during the COVID-19 pandemic. Children have been reported to have increased stress levels due to school closures [11]. A systematic review of 63 studies concluded an increase in mental health problems in children and adolescents following social isolation due to COVID-19 [12].

We also found that children from a high epidemic risk had more prevalence of these symptoms than those in areas with low case load of the disease. The differences were significant for possible substance abuse and suicidal ideation. This is in accordance with studies from China where psychiatric symptoms and alcohol dependency have been more frequently reported from Wuhan and Hubei Provinces [3,13].

We compared these psychiatric symptoms in children from general population to the children of HCWs. The results showed that the prevalence of these symptoms was more in the children from general population than those of HCWs. This may be attributed to the fact that children of HCWs may be more aware of the nature of the disease and positive counseling given to them by their parents. Evidence suggests that fear and anxiety of a child is directly related to those of parents [14]. Mental health of a parent will directly affect the mental health of a child. A previous study suggests that HCWs often have better awareness regarding pandemics. They often have positive attitude and experience low levels of anxiety [15]. Therefore, low levels of stress in parents, fact-based conversations, and clearing of misconceptions might have helped a better mental health status in children of HCWs. However, since our results were not statistically significant, more studies with larger sample size are needed to prove such association. The future research should move beyond the cross-sectional design of this study and larger multisite longitudinal studies focusing on formal assessment of mental health needs of children are needed to find the actual gravity of the problem. There should be a mechanism in place during such pandemic

Table 2: Comparison of incidence of symptoms based on zones and among children of HCWs and others

Symptoms	General population number (percentage) (n=100)	Children of HCWs number (percentage) (n=50)	p-value	Delhi NCR number (percentage) (n=67)	Others number (percentage) (n=83)	p-value
Somatic symptoms	26 (26)	14 (28)	0.79	16 (23.8)	24 (28.9)	0.48
Sleep problems	18 (18)	6 (12)	0.34	11 (16.4)	13 (15.6)	0.90
Inattention	55 (55)	18 (36)	0.02	35 (52.2)	38 (45.7)	0.43
Depression	24 (24)	10 (20)	0.58	17 (25.3)	17 (20.4)	0.47
Anger	18 (18)	8 (16)	0.76	13 (19.4)	13 (15.6)	0.54
Irritability	15 (15)	9 (9)	0.22	14 (20.8)	10 (12)	0.14
Mania	30 (30)	14 (28)	0.79	22 (32.8)	22 (26.5)	0.39
Anxiety	28 (28)	7 (14)	0.05	16 (23.8)	19 (22.8)	0.88
Psychosis	17 (17)	3 (6)	0.25	6 (8.9)	14 (16.8)	0.15
Repetitive thoughts and behaviors	24 (24)	8 (16)	0.16	13 (19.4)	19 (22.8)	0.60
Substance abuse	7 (7)	7 (14)	0.16	10 (14.9)	4 (4.8)	0.03
Suicidal attempts/ideation	6 (6)	2 (4)	0.60	7 (10.4)	2 (2.4)	0.03

HCWs: Health care workers

Table 3: Age-wise comparison of incidence of symptoms

Symptoms	6–9 years number (percentage) (n=49)	10–13 years number (percentage) (n=46)	14–17 years number (percentage) (n=55)	p-value
Somatic symptoms	13 (26.5)	11 (24)	16 (29)	0.84
Sleep problems	5 (10.2)	7 (15)	12 (22)	0.26
Inattention	25 (51)	22 (48)	26 (47)	0.16
Depression	12 (24.4)	7 (15)	15 (27)	0.33
Anger	8 (16.3)	6 (13)	12 (22)	0.49
Irritability	7 (14.2)	8 (17)	9 (16)	0.91
Mania	18 (36.7)	11 (24)	15 (27.2)	0.35
Anxiety	9 (18.3)	9 (19.5)	17 (31)	0.24
Psychosis	8 (16.3)	4 (8.6)	8 (14.5)	0.52
Repetitive thoughts and behaviors	10 (20.4)	8 (17)	14 (25.4)	0.60
Substance abuse	2 (4)	3 (6.5)	9 (16.3)	0.07
Suicidal attempts/ideation	0 (0)	1 (2)	7 (12.7)	0.03

situations to identify mental health symptoms early so that timely diagnosis and intervention can be done.

However, being a preliminary study on the mental health implications of the pandemic on children, the current study has few limitations. The use of DSM-5 level 1 tool highlights that a particular domain is worrisome and should be investigated further. However, it does not provide any diagnostic information. To arrive at a proper diagnosis, level 2 DSM-5 symptom measures will have to be used. Furthermore, because of the small sample size and the study being single centric, the results may be underestimating the psychological impact of COVID-19 on children.

CONCLUSION

As the pandemic still continues to grow, fear of the epidemic, home confinement, and lifestyle changes are definitely causing psychological impact on children. The government, community, and parents need to be aware of such effects so that they can be dealt well in time. The results provide important data regarding the psychological impact of COVID-19 on children. This brief mental health screener may help the researchers, health-care professionals, and government in understanding and addressing the need for a better mental healthcare system to protect our children from negative effects of the pandemic. Policy-makers need to consider this vulnerable group while implementing decisions so that their education and psychological development is not affected.

REFERENCES

- Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styrá R. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerg Infect Dis* 2004;10:1206-12.
- Yeung NC, Lau JT, Choi KC, Griffiths S. Population responses during the pandemic phase of the influenza A (H1N1) pdm09 epidemic, Hong Kong, China. *Emerg Infect Dis* 2017;23:813-5.
- Ahmed MZ, Ahmed O, Aibao Z, Hanbin S, Siyu L, Ahmad A. Epidemic of COVID-19 in China and associated Psychological Problems. *Asian J Psychiatry* 2020;51:102092.
- Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *The Lancet* 2020;395:945-7.
- Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, *et al.* The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet Lond Engl* 2020;395:912-20.
- Madasu S, Malhotra S, Kant S, Sagar R, Mishra AK, Misra P, *et al.* Prevalence and determinants of anxiety disorders among adolescents in a rural community from Northern India. *Asian J Psychiatry* 2019;43:137-42.
- Srinath S, Girimaji SC, Gururaj G, Seshadri S, Subbakrishna DK, Bhola P, *et al.* Epidemiological study of child and adolescent psychiatric disorders in urban and rural areas of Bangalore, India. *Indian J Med Res* 2005;122:67-79.
- Malhotra S, Kohli A, Kapoor M, Pradhan B. Incidence of childhood psychiatric disorders in India. *Indian J Psychiatry* 2009;51:101.
- Main A, Zhou Q, Ma Y, Luecken LJ, Liu X. Relations of SARS-related stressors and coping to Chinese college students' psychological adjustment during the 2003 Beijing SARS epidemic. *J Couns Psychol* 2011;58:410-23.
- 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;174:898-900.
- Lee J. Mental health effects of school closures during COVID-19. *Lancet Child Adolesc Health* 2020;4:421.
- Loades ME, Chatburn E, Higson-Sweeney N, Reynolds S, Shafran R, Brigden A, *et al.* Rapid systematic review: The impact of social isolation and loneliness on the mental health of children and adolescents in the context of COVID-19. *J Am Acad Child Adolesc Psychiatry* 2020;59:1218-39.e3.
- Jiao WY, Wang LN, Liu J, Fang SF, Jiao FY, Pettoello-Mantovani M, *et al.* Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic. *J Pediatr* 2020;221:264-6.e1.
- Remmerswaal D, Muris P. Children's fear reactions to the 2009 Swine Flu pandemic: The role of threat information as provided by parents. *J Anxiety Disord* 2011;25:444-9.
- Mishra P, Bhadauria US, Dasar PL, Sandesh N, Kumar S, Lalani A, *et al.* Knowledge, attitude and anxiety towards pandemic flu a potential bio weapon among health professionals in Indore City. *Przegl Epidemiol* 2016;70:41-5, 125-7.

Funding: None; Conflicts of Interest: None Stated.

How to cite this article: Bagla J, Rajan M, Maheshwari A, Chaudhry S, Dubey AP. Impact of coronavirus pandemic on mental health of children. *Indian J Child Health*. 2021; 8(8):273-276.