

## Impact of Coronavirus Disease 2019 Pandemic and Lockdown on Mental Health Symptoms in Children

Pediatric symptom checklist (PSC)-youth self-report short version was administered telephonically to children between 11-15 years to study the impact on mental health. Out of 423 children, 130 (30.7%) had psychosocial problems, of which 107 (25.2%) had anxiety or depressive symptoms. The common reasons were fear of acquiring COVID-19 infection (60%), not able to attend school (56%), and not able to meet friends (80%).

**Keywords:** *Psychosocial wellness, COVID-19.*

**Published online: November 29, 2020;**  
**PII:S097475591600256**

During the coronavirus disease (COVID-19) pandemic-induced nationwide lockdown, children were staying indoor (home confinement) and limited online teaching was provided by some schools. The impact on children may not be only because of the virus but also due to psychological effects created by exposure to verified/unverified information through various sources. Our primary objective was to study the effects of pandemic and lockdown (home confinement) on mental health symptoms in children aged 11 to 15 years.

The study period was from 15, April, 2020 to 15 May, 2020 in Pune, India. We included children aged between 11-15 years in whom medium of instruction in schools was English. Children receiving neuropsychiatric medicines/treatment were excluded from the study. Telephonic interview of children was conducted after obtaining prior informed verbal consent from one of the parents. Approval was taken from institutional ethics committee.

Children were identified from our hospital records. Friends/relatives and other contacts of researchers were contacted to identify more children in that age group who would be willing to participate. The information about the survey was put on personal Facebook pages of investigators and interested people were asked to contact a dedicated telephone number. Children who participated in the survey were also asked to suggest contacts that would be willing to participate.

Pediatric symptom checklist (PSC) – youth, self-report shorter version consisting of 17 questions was used [1,2]. This is a validated method for screening for psychosocial problems of school-aged children. A cut-off more than 15 was considered abnormal. Subscale scores were also calculated for anxiety or depressive problems, and a subscale score of 5 or more was considered significant. In addition to PSC, 13 questions exploring adaptation to lockdown and post-lockdown expectations were also administered. The complete questionnaire was administered to the children by three researchers in a uniform and standardized format.

We calculated that with a confidence level of 95% and acceptable margin of error 5%, we would need a sample size of 384 respondents. Assuming a 10% drop out rate, a sample size

of 422 was chosen. We used SPSS version 23 (IBM Inc.) for statistical analyses. Linear regression analysis was used to determine effect of various parameters on mental health. P value of less than 0.05 was considered significant.

Overall, we telephoned 486 children, of which 36 phone calls were not answered despite repeated attempts. Twenty-seven parents declined participation. Finally, 423 (87%) children [mean (SD) age, 12.3 (1.6) year; 54.4% boys] completed the questionnaire and were included in the study. Of these 70% belonged to nuclear families, 25% had no siblings and 10.8% had one/both parents in healthcare profession. Mothers of 34% and 18% were employed full-time or part-time, respectively. The source of information on the pandemic was from news (51.3%), parents (27.4%), both of these in 6% and friends in 7.5%.

Of these, 130 (30.7%) children had psychosocial problems, of which 107 (25.2%) had anxiety or depressive symptoms, the common reasons being fear of acquiring COVID-19 infection (60%), not able to attend school (56%), and not able to meet friends (80%). Of others, 23 (5.4%) were feeling hopeless, 107 (25.2%) seemed to be having less fun, and 99 (23.4%) were feeling sad or unhappy. Around a quarter (24.3%) were worrying a lot and 12.5% were ‘down on oneself.’

Of the remaining, 246 (58%) children were happy to spend more time with family, 140 (33%) did not feel any anything unusual, while 32 children (7.6%) children were annoyed by the constant presence of parents.

The topic of discussion with friends was COVID-19 pandemic in 43 (10%) children and 103 children (23.2%) kept a daily count of patients suffering and dying from COVID-19. All children responded that they had not anticipated this

**Table I Coping With the Pandemic and Long Term Outlook**

<i>Responses</i>	<i>No. (%)</i>
<i>Measures taken to reduce anxiety<sup>a</sup></i>	
Music	88 (21)
Talking to friends	73 (17.3)
Talking to parents	51 (12)
Hobbies	123 (29)
Physical exercise	35 (8.3)
<i>What are you missing most?<sup>b</sup></i>	
Freedom to move out	140 (33)
School	79 (18.7)
Friends	133 (31.5)
Sports	48 (11.4)
<i>What is the first thing you do once the lockdown is over?<sup>c</sup></i>	
Meet friends	279 (66)
Stay at home	66 (15.6)

<sup>a</sup>Reading and playing games on mobile phone in 4.7% each, and sleeping more in 3%; <sup>b</sup>shopping (3%) and movies in theater (2.4%); <sup>c</sup>Go shopping (6.6%), and organize a party or go to watch movie in 5.9% each.

happening, and 267 (63%) children felt that this lockdown will change their habits, mind set or outlook towards other people.

Binary regression analysis showed that duration of lockdown, family size, siblings, working status of parents, healthcare status of parents, source of information of pandemic etc did not have any significant effect on mental health (anxiety or depression). However, increased use of social media was associated with higher risk of anxiety or depressive symptoms [OR (95% CI) 1.83 (1.21 to 3.96);  $P=0.001$ ]

We found that anxiety or depressive symptoms were seen in nearly 25% of all surveyed children as a result of lockdown. We started the survey after completing 4 weeks of lockdown and finished by 8 weeks after which the lockdown restrictions were relaxed. Completing the study within lockdown time ensured that children were able to answer all questions with complete clarity and lack of memory lapses. We did not find any relation between duration of lockdown and impact on mental health symptoms. Nearly half of this lockdown period coincided with the regular summer break for most children. So, it is possible that the impact is less due to this overlap.

Interestingly, we found that higher usage of social media platforms was associated with anxiety or depressive symptoms. However, it can also be argued that children with mental health issues were more likely to access social media rather than use of social media being the cause of mental health issues. We restricted to children age 11 years or more of age since the cognitive function and social skills are better developed in this age group [4], and proxy-reporting is avoided [3].

The data is self-reported and hence subject to reporting bias. Also, the children may have been influenced by other family members though they were requested to not seek help while answering questions. This is not a truly representative sample since the children interviewed are from private English-medium schools, which typically represents upper-middle socioeconomic strata. None of the interviewed children had COVID-positive patients in the family. We do not know if this effect on mental health is a temporary phenomenon but these children will need to be followed up for long term effects. Majority of the children were optimistic about long term

outlook, leading us to believe that adverse impact on mental health may be short-lived.

The study results are important to healthcare providers, parents as well as policy makers. Policy makers should devise ways to minimize these effects while implementing a lockdown (home confinement) on children. Parents and health providers should recognize these problems early and treat if necessary.

**Contributors:** SS: designed the questionnaire, data interpretation and analysis. Critical appraisal of the manuscript was done by him; AK: conceptualized this study, designed the questionnaire and interviewed the children, assisted in the data interpretation and analysis, and drafted the manuscript. RS: gave inputs on the questionnaire, interviewed the children, did the data entry and drafted the manuscript. SM: helped in interviewing the children, data entry, and in drafting of the manuscript. All authors approved the final manuscript.

**Ethics clearance:** Surya Hospital Scientific research and ethical review committee on 1 April, 2020.

**Funding:** None; **Competing interests:** None stated.

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## REFERENCES

1. Jellinek MS, Murphy JM, Little M, Pagano ME, Comer DM, Kelleher KJ. Use of the pediatric symptom checklist to screen for psychosocial problems in pediatric primary care: A national feasibility study. *Arch Pediatr Adolesc Med.* 1999;153:254-260.
2. Murphy JM, Bergmann P, Chiang C, et al. The PSC-17: Subscale scores, Reliability and Factor Structure in a new national sample. *Pediatrics.* 2016;138:e20160038.
3. Scott J. Children as respondents: Methods for improving data quality. In: Lyberg L, Biemer P, Collins M, et al. eds. *Survey Measurement and Process Quality.* Wiley, 1997: 331-50.
4. Borgers N, de Leeuw E, Hox J. Children as respondents in survey research: Cognitive development and response quality. *Bulletin de Méthodologie Sociologique.* 2000;66:60-75.