

REVIEW

Impact of COVID-19 on children:
special focus on the psychosocial aspectRitwik GHOSH¹, Mahua J. DUBEY², Subhankar CHATTERJEE³*, Souvik DUBEY⁴¹Department of General Medicine, Burdwan Medical College and Hospital, Burdwan, India; ²Department of Psychiatry, Behrampore Mental Hospital, Berhampore, India; ³Department of General Medicine, Rajendra Institute of Medical Sciences, Ranchi, India; ⁴Department of Neuromedicine, Bangur Institute of Neurosciences, SSKM Hospital, Kolkata, India*Corresponding author: Subhankar Chatterjee, Department of General Medicine, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India. E-mail: chatterjeeaspiresubhankar.92@gmail.com

ABSTRACT

Although medical literature shows that children are minimally susceptible to 2019-Corona virus disease (COVID-19), they are hit the hardest by psychosocial impact of this pandemic. Being quarantined in homes and institutions may impose greater psychological burden than the physical sufferings caused by the virus. School closure, lack of outdoor activity, aberrant dietary and sleeping habits are likely to disrupt children's usual lifestyle and can potentially promote monotony, distress, impatience, annoyance and varied neuropsychiatric manifestations. Incidences of domestic violence, child abuse, adulterated online contents are on the rise. Children of single parent and frontline workers suffer unique problems. The children from marginalized communities are particularly susceptible to the infection and may suffer from extended ill-consequences of this pandemic, such as child labor, child trafficking, child marriage, sexual exploitation and death etc. Parents, pediatricians, psychologists, social workers, hospital authorities, government and non-governmental organizations have important roles to play to mitigate the psychosocial ill-effects of COVID-19 on children and adolescents. To provide the basic amenities, social security, medical care, and to minimize the educational inequities among the children of the different strata of the society are foremost priorities.

(Cite this article as: Ghosh R, Dubey MJ, Chatterjee S, Dubey S. Impact of COVID-19 on children: special focus on the psychosocial aspect. Minerva Pediatr 2020;72:226-35. DOI: 10.23736/S0026-4946.20.05887-9)

KEY WORDS: COVID-19; Coronavirus; Pandemics; Parenting; Child abuse; Mental health.

*"A strange darkness has come upon the world
today. They who are most blind now see..."*
Jibanananda Das

Over the last few months, the mankind has stumbled into one of its greatest crisis since World War II. With over 2.62 million cases already, and a death toll of more than 1.8 lakhs,¹ the world is indeed fathomlessly struggling with epoch-making public health menace, the 2019-corona virus disease (COVID-19). This menace has propelled the lion's share of the population to home-confinement and the rest have engaged them rather selflessly in an un-

even mortal combat against it, creating a situation of global socio-economic deadlock.² All the relentless, hair-splitting and scrupulous research for developing a vaccine till date ended in much ado for nothing. Prudent observation of health awareness will contain the spread of disease for the time being but surely will not end the mystery of this misery.³

Contrary to adults, children infected with a novel severe acute respiratory syndrome coronavirus (SARS-CoV2) reportedly are having milder illness, low morbidity, rare cases of neonatal/infantile infection, no definite documentation

of vertical transmission, better prognosis and probably lesser susceptibility.⁴⁻⁸ It is expected that like in adults, children having pre-existing illnesses like cystic fibrosis, severe asthma, congenital heart diseases, malnutrition, obesity, children from antenatal smokers are at heightened risk for poorer outcome if infected with COVID-19.⁹ Health care staffs and parents are genuinely worried for children as this is a novel disease with a weak evidence-base to formulate clinical decisions and everyone is virtually susceptible.⁹ Moreover, children have been shown to shed the virus in feces beside naso-pharyngeal secretions, while being relatively asymptomatic, having an imminent potential for wide-transmission in the community.¹⁰

Although at first glance reports are reassuring for pediatric health care professionals, parents and families, there are challenges to risk stratify the children, identify the asymptomatic carriers, ensure their proper general pediatric care including routine vaccination, nutrition and wholesome upbringing in this unprecedented time.⁹ Where does childhood, the future of human civilization, stand in this period of catastrophe? Will childhood continue to glow at this gloomy hour or the long-lasting effects of this pandemic will overcast them too?

Why low incidences in children? Are they truly less susceptible or the history will repeat itself?

Historical experiences suggest that some viral infections are less severe among children and prognosis becomes worse with advancing age. Previous SARS and flu epidemics showed varied predilection for pediatric age group for obscure reasons.¹¹ Various hypotheses have been put forward to explain the lesser severity of COVID-19 among children: 1) healthier respiratory system; 2) lesser outdoor activity; 3) lesser prevalence of comorbidities; 4) Bacillus Calmette-Guerin (BCG) vaccination; 5) greater activity of thymus including thymosin secretion, thus producing favorable CD4/CD8 ratio; 6) progressive increase in serum angiotensin converting enzyme (ACE) level from the age of 4 to 13 years; 7) higher rates of respiratory viral co-infection which reduces

SARS-CoV2 replication by direct virus-virus interaction and competition among children.¹¹⁻¹⁵

However, there is a fair chance that as the children are having no-to-minimal symptoms of the disease, they are escaping detection. This might end up as an ice-berg phenomena and epidemiological disaster as the oligo-symptomatic children will continue to shed virus, remaining undetected throughout.¹⁵ It is too early to commit about children having lesser susceptibility, as the pandemic is just a toddler, and rise in number may be just a matter of time. While the natural history and physical manifestations of COVID-19 on children are evolving as the pandemic progresses, its short-term and long-lasting psychosocial impact is increasingly being recognized all over the globe.¹⁶

Psychosocial impact on quarantined children

Being quarantined bears a plethora of psychological burden, varied neuropsychiatric manifestations and psychosocial stigma.¹⁷ Home confinement imposes immediate and lingering psychosocial impact on children due to drastic change in their lifestyle, physical activity and mental excursions.¹⁶ Children who are being quarantined at institutions are the worst sufferers as it renders them isolated from their parents.¹⁸ Children's proper well-being depends not only on nutritional and medical care, but also on proper parental companionship. Thus, getting detached from parents in this critical juncture may cause ever-lasting psychiatric consequences including post-traumatic stress disorder, anxiety, psychosis, depression, delinquency and even suicidal tendency.¹⁸⁻²¹ Thus, the frontline physicians must be made aware of the psychosocial need of the quarantined children. Hospital authorities need to make arrangements so that children can communicate with parents via audiovisual devices. Government should make operational strategies to provide mental healthcare for the quarantined children.¹⁸ Moreover, children whose parents are detached from them due to quarantine will also be equally stressed, anxious, distressed and feel insecurity due to this forced distancing.²²

Effects of school closure: schools are lifelines

To say it with Audrey Azoulay, Director General of UNESCO, “While temporary school closures as a result of health and other crises are not new unfortunately, the global scale and speed of the current educational disruption is unparalleled and, if prolonged, could threaten the right to education.”²³

Amidst the ocean of doubt regarding the efficacy of school closure to contain a pandemic the administrations had no choice left but to close the schools nationwide to uphold the practice of social distancing as there is no other definite prevention and cure of SARS-CoV2 infection.^{24, 25} The experience from severe acute respiratory syndrome coronavirus (SARS-CoV) and middle-east respiratory syndrome coronavirus (MERS-CoV) suggest that the decision of school closure will not have similar effects on interruption of disease spread as seen in case of influenza pandemic due to different transmission dynamics.²⁶

For children, school is not only an educational hub, but also a home outside the home with plentiful free space. Schools offer window of freedom, scope of interaction with fellows and seniors, psychological solace besides providing pedagogy and scholastics. Schools play an edifying role in promoting importance of personal hygiene, physical activity, healthy food, and body habits.²⁷ Even a short-term shutdown of educational institutions and home captivity for children is indeed troublesome and anticipated to have detrimental effects on children’s physical and mental health and shatter the sense of normalcy that schools used to provide.^{28, 29} Childhood obesity and reduced cardio-respiratory fitness will be the end result of this long-term physical inactivity, irregular sleep patterns, unfavorable diet plans, sedentary life style, longer smart-phone/television screen time that are being practiced during lockdown and school-closure.³⁰ Perpetual termination of schooling, fear of being infected and spreading infection to grandparents at home, everlasting ennui, frustration, insufficient information, and lack of in-person contact with peers and teachers, lack of personal space at house, and growing financial burden on parents are often unnoticed and forsaken, but these pa-

rameters have a sustained consequences on children and adolescents.³¹ Jeopardizing the routine habits of school-going, task-oriented education, peer group interactions, teacher-student relationship, and fellow feeling amongst pupils will occur. Complex interplay between psychosocial stress and pandemic induced forced home-stay and lifestyle modifications will further worsen the malefic effects on child’s overall health in a vicious cycle fashion.¹⁶ For many children living in destitution both in developed, developing and underdeveloped countries, school is also a place for nutritional support and shutdown will intensify food insecurity which in turn can be correlated with low scholastic accomplishment and ample risks to general wellbeing of the students.^{31, 32}

Prolonged shutdown hits the notion of right to education hard and educational inequalities stem from it. Learning gap will be widened between children from lower and higher-income families during this institute closure.³¹ Facilities for home-schooling which need audio-visual systems and good internet connection are not available for children from low-income households. A substantial number of children do not have a stable residence, required books, a suitable place for homework, computers, smartphones, internet access, access to outdoor leisure activities even in developed countries.³¹ The accessibility of electronic gazettes, learning equipment, home conditions for studies among children of developing or under-developed countries are even more meager and thus, they are likely to be worst affected.³³ Child abuse, drop-out from formal education, indulgence into high-risk activities and proliferation of child labor could be potential socio-economic consequences of COVID-19 pandemic.³⁴ Appropriate articulation between classroom and online education, educational financial assistance to the needy students and ensuring zero drop-out from schools post-pandemic are the needs of the hour.

Child abuse, domestic violence and teenage promiscuity: increasing threats of lockdown

Reports of child abuse, neglect, exploitation and domestic violence are on horrendous rise at the time of COVID-19 pandemic and lockdown.^{35, 36}

Particularly anxieties over health, finance, partial inactivity of several welfare organizations due to lockdown and frustration encircling forced home-stay are factors behind this rapid soaring of domestic violence at the time of COVID-19.³⁷ Both direct and passive exposure of the children to abuse, psychological aggression and/or physical punishment by caregivers at a very early age leave permanent wounds in the form of impaired development of brain and psyche, higher rates of psychosomatic and neuro-psychiatric disorders, multiple substance abuse and suicidal thoughts.³⁸⁻⁴⁰

COVID-19 and its accompaniments *i.e.* loss of parental affection and care, financial deadlock, school discontinuation will certainly outrage the risk of sexual exploitation, teenage pregnancy, transactional sex similar consequences that were faced by children from Africa after Ebola epidemic. Endangered girls had to undergo transactional sex for fulfillment of basic needs like food, drinking water and shelter. Without sufficient ingress to contraception and safe abortion, the heinous form of exploitation contributed to inflated numbers of childhood/teen pregnancies.⁴¹ Like COVID-19 brews a internal “cytokine storm,” its cataclysm has heralded a perfect storm for the offenders to abuse children through several online platforms as schools are closed, children are playing excessive and uncensored time online with loneliness and humdrum daily routine.⁴² As most of the online social network companies have shifted their in-office employees to ‘work from home’ mode, the regulation and review of potentially harmful contents have gone automated from manual. This automated content moderation has multidimensional fallacies and the resultant response may be late or inapt.⁴³ This window of opportunity is being used by offenders to abuse children online. COVID-19 has opened up avenues for more cybercrimes and criminals are taking advantage of suppressed cyber-security at this hour.⁴⁴ “Child-abuse materials” seeking activity is on the rise as children are expected to be more vulnerable, less supervised, having more online exposure and are thus easy targets.⁴⁵ Strict parental vigilance along with monitoring from cyber cells is mandatory to prevent this psychosexual aberrancy.

Penurious, refugee, migrant, and internally displaced children: tale of deprived and endangered childhood

Health and financial inequity take the center stage in risk of contracting and propagating COVID-19.⁴⁶ Penury hits the children hardest and makes them vulnerable to SARS-CoV2 exposure, receive low-quality health care, have higher mortality, and sustain dire financial limitations.³¹ Pandemic followed by economic downturn will hurt the poor children most and nourish the pre-existing inequalities even in countries with mammoth economic strength.

Marginalized communities including migrants, homeless, prisoners are heavily affected by this pandemic and their specific needs to be addressed.^{47, 48} Millions of children living in detention facilities, immigrant’s camps, orphanages or similar institutions lack liberty.⁴⁹ Several millions of refugees, asylum seekers and internally displaced people with their children are confined in overcrowded camps, informal reception stays, and squatter centers with no arrangement for safe drinking water, food, sanitation barriers, and medical services.⁵⁰⁻⁵² These places will act as a fortified and enriched culture media for any pathogen like SARS-CoV2. Moreover, basic preventive strategies namely frequent hand washing, physical distancing are virtually unattainable in these state of affairs. Many of these people already harbor chronic ailments and multiple high-risk behaviors.⁵⁰ Atop, they are not receiving adequate health care, appropriate treatment and internet facility making them even easier prey for COVID-19.⁵¹ Child caring authorities of several countries of the world are defying legal orders and refusing to provide refuge for unaccompanied migrant children despite impending lethal likelihood of COVID-19.⁵³ Nothing can be worse than the fate of these helpless children who will ultimately be soft targets for criminal minds, human trafficking, exploitation and all other ill kismet.

Children with intellectual disability encounter marginalization

Untended children with intellectual disabilities and problems like autistic spectrum disorder, attention-deficit hyperactivity disorder are at high risk of getting hurt by SARS-CoV2 and promotion of fur-

ther health resource inequalities.⁵⁴⁻⁵⁷ Patients with mental health issues readily get infected with respiratory tract infections like this one because of cognitive unsoundness, lack of self-care and awareness.⁵⁸ China reported a high burden of COVID-19 cases in psychiatric hospitals further substantiating role of mental illness in spread.⁵⁹ Taking a step forward, if a child gets infected, he will be stigmatized, discriminated for both being a COVID-19 victim and a mentally challenged child. Both of the co-existing morbidities will antagonize management of the other and lead to less efficient treatment.⁶⁰ Nation-wide strict lockdown is making it impossible for the ill children to visit their psychiatrists or counselors along with interrupted supply of regular psychotropic medication.⁶¹ Subjects who are already suffering from a serious mental disability should be dealt with extra care otherwise there will be a potential for flaring up of the underlying illness and worsening of quality of life.^{56, 57}

Impact on kids whose parents are frontline COVID “warriors”

While periods of lockdown is a golden opportunity for parents to mingle with their children, the story for the parents who are catering incessant health services and defense service are time-poor, tireless and hard-pressed and hardly finding any time for their family and children.^{62, 63} Fear and guilt of contamination of the lethal virus to their little ones is taking toll on them. Basic necessity for rearing up a child like breastfeeding is being jeopardized, if the mother is a frontline healthcare worker. These children are missing their parents more than ever due to protracted periods of distancing. Concomitantly they are probably feeling proud for their heroic parents at some corner of their hearts; an adulation that is beyond the expression through words. The wound of observing humiliation of their parents by evicting them from rented house⁶⁴ may create long-term psychological consequences like anger, aggression and generalized disregard for the society.

Pediatric and adolescent physical, mental, sexual and reproductive healthcare service in the COVID-19 era

A saturated and submerged healthcare system has been gifted by COVID-19 pandemic. Restrained

access to basic health care, mental healthcare, childhood immunizations, maternal healthcare, supply of essential drugs have resulted from reallocation of personnel and resources, shortages of funds and transport issues.⁶¹ Experience from Ebola outbreak⁶⁵ has taught that severely limited access to basic healthcare would lead to spread of both COVID-19 and other non-COVID diseases of public health importance. Children with type-1 diabetes are not getting insulin regularly; children with HIV are not getting anti-retrovirals either and children with airway diseases are not getting inhalers to mention a few examples. Moreover, these kids with comorbidities are more prone to get infected and get symptomatic with COVID-19 and may need hospitalization in intensive care. Many pupils, particularly from poor communities, who frequently suffer from asthma, substance use, poor nutrition, obesity, anxiety, and depression than other children from wealthier families, completely depend on school for primary healthcare, are thus deprived at this period.^{66, 67} The pandemic will tremendously disrupt sexual and reproductive health services for long-term and ultimately lead to upsurge in unmet need for family planning, inappropriate contraception, unsafe abortion, unplanned pregnancy, increased rare of sexually transmitted infections and overall a mal-functioning fetomaternal healthcare and reproductive health services.⁶⁸

COVID-19: a tale of extended epidemic extortion

COVID-19, once in a lifetime phenomenon is not just a public health crisis, but a crisis for human existence. It will carry a long-lasting impact on social, economic, behavioral, psychological consequences. In view of current death toll casualty from COVID-19 will create millions of orphans in the months to come.³⁴ Unfortunate parentless children are easy victim for abandonment, child trafficking, sexual exploitation, coerced begging, and child labor. Many will suffer imprisonment due to crime, unwanted pregnancy, unplanned parenthood, substance abuse, self-harm and suicide.

Before COVID-19, approximately 152 million of children were already engaged as child

labor and almost 50% of them are doing hazardous work. COVID-19 will only add numbers by several millions more to that.⁶⁹ Parting the educational shortcomings, low income families are awaiting forthcoming threat of post-COVID-9 economic recession which has promoted child poverty with perennial effects on children's health, wellbeing, learning achievements. Children from poor households have to engage themselves in income-generating activities due the economic hardships, leaving school behind leading to permanent disengagement from formal education.^{31, 34}

As the after-effect of drop-out from formal education and to curtail the number of stomachs to feed, families going through economic turmoil may arrange marriage their daughters off against lump sum dowry, as early as possible, thus preparing stage for child marriage. Exploitation of basic human rights, domestic violence, sexual abuse, increased fetomaternal mortality and morbidities are bound to happen with child marriage.⁷⁰

A pandemic of fear, anxiety and depression are going hand in hand with COVID-19 contagion. Children are already extra-sensitive to emotional stress. In near future, a pandemic of childhood mental illness is upcoming which will include the whole disease spectrum from childhood depression, anxiety disorders, childhood obsession, pervasive developmental disorder, eating disorders to name a few.^{22, 71}

Proposed interventions

To mitigate the psychosocial ill-effects of COVID-19 on children and adolescents proactive and targeted interventions can be proposed. Parents, pediatricians, psychologists, social workers, hospital authorities, government and non-governmental organizations have important roles to play to make the mission successful.

Concerning healthy behavior, children have always followed their parents as the role models. Peerless parenting skills become discretely decisive while handling the children in detention. Parents need to respect their identity, free space, special need in addition to monitoring child's performance, behavior and self-discipline

skills. Friendly interaction and communication between parents and children may help soothing their pandemic-related anxieties and other physical and mental issues. This pandemic has provided parents such a perquisite to reinforce the eternal bonding between their children and themselves. Absorbing children in household and family activities as appropriate will improve their self-sufficiency skills and thus with honest steps family relations get re-vitalized and children get psychologically buttressed.^{72, 73}

Concerned authorities including government and non-government organizations should use its all arsenals to make sure to bring back all the children back to their schools by any means when the pandemic falters, should ensure "zero drop-outs" by providing financial support specifically to pandemic-undermined families and take pledge to make primary and secondary education cost-free. Schools authorities should plan re-styling academic calendars and test schedules to enfeeble the effects of school closure. Not to overburden children and teachers must be taken into foremost consideration alongside. Apart from scheduled curriculum-based study basics of hygiene, maintenance of daily routine, need for indoor physical exercise can be promoted through the same online interface.¹⁶ Censored and supervised use of technologies will facilitate wider, faster, fair and equal catering of resources with special attention to the vulnerable groups discussed afore. To make online teaching a reality for underprivileged section of the society government and other stake-holders must go many miles more to make sufficient arrangements of internet service and audio-visual gazettes.³¹

Social sites should be more cautious to censor contents to impede online sexual exploitation. Parents should always friendly monitor online activities of their children. Cyber cells should be vigilant while reviewing contents of online games, apps, online privacy settings.^{44, 45}

Responsible authorities must make sure that due to pandemic-bustle services obtainable against domestic violence rather should be supplemented to surplus the needs. Service hotlines and other outlets are needed to super-activate particularly in the sensitive areas and run aware-

ness campaigns against domestic violence and child abuse and merchandize about the accessible facilities for abuse-survivors as well as for child requiring psychological support.³⁷

For children who have lost parents in the pandemic, welfare centers should trace them and keep them under care of other live family member, kinship care, and trained foster care as much as convenient. Besides looking after their psychological wellbeing, basic needs are also to be looked after. Strict social security chain must be established to prevent the mushrooming of school dropouts, child labor, child trafficking, child marriage, sexual exploitation and abuse.

Children from marginalized communities should be taken adequate care of by all means like sanitization, hygienic atmosphere, basic amenities, and medical services.⁴⁹ Disruption of many essential health care services for children and adolescents in time of COVID-19 should be dealt with more expertise; barriers to this kind of unique care should be demolished. Immunization services and mental health services must be conducted with utmost zeal.⁶¹

COVID calamity: time to appreciate the light within and blessings in disguise?

“Out of suffering have emerged the strongest souls; the most massive characters are seared with scars,” wrote Lebanese-American poet Kahlil Gibran. Childhood is celebrated as most influential time for sprout of human mind. This phase of life is distinctly cherished for learning the prevailing social decorum, values, morals, principles, exemplary social archetype and positive broad outlook. Momentarily, the universe has become restricted to home and courtyard for house-restraint childhood. But in this confined milieu, their minds roam free. The COVID-19 “holocaust” has snatched their school-plays, kindergartens, amusement parks, and friendly touch. Unforeseen dysrhythmia are niggling their minds. Interim detachment from school, friends and teachers, playgrounds have eased avenues for self-realization and unwrapping of inner world. Albeit, this has been a time of forced dissociation from others and hence being considered as arid, their basic needs are being

addressed even unknowingly. With the burden of modernization, expectedly, parents are racing and are failing to find quality time from their sealed schedule for their children. Due to lockdown, everyone is staying indoors for 24/7, they are likely to spend abundant time and share space with their next generation. Parents should try to bestow habits of storytelling, reading and writing, drawing, singing and dancing, indoor-playing, practicing yoga in the mean time and should prudently subdue overindulgence of children to using techs and social platforms. Home education from parents and endearment are sine qua non for positive growth of a child. This is high time for parents to infuse ethical teachings about importance of family, societal relations, healthy behaviors, etc., within the mind of their children, imperative for their forthcoming future. On diverse instances, children reside in a joint family where they expend smooth and unending time withering and playing with their brothers, sisters and cousins. This is forging the inter-family bonds, family-feeling and effacing monotony. They are learning the essence of social relations. Parents are not really instilling these traits into their children, but the traits are being inculcated rather spontaneously. Apart from all of its devastating effects COVID-19 pandemic and protracted periods of nation-wide lockdown is offering the children with cues to look inside them and celebrate the inner strength within self to fight any obstacle boosting their self-belief and confidence. They will learn to defy all the bars and will no longer have to look for the external world for validation. Parents must help their children to see the bigger picture beyond this temporary bedlam. Parents and teachers should make them recognize that life will be full of ultimatums, today’s hardships will pay off and no mishap stay forever.⁷² To help the children to embrace their imperfections, to practice controlling emotions, fear, anxiety and act of kindness and thus creating an “emotional hygiene.” Going through these tougher times, children will learn selflessness and importance of ‘we’ over ‘me.’ Seeing and helping those in distress will remain as an invaluable lesson learnt from this pandemic. Attributes entrenched so early in life expectedly will have everlasting

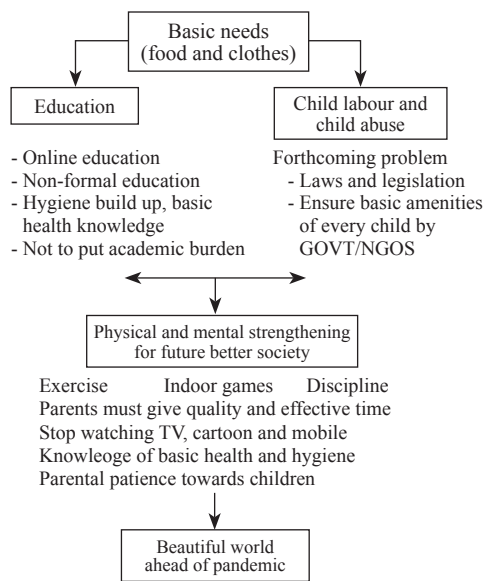


Figure 1.—Proposed steps to curtail psychosocial burden on children in COVID-19 pandemic.

effects on children psyche to make them more humane for building a remodeled and rejuvenated society (Figure 1).

Conclusions

Children are extremely disheartened with abrupt stoppage of schooling, cancellation of scheduled trips, home-confinement and fear of uncertainty concerning the ongoing pandemic. Although the graph of formal education is showing downtrend, children will hopefully emerge from this misery with unmatched leniency, pliability, solicitude and cognizance. In his novel *Kafka on the shore*, Haruki Murakami wrote: “When you come out of the storm, you won’t be the same person who walked in. That’s what this storm’s all about.”

Omni-tolerant mother earth has sustained so many disasters in the past, history divulges. Mother earth never proved futile in getting healed from those wounds. Conceivably, history will redo itself once more but will leave lessons for mankind and its future. Questions rise whether existence of human-race is essential or merely co-incidental. Humans have exploited earth in every possible way for so long; turned off its lights, poisoned its air, and unearthed its treasures. Mankind has to decide what kind of

world they want for their children to live in — “the answer, my friend, is blowin’ in the wind” (Bob Dylan).

References

1. World Health Organization. Coronavirus disease (COVID-2019) situation reports-95. Geneva: WHO; 2020 [Internet]. Available from: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200424-sitrep-95-covid-19.pdf?sfvrsn=e8065831_4 [cited 2020, May 11].
2. Kickbusch I, Leung GM, Bhutta ZA, Matsoso MP, Ihekweazu C, Abbasi K. Covid-19: how a virus is turning the world upside down. *BMJ* 2020;369:m1336.
3. Fauci AS, Lane HC, Redfield RR. Covid-19 - Navigating the Uncharted. *N Engl J Med* 2020;382:1268–9.
4. Su L, Ma X, Yu H, Zhang Z, Bian P, Han Y, *et al.* The different clinical characteristics of corona virus disease cases between children and their families in China - the character of children with COVID-19. *Emerg Microbes Infect* 2020;9:707–13.
5. Ludvigsson JF. Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. *Acta Paediatr* 2020;109:1088–95.
6. Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, *et al.* Epidemiology of COVID-19 Among Children in China. *Pediatrics* 2020. [Epub ahead of print]
7. Tezer H, Bedir Demirdağ T. Novel coronavirus disease (COVID-19) in children. *Turk J Med Sci* 2020;50(SI-1):592–603.
8. Lu Q, Shi Y. Coronavirus disease (COVID-19) and neonate: what neonatologist need to know. *J Med Virol* 2020. [Epub ahead of print]
9. Sinha IP, Harwood R, Semple MG, Hawcutt DB, Thursfield R, Narayan O, *et al.* COVID-19 infection in children. *Lancet Respir Med* 2020;8:446–7.
10. Tang A, Tong ZD, Wang HL, Dai YX, Li KF, Liu JN, *et al.* Detection of Novel Coronavirus by RT-PCR in Stool Specimen from Asymptomatic Child, China. *Emerg Infect Dis* 2020;26.
11. Lee PI, Hu YL, Chen PY, Huang YC, Hsueh PR. Are children less susceptible to COVID-19? *J Microbiol Immunol Infect* 2020. [Epub ahead of print]
12. Brodin P. Why is COVID-19 so mild in children? *Acta Paediatr* 2020;109:1082–3.
13. Ozdemir C, Kucuksezer UC, Tamay ZU. Is BCG vaccination effecting the spread and severity of COVID-19? *Allergy* 2020. [Epub ahead of print]
14. Zhu L, Lu X, Chen L. Possible causes for decreased susceptibility of children to coronavirus. *Pediatr Res* 2020. [Epub ahead of print]
15. Balasubramanian S, Rao NM, Goenka A, Roderick M, Ramanan AV. Coronavirus Disease (COVID-19) in Children - What We Know So Far and What We Do Not? *Indian Pediatr* 2020. [Epub ahead of print]
16. Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Lancet* 2020;395:945–7.
17. 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* 2020;395:912–20.

18. Liu JJ, Bao Y, Huang X, Shi J, Lu L. Mental health considerations for children quarantined because of COVID-19. *Lancet Child Adolesc Health* 2020;4:347–9.
19. Sprang G, Silman M. Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster Med Public Health Prep* 2013;7:105–10.
20. Abel KM, Heuvelman HP, Jörgensen L, Magnusson C, Wicks S, Susser E, *et al.* Severe bereavement stress during the prenatal and childhood periods and risk of psychosis in later life: population based cohort study. *BMJ* 2014;348:f7679.
21. Humphreys KL. Future directions in the study and treatment of parent-child separation. *J Clin Child Adolesc Psychol* 2019;48:166–78.
22. Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, *et al.* Psychosocial Impact of COVID-19: the Deadliest Pandemic in the Internet Era. *Diseases* 2020. [Epub ahead of print]
23. UNESCO. Covid-19: What do members of UNESCO Associated Schools say? 2020 [Internet]. Available from: <https://aspnet.unesco.org/en-us/covid-19> [cited 2020, May 11].
24. Cohen J, Kupferschmidt K. Countries test tactics in 'war' against COVID-19. *Science* 2020;367:1287–8.
25. Bayham J, Fenichel EP. Impact of school closures for COVID-19 on the US health-care workforce and net mortality: a modelling study. *Lancet Public Health* 2020;5:e271–8.
26. Viner RM, Russell SJ, Croker H, Packer J, Ward J, Stansfield C, *et al.* School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *Lancet Child Adolesc Health* 2020;4:397–404.
27. Sylva K. School influences on children's development. *J Child Psychol Psychiatry* 1994;35:135–70.
28. Stewart H, Watson N, Campbell M. The cost of school holidays for children from low income families. *Childhood* 2018;25:516–29.
29. Lee J. Mental health effects of school closures during COVID-19. *Lancet Child Adolesc Health* 2020. [Epub ahead of print]
30. Rundle AG, Park Y, Herbstman JB, Kinsey EW, Wang YC. COVID-19-Related School Closings and Risk of Weight Gain Among Children. *Obesity (Silver Spring)* 2020. [Epub ahead of print]
31. Van Lancker W, Parolin Z. COVID-19, school closures, and child poverty: a social crisis in the making. *Lancet Public Health* 2020;5:e243–4.
32. Schwartz AE, Rothbart MW. Let them eat lunch: the impact of universal free meals on student performance. *J Policy Anal Manage* 2019;39:376–410.
33. The Print. Why online classes may not be such a good idea after all, especially for kids; 2020 [Internet]. Available from: <https://theprint.in/india/education/why-online-classes-may-not-be-such-a-good-idea-after-all-especially-for-kids/406979/> [cited 2020, May 11].
34. Human Rights Watch. COVID-19's Devastating Impact on Children; 2020 [Internet]. Available from: <https://www.hrw.org/news/2020/04/09/covid-19s-devastating-impact-children> [cited 2020, May 11].
35. UNICEF. COVID-19: Children at heightened risk of abuse, neglect, exploitation and violence amidst intensifying containment measures; 2020 [Internet]. Available from: <https://www.unicef.org/press-releases/covid-19-children-heightened-risk-abuse-neglect-exploitation-and-violence-amidst> [cited 2020, May 11].
36. The New York Times. A New Covid-19 Crisis: Domestic Abuse Rises Worldwide; 2020 [Internet]. Available from: <https://www.nytimes.com/2020/04/06/world/coronavirus-domestic-violence.html> [cited 2020, May 11].
37. Usher K, Bhullar N, Durkin J, Gyamfi N, Jackson D. Family violence and COVID-19: increased vulnerability and reduced options for support. *Int J Ment Health Nurs* 2020. [Epub ahead of print]
38. Tsavoussis A, Stawicki SP, Stoicea N, Papadimos TJ. Child-witnessed domestic violence and its adverse effects on brain development: a call for societal self-examination and awareness. *Front Public Health* 2014;2:178.
39. Al Odhayani A, Watson WJ, Watson L. Behavioural consequences of child abuse. *Can Fam Physician* 2013;59:831–6.
40. Iram Rizvi SF, Najam N. Parental Psychological Abuse toward children and Mental Health Problems in adolescence. *Pak J Med Sci* 2014;30:256–60.
41. Worsnop CZ. The Disease Outbreak-Human Trafficking Connection: A Missed Opportunity. *Health Secur* 2019;17:181–92.
42. The Guardian. Coronavirus lockdown raises risk of on-line child abuse, charity says; 2020 [Internet]. Available from: <https://www.theguardian.com/world/2020/apr/02/coronavirus-lockdown-raises-risk-of-online-child-abuse-charity-says> [cited 2020, May 11].
43. Wired. As humans go home, Facebook and YouTube face a coronavirus crisis; 2020 [Internet]. Available from: <https://www.wired.co.uk/article/coronavirus-facts-moderators-facebook-youtube> [cited 2020, May 11].
44. FBI National Press Office. School Closings Due to COVID-19 Present Potential for Increased Risk of Child Exploitation; 2020 [Internet]. Available from: <https://www.fbi.gov/news/pressrel/press-releases/school-closings-due-to-covid-19-present-potential-for-increased-risk-of-child-exploitation> [cited 2020, May 11].
45. The Hindu. Closure of schools due to COVID-19 may lead to online child sexual abuse, warns IJM; 2020 [Internet]. Available from: <https://www.thehindu.com/news/national/closure-of-schools-due-to-covid-19-may-lead-to-online-child-sexual-abuse-warns-ijm/article31245221.ece> [cited 2020, May 11].
46. Wang Z, Tang K. Combating COVID-19: health equity matters. *Nat Med* 2020;26:458.
47. Liem A, Wang C, Wariyanti Y, Latkin CA, Hall BJ. The neglected health of international migrant workers in the COVID-19 epidemic. *Lancet Psychiatry* 2020;7:e20.
48. Kinner SA, Young JT, Snow K, Southalan L, Lopez-Acuña D, Ferreira-Borges C, *et al.* Prisons and custodial settings are part of a comprehensive response to COVID-19. *Lancet Public Health* 2020;5:e188–9.
49. Goldman PS, van Ijzendoorn MH, Sonuga-Barke EJ; Lancet Institutional Care Reform Commission Group. The implications of COVID-19 for the care of children living in residential institutions. *Lancet Child Adolesc Health* 2020. [Epub ahead of print]
50. UNICEF. COVID-19 pandemic could devastate refugee, migrant and internally displaced populations without urgent international action; 2020 [Internet]. Available from: <https://www.unicef.org/press-releases/covid-19-pandemic-could-devastate-refugee-migrant-and-internally-displaced> [cited 2020, May 11].
51. The Jakarta Post. Rohingya refugees rejected everywhere as countries grapple with COVID-19 concerns; 2020 [Internet]. Available from: <https://www.thejakartapost.com/news/2020/04/26/rohingya-refugees-rejected-everywhere-as-countries-grapple-with-covid-19-concerns.html> [cited 2020, May 11].

52. Aljazeera. Pandemic pushes harder Greek refugee policy, but also solidarity; 2020 [Internet]. Available from: <https://www.aljazeera.com/news/2020/04/pandemic-pushes-harder-greek-refugee-policy-solidarity-200420201314090.html> [cited 2020, May 11].
53. Human Rights Watch. European Court Orders France to Protect an Unaccompanied Migrant Child; 2020 [Internet]. Available from: <https://www.hrw.org/news/2020/04/02/european-court-orders-france-protect-unaccompanied-migrant-child> [cited 2020, May 11].
54. Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. *Lancet Psychiatry* 2020;7:e21.
55. Dalton L, Rapa E, Stein A. Protecting the psychological health of children through effective communication about COVID-19. *Lancet Child Adolesc Health* 2020;4:346–7.
56. Narzisi A. Handle the Autism Spectrum Condition During Coronavirus (COVID-19) Stay At Home period: Ten Tips for Helping Parents and Caregivers of Young Children. *Brain Sci* 2020;10:E207.
57. Cortese S, Asherson P, Sonuga-Barke E, Banaschewski T, Brandeis D, Buitelaar J, *et al.*; European ADHD Guidelines Group. ADHD management during the COVID-19 pandemic: guidance from the European ADHD Guidelines Group. *Lancet Child Adolesc Health* 2020. [Epub ahead of print]
58. Seminog OO, Goldacre MJ. Risk of pneumonia and pneumococcal disease in people with severe mental illness: english record linkage studies. *Thorax* 2013;68:171–6.
59. Xiang YT, Zhao YJ, Liu ZH, Li XH, Zhao N, Cheung T, *et al.* The COVID-19 outbreak and psychiatric hospitals in China: managing challenges through mental health service reform. *Int J Biol Sci* 2020;16:1741–4.
60. Sartorius N. Comorbidity of mental and physical diseases: a main challenge for medicine of the 21st century. *Shanghai Jingshen Yixue* 2013;25:68–9.
61. Golberstein E, Wen H, Miller BF. Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents. *JAMA Pediatr* 2020. [Epub ahead of print]
62. National Herald. Corona warriors: This Rajasthan couple locks up their kid each day to fight COVID-19 on frontlines; 2020 [Internet]. Available from: <https://www.nationalherald-india.com/national/corona-warriors-this-rajasthan-couple-locks-up-their-kid-each-day-to-fight-covid-19-on-frontlines> [cited 2020, May 11].
63. TIME. The Country Won't Work Without Them. 12 Stories of People Putting Their Lives on the Line to Help Others During Coronavirus; 2020 [Internet]. Available from: <https://time.com/collection/coronavirus-heroes/5816885/frontline-workers-coronavirus/> [cited 2020, May 11].
64. Deccan Herald. Amidst COVID-19 outbreak, landlords ask doctors, nurses to vacate houses; govt warns owners; 2020 [Internet]. Available from: <https://www.deccanherald.com/national/amidst-covid-19-outbreak-landlords-ask-doctors-nurses-to-vacate-houses-govt-warns-owners-817435.html> [cited 2020, May 11].
65. Parpia AS, Ndeffo-Mbah ML, Wenzel NS, Galvani AP. Effects of Response to 2014–2015 Ebola Outbreak on Deaths from Malaria, HIV/AIDS, and Tuberculosis, West Africa. *Emerg Infect Dis* 2016;22:433–41.
66. Love HE, Schlitt J, Soleimanpour S, Panchal N, Behr C. Twenty Years Of School-Based Health Care Growth And Expansion. *Health Aff (Millwood)* 2019;38:755–64.
67. Burns BJ, Costello EJ, Angold A, Tweed D, Stangl D, Farmer EM, *et al.* Children's mental health service use across service sectors. *Health Aff (Millwood)* 1995;14:147–59.
68. Hall KS, Samari G, Garbers S, Casey SE, Diallo DD, Orcutt M, *et al.* Centring sexual and reproductive health and justice in the global COVID-19 response. *Lancet* 2020;395:1175–7.
69. The Wire. COVID-19 Crisis Will Push Millions of Vulnerable Children Into Child Labour; 2020 [Internet]. Available from: <https://thewire.in/rights/covid-19-crisis-will-push-millions-of-vulnerable-children-into-child-labour> [cited 2020, May 11].
70. Magazine MS. COVID-19 and Young Girls: Expect Increases in Child Marriage and Teen Pregnancy; 2020 [Internet]. Available from: <https://msmagazine.com/2020/04/20/covid-19-and-young-girls-expect-increases-in-child-marriage-and-teen-pregnancy/> [cited 2020, May 11].
71. Colizzi M, Bortoletto R, Silvestri M, Mondini F, Puttini E, Cainelli C, *et al.* Medically unexplained symptoms in the times of Covid-19 pandemic: a case-report. *Brain Behav Immun Health* 2020. [Epub ahead of print]
72. Cluver L, Lachman JM, Sherr L, Wessels I, Krug E, Rakotomalala S, *et al.* Parenting in a time of COVID-19. *Lancet* 2020;395:e64.
73. Szabo TG, Richling S, Embry DD, Biglan A, Wilson KG. From Helpless to Hero: Promoting Values-Based Behavior and Positive Family Interaction in the Midst of COVID-19. *Behav Anal Pract* 2020. [Epub ahead of print]

Conflicts of interest.—The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Authors' contributions.—Souvik Dubey devised the initial concept which was further matured after the discussion with Ritwik Ghosh, Mahua J. Dubey, and Subhankar Chatterjee. Ritwik Ghosh wrote the initial draft, which was critically reviewed and further modified by MJD, Subhankar Chatterjee, and Souvik Dubey. All authors approved the final version of the manuscript before submission.

History.—Manuscript accepted: May 7, 2020. - Manuscript received: April 27, 2020.