

Leading Article

COVID-19 in Children: Bangladesh Experience

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Introduction:

While Bangladesh has been making remarkable progress in child health for last one decade the biggest public health crisis of the recent time is Corona virus disease 2019, popularly known as COVID-19 has affected this progress in many ways. The disease is caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2).¹ Till 22th July 2022, a total of 565 million cases were confirmed and among them 6.37 million deaths occurred due to this deadly viral illness worldwide.² As a part of this pandemic, Bangladesh has also given a heavy toll of lives. Since its emergence, a total of two million people were affected with 29,262 deaths according to the national reports.³ In Bangladesh, the accurate estimation of COVID-19 infection in pediatric patient is difficult due to low testing, home containment and fear of going with their child to the test center. Although Covid-19 affected adult population more than the children, yet suffering of children cannot be under estimated. Few reports are available from different referral centers describing different aspects of COVID-19 infection in children in Bangladesh.⁴⁻⁶

Key Words: COVID-19, Children, Bangladesh

Clinical pictures of children with COVID-19:

Symptoms of COVID-19 are similar in adults and children. Almost 50% of the children remain asymptomatic. Some may manifest with fever, cough and symptoms of other common illnesses such as cold, sore throat and allergies. However, some children with COVID-19 needs to be hospitalized, treated in the intensive care unit or placed on a ventilator to help them breathe.⁷ Data from the Centers for Disease Control and Prevention (CDC) demonstrate a lower incidence of SARS-CoV-2 infection and severe disease in children than in adults.⁸ Similarly in a multi-center study in Bangladesh, children of all ages were found

affected and 41.41% were admitted with mild to moderate symptoms, 33.98% with severe symptoms and 20.61% with critical symptoms.⁴ But a few percentages of this population can develop multisystem inflammatory syndrome (MIS-C) which is a rare but serious condition and can endanger life.^{9,10} The first two cases of MIS-C in Bangladesh were reported on 15th May 2020.¹¹ A total of 111 cases were reported by Institute of Epidemiology, Disease Control and Research (IEDCR) among them 53 belonged to age group of 0-5 years followed by 5-10 years and 10-15 years. Mortality was observed in 9% cases.¹²

Impact of COVID-19 in children:

COVID-19 had a detrimental effect in children both in health-related problem and also education¹³. Several problems were noted in (1) receiving facility-based health care service, (2) immunization (3) education (4) nutrition and (5) mental health.

Number of deaths among child population is less than adults but a number of children who suffered from Multisystem Inflammatory Syndrome (MIS-C) had serious acute and chronic morbidities.^{9,10} Children with severe respiratory infection and MIS-C including Kawasaki like conditions didn't get optimum medical management in the beginning of pandemic crisis. Besides this diminished and inadequate in-patient clinical service, children also had limited access to out-patient-based hospital services. The overall maternal, Newborn and Child health (MNCH) services suffered significantly during the pandemic.¹⁴ This was not different from the global scenario where hospitals across the world had shortage of doctors, nurses and other health staffs.

Another area of concern was decreased Immunization activity. According to service utilization data from the national Management Information System (MIS), the number of immunization sessions dropped by 18% in April 2020 and by 22% in May 2020.¹⁵ Routine immunization coverage for Penta third dose and Measles and Rubella (MR) first dose of vaccine was

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50% lower than previous.¹⁶ Bangladesh has a good track record of Supplemental Immunization Activities (SIA) on Measles and National Immunization Day (NID) of Polio vaccine along with mass Vitamin-A campaign. This SIA, NID along with Vitamin-A plus campaign could not be conducted during early COVID period. Transportation of vaccines was also difficult in many outreach centers.

As a measure to COVID-19 mitigation, Government of Bangladesh (GOB) declared closure of school, college, universities and all other educational institutes. The decision was evaluated to be effective in mitigating COVID-19 infection among the children but also had adverse effect on children in many ways.¹³ Those are failure to meet education target, impaired peer teaching & social communication.

On the top of that physical activity during the school hours was halted & home stay for prolonged period for about eighteen months made many children obese. Regardless of the pandemic situation, 68% of the urban college students consumed fast food regularly, and 29.9% of them were obese.¹⁷ Nutritional health also deteriorated in poor households amid COVID. It was estimated that, among children between 06 and 59 months, 52.8% had vitamin A deficiency, 32.5% zinc and 26.1% vitamin D deficiency while 22.3% suffered from anemia and 20.3% from iodine deficiency. Due to COVID-19, there was a challenge to ensure food for children especially for poor people.¹⁸

Mental health issues like anxiety, depression, anger, frustration, sleeping disorders and other were also noted. In 2020, an online cross-sectional survey was conducted in Bangladesh which noted that among the children between 5-15 years of age, 43% had sub-threshold mental disturbances, 30.5% had mild, 19.3% suffered moderately, and 7.2% of child suffered from severe disturbances.¹⁹

Apart from these, violence, abuse and early marriages have also increased during COVID-19 which had a potential negative impact on child's mental health and life.²⁰

Responses of Govt. of Bangladesh to tackle COVID-19 in children:

- **Reducing spread:** To combat COVID-19, the government of Bangladesh has taken some steps such as avoidance of gatherings, closing of schools and colleges, work from home etc.

- **Formation of National Committee:** A national COVID-19 response committee headed by the Minister for Health & Family Welfare was formed to address the situation over time and to help Government to take necessary actions for protecting the people.
- **Management Guideline for Pediatric COVID-19:** Initially when COVID started, there was a dilemma in management options of patients. In accordance with WHO, different international scientific groups and committees, general guidelines were developed in most of the countries to treat this affected population. Bangladesh did the same and created guidelines as well as updated those every so often. Bangladesh Pediatric Association (BPA) developed a guideline in May 2020 for proper management of COVID-19 in children and that was updated again in November 2020.²¹ This pediatric COVID-19 management portion was adopted in the national guideline as well.
- **COVID-19 Vaccines for children:** Vaccination against Covid-19 infection in Bangladesh is a very successful story. Most of the target population have been vaccinated with 2 doses. Six vaccines were used namely 1. Astrazeneca, 2. Pfizer, 3. Sinopharm, 4. Moderna, 5. Sinovac, 6. Janssen. But in case of children (12 to 18 years) Pfizer vaccine was used as advised by CDC. Initially vaccines were inoculated phase wise based on age range of senior citizens to young adults. Later on, according to WHO guideline children from the age under 18 years to above 12 years were vaccinated. The children vaccination was also very successful with good turnover. As of 25th July 2022, a total of 173,51,163 and 1,60,94,940 children aged 12-17 years have received first and second dose of COVID-19 vaccine respectively.²² At the moment decision of vaccination to children population between 5 to 12 years is in place and likely to start in August 2022.
- **Routine Immunization for children:** During the pandemic, it was observed that national immunization program for preventable diseases in children was declined. Necessary steps were taken from the month of June/July 2020 and immunization coverage started showing upward trend. The diligent efforts of the Ministry of Health & Family Welfare (MOH & FW) of the Government of Bangladesh have made this possible. According to the Directorate General of Health Services (DGHS) Management Information System (MIS), DHIS-2, by the end of January 2021, 34,061,291 (34 million) children from ages 9 month to <10

years were given the MR vaccine, achieving >95% coverage of the target children. Following which, all other child immunization coverage has also risen significantly till present date.²³

- **Education:** During COVID, the learning process was hampered in many ways. But to continue the sessions, online platform was used. Though the effect of this is controversial but, it helped students to get adjusted with the virtual world. Moreover, timely initiation of school when the COVID wave was falling, was one of the steps to mitigate the problem.
- **Health related awareness programs:** Several COVID-19 related health programs were held at pandemic time and websites were opened by the Government and private sectors to address parental anxiety, advice on home care for their children as well as creating social awareness. Different social groups were also working to help the under-privileged children with food, medicine and security.

Conclusion:

COVID-19 and its complication had a profound negative effect on the health and well-being of children. But it is noteworthy that rapid and effective measures combating COVID-19 had helped the country to mitigate COVID sufferings in children.

References

1. Jin Y, Yang H, Ji W, Wu W, Chen S, Zhang W, et al. Virology, epidemiology, pathogenesis, and control of COVID-19. *Viruses*. 2020;12: e372.
2. WHO Coronavirus Dashboard 2022. Available at: <https://covid19.who.int/>
3. COVID-19 Dynamic Dashboard for Bangladesh 24th July 2022. Available at: <https://dghs-dashboard.com/pages/covid19.php>
4. Hussain M, Muaz SSA, Anwar S, Begum N, Mamun AAM, Noman F, et al. Clinical Characteristics of COVID-19 Among Hospitalized Children in Bangladesh: A Multi-Center Study. *Korean Journal of Clinical Medicine*. 2021; 1(2):1-5
5. Haque M, Laila K, Mamun HA, Supti SH, Rahman SA. Profile and Outcome of Children with COVID-19 Attending Bangabandhu Sheikh Mujib Medical University. *Am J Pediatr* 2021; 7: 72-78.
6. Sarkar PK, Ghosh K, Akand N, Kamruzzaman M, Afroz S, Rahman M et al. Clinico-epidemiological characteristics of pediatric COVID-19 patients in Bangladesh. *Int J Contemp Pediatr*. 2022 Aug;9:698-705.
7. Information for pediatric health care providers. COVID-19. Centers for Disease Control and Prevention 2020. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/pediatric-hcp.html>
8. COVID-19 in babies and children. Mayo clinic health information. June 2022. Available at: <https://www.mayoclinic.org/>
9. Rahman SA. COVID-19 Related Multi System Inflammatory Syndrome in Children: Spectrum of Kawasaki Disease or Different Entity? A Challenging Mystery for Paediatricians. *Bangladesh J Child Health* 2022; 45: 63-66.
10. Sharmin SS, Islam MI. COVID-19 Associated Multisystem Inflammatory Syndrome in Children (MIS-C): A New Pediatric Alert. *J Bangladesh Coll Phys Surg* 2021; 39: 249-60
11. MIS-C disease: First two cases successfully treated in Bangladesh. UNB news. June 2020. Available at: <https://unb.com.bd/category/Bangladesh/mis-c-disease-first-two-cases-successfully-treated-in-bangladesh/53370>
12. Surveillance for Detection of Multisystem Inflammatory Syndrome (MIS-C) among Children and Adolescents with COVID-19 Infection at In-patient Departments of Selected Hospitals in Bangladesh. Institute of Epidemiology, Disease Control and Research. September 2021. Available at: <https://iedcr.gov.bd/surveillances/5ef750a6-14c0-4ccf-9d8d-58e01b715c5d>
13. Laila K, Islam MZ, Rahman SA. Impact of COVID 19 on Children: A study from a tertiary level Hospital in Bangladesh. *European Journal of Pharmaceutical and Medical Research* 2021; 8: 128-34.
14. Bhattacharya D, Khan TI, Khan FB, Momo FT. COVID-19 impact on vaccination, food consumption, maternal and child health. *The Financial Express*. July 2022. Available at: <https://thefinancialexpress.com.bd/views/covid-19-impact-on-vaccination-food-consumption-maternal-child-health-1641827030>
15. Global Immunization News (GIN) 2020. Available from https://www.who.int/immunization/GIN_July_2020.pdf?ua=1.
16. Routine Immunization in Bangladesh set back to get back on track amidst COVID-19 pandemic and massive flooding. WHO health topics. August 2020. Available at: <https://www.who.int/bangladesh/news/detail/31-08-2020>
17. Ahmed SI. Obesity- a potential risk factor for COVID-19 associated morbidity and mortality in urban Bangladesh. *BMJ* 2020; 370:m2811
18. Nutritional health deteriorating in poor households amid COVID. FE report. *The Financial Express*. August 2021. Available at: <https://thefinancialexpress.com.bd/national/nutritional-health-deteriorating-in-poor-households-amid-covid-1627787623>
19. Yeasmin S, Banik R, Hossain S, Hossain MN, Mahumud R, Salma N, et al. Impact of COVID-19 pandemic on the mental health of children in Bangladesh: A cross-sectional study. *Child Youth Serv Rev*. 2020;117: 105277. doi: 10.1016/j.chilgyouth.2020.105277.
20. Rahman MS, Lassi ZS, Islam SMS. Risks to Bangladeshi children and young people during COVID-19 outbreak. *BMJ* 2020; 369. doi: <https://doi.org/10.1136/bmj.m2299>
21. Management SOP for Pediatric COVID-19. Bangladesh Paediatric Association (BPA) 2020. Available from <https://www.bpabd.org/>
22. Management Information System (MIS) Report. DGHS, Bangladesh 25th July 2022.
23. Hussain M, Mamun MA. Impact of COVID-19 on child life and health in Bangladesh. *Bangladesh J Child Health* 2021; 45 (1): 1-5.