Should Children in Pakistan be vaccinated? Is there any Evidence?

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Abstract

In Pakistan, where the vaccination rate is dismally low and where the huge population remains unvaccinated, vaccination in children might be considered a privilege and a luxury. But with several countries such as Canada, United States, China, Indonesia, and Israel forging ahead with vaccinating children and the United Kingdom slowly following their footsteps and with mounting evidence, it might not be prudent to keep children side-lined from vaccination in Pakistan. This paper presents some evidence for vaccination in children and highlights the need and urgency for vaccinating children in Pakistan. Clinical trials of Pfizer/NBiotech, Moderna and SinoVac’s CoronaVac has shown promising results and higher antibody titres in children as compared to adults. For herd immunity to be effective and to curb this pandemic, it is prudent to initiate vaccination in children in Pakistan at the earliest.

The Government of Pakistan and its apex body overlooking COVID-19 infections and vaccinations National Command and Operations Centre (NCOC) has advised all Pakistani citizens above 18 years to register for vaccination by sending their NIC numbers to 1166 and have themselves vaccinated by visiting any of the vaccination centres. Currently, in Pakistan, there are six approved vaccines available for the masses namely Pfizer/NBiotech, CanSino, Sputnik V, Oxford/AstraZeneca, Sinopharm, and Sinovac’s CoronaVac. A sizeable portion of these vaccines in Pakistan have been procured through the international COVAX program.

As per the official governmental website https://ncoc.gov.pk/covid-vaccination-en.php, the current vaccination rate is 3% (1). The current population of Pakistan is 225,199,937 and around 6,869,346 individuals have been fully vaccinated while 19,207,382 have been partially vaccinated (1).

In Pakistan, where the vaccination rate is dismally low and where the huge population remains unvaccinated, vaccination in children might be considered a privilege and a luxury. But with several countries such as Canada, United States, China, Indonesia, and Israel forging ahead with vaccinating children and the United Kingdom slowly following their footsteps and with mounting evidence, it might not be prudent to keep children side-lined from vaccination in Pakistan.

Is there any evidence of COVID-19 vaccination in children?

At the start of the pandemic, it was initially proposed that the SARS-COV-2 is far less likely to cause any serious illnesses in children. Paediatricians in Pakistan and globally are urging the government to vaccinate children as even a mild episode of COVID-19 may persist for months in children with low immunity (2). Multisystem inflammatory syndrome in children (MIS-C) is a rare but possible adverse outcome of COVID-19 infections in children. This multisystem disorders justifies the use of vaccines in children to reduce morbidity and mortality associated with MIS-C (3).

Joint Committee on Vaccination and Immunisation (JCVI) in the United Kingdom on COVID-19 vaccination in children and young people aged 12 to 17 years has advised the UK government that only...
clinically vulnerable adolescents in the 12-15-year-old range, those with Down syndrome, those with neurodisabilities, immunosuppressed and those with severe learning disabilities be prioritized in the vaccination program (4).

Indonesia’s Health Ministry has started vaccinating children after Food and Drug Agency (FDA) has approved the Chinese Sinovac vaccine through emergency use authorization to be administered to children aged 12-17 (5, 6). The Indonesian Paediatric Association has raised concerns regarding the increasing COVID-19 infection rates in children and has applauded the Indonesian’s Health Ministry mass vaccination drive for children aged 12-17 (7).

In Pakistan, the official website that displays the statistics of COVID-19 infections https://covid.gov.pk/ does not break down the cases by age. Paediatricians are therefore unaware of the official COVID-19 infection rates in children and how the COVID-19 infection affects the various childhood diseases. There is an increasing concern that the outcome of COVID-19 infections in children with other prevalent respiratory syncytial viruses such as the common cold in children may be worsened. The exact burden of co-infections in children is hard to estimate when there is a surge of COVID-19 viruses, the burden of which in children is also unknown.

**How safe is vaccinating children?**

Three vaccines Moderna, Pfizer-BioNTech, and Sinovac have been approved for children in the age range of 12-17 years. Canada, United States, Israel, and China are offering vaccines to children in these age ranges and Indonesia is closely following their footsteps. Clinical trials for the age range of 12-17 years are underway for both the Indian vaccines Zydu's Cadila and Covaxin.

Although the benefits of these vaccines outweigh their potential side effects, myocarditis and pericarditis as adverse reactions to vaccinations have been reported in adolescents. These conditions have mostly treatable in these affected adolescents and the rate of these heart inflammations is 0.000067% in adolescent males and 0.000009% in adolescent females (8). Due to the extremely low side effects associated with vaccination in children, the Centre for Disease Control (CDC) in the United States and Public Health Agency of Canada has declared these vaccines to be safe in 12-17-year-old children (9). The Pfizer/NBiotech vaccine has demonstrated 100% efficacy in children aged 12-15 years (10). Clinical trials are currently underway in which Moderna, and Pfizer vaccines are being given to children less than 12 years and as young as 6 months old. All children and their parents volunteered to participate in these clinical trials with no placebos and their families are cognizant of the dosages of vaccines that are being administered to these children.

Clinical trials conducted in children aged 3-17 in China with Sinovac’s CoronaVac have shown that these vaccines have a good safety profile, good tolerability, and immunogenicity in children aged 3-17 years (11). Both Sinovac’s CoronaVac and Pfizer-BioNTech induced higher titres in children as compared to older individuals ranging from 18-60 years (9, 11). On the one hand, more antibodies mean stronger immune response and increased protection while on the other hand children are more likely to develop immune overactions such as fever and allergy.

Children’s safety should be the prime concern even after vaccinating children as they are in their growth and developmental stage and these children should be monitored on a long-term basis to ascertain vaccine safety.

**Why vaccinate children in Pakistan when adults are not all vaccinated?**

More young people are living in Pakistan than old people. Although theories of herd immunity through vaccination have lost their impetus the more people are vaccinated, the lesser are the chances of developing COVID-19 variants. These COVID-19 variants are more prevalent in unvaccinated individuals. A large segment of the Pakistani population lives in close knit joint family systems where both old and young live together. Young people are usually responsible for outdoor chores and can potentially import covid-19 infections from outdoors. Furthermore, school-going children once vaccinated will be able to attend physical classes once again. Online learning has its limitations and lack of engagement is one of them that has contributed to academic losses.

France has mandated a health pass that is proof of vaccination for all outdoor events of over fifty people whether they are adults or children. NCOC in Pakistan has also issued guidelines that indoor events can only be attended exclusively by vaccinated individuals.

In Pakistan, front-line health care workers and high-risk individuals have already been vaccinated and it is now pragmatic to initiate vaccination in children just like other countries have started.
Pakistan lacks the infrastructure, resources, workforce, and health care settings to overcome a sudden surge of COVID-19 infections, and vaccinations and protection through masks and physical distancing are the only way forward to control this pandemic.

**Recommendations**

Clinical trials of Sinovac’s CoronaVac have already been conducted in China for children aged 3-17 and Indonesia for children aged 12-17. There are now only two pathways for its use in Pakistan. The first and the fastest pathway is EUA (Emergency Use Authorization) for its immediate approval and the second pathway is to conduct clinical trials in Pakistan, which is time-consuming. Children cannot be assumed to be miniature adults and the effects on children might not be the same as in adults.

The chain of herd immunity is only as strong as its weakest and youngest link. Unless everyone is vaccinated including children, we cannot curb the ongoing surge in COVID-19 infections.

The youth of Pakistan is the future of Pakistan, and it is prudent to inquire whether we as a nation want to safeguard our future by vaccinating our children.

**References**


