



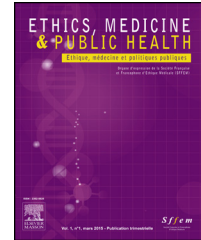
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LETTER TO THE EDITOR

Challenges of COVID-19 vaccination in Afghanistan: A rising concern



KEYWORDS

Afghanistan;
 Challenges;
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 Vaccination

Dear Editor,

Coronavirus disease (COVID-19) has been a significant stressor of all time wreaking havoc across the planet since December 2019, when it was first identified in China [1,2]. The epidemic commenced in Afghanistan when the first case was registered in Herat, on 24th February 2020, followed by cases in a variety of provinces, prompting the government to take steps to prevent the disease from spreading any further [3]. The majority of those infected were only slightly ill and recovered on their own without any special treatment, however, people above the age of 65 and those with comorbid illnesses were the ones that were hit hard. Despite all of the public awareness campaigns to educate the community, despite the lockdowns, and other monitoring and prevention strategies, Afghanistan's healthcare services has not been adequately reinforced so far [3].

Afghanistan has long been a hotbed of conflict, and its killing sprees and aggression have hampered its progress in any direction. After the virus engulfed the region, Afghans encountered many obstacles in their fight against the virus, including assaults on healthcare workers, shortage of medicine supply, a high incidence of illiteracy, economic hardships, unemployment, and the re-entry of refugees from Iran, Turkey, and Pakistan, putting a huge strain on the government in provision of care and their accommodations [4,5].

Afghanistan has seen a lot of tension and violence over the years. Even during the COVID-19 pandemic several bombings occurred in Afghanistan complicating COVID-19 containment efforts. According to a 2018 report, more than 10,000 civilians were wounded or killed and over 365,000 people were displaced from their homes due to armed violence [6]. In 2020, in the southern Afghan province of Helmand, when conflict ensued between security forces and Taliban, thousands of people were forced to flee their homes and seek shelter in other regions [7]. It is evident that COVID-19 mitigation efforts were ceased in the area and the

healthcare system received extra pressure due to physical and mental trauma.

So far, Afghanistan authorities have accepted that vaccination is the most effective preventive measure against COVID-19 and have put efforts to organize nationwide vaccination despite the aforementioned adversities. Resources from COVAX, an international program aiming to provide developing countries with access to the COVID-19 vaccine, have been deployed in this effort [8]. In this regard, India provided the COVISHIELD vaccine from the AstraZeneca Serum Institute to Afghanistan [9]. China has also sent at least 700,000 doses of Sinopharm vaccine [10]. Moreover, US also pledged to send at least 3,000,000 doses of J&J vaccine to Afghanistan [11].

Apart from adequate vaccine doses and healthcare infrastructure, Afghanistan should make use of the experience from previous nationwide vaccination programs, in order to achieve optimal results.

Past vaccine campaigns in Afghanistan, including the anti-polio program have been slowed down by armed conflicts, with militants occupying large swaths of the land, setting impediments for sanitary missions. Because of these factors, Afghanistan is one of only two countries in the world where polio is still prevalent [12]. Fair vaccine distribution is a critical issue that the country is facing and it is likely that it could happen with the distribution of COVID-19 vaccine as well.

Physical geographical barriers in Afghanistan pose additional obstacles for vaccination programs. Being a mountainous country with scarce healthcare facilities and an insufficient level of security makes population – level vaccination harder. In the past, polio vaccination campaigns in particular areas with a high level of insecurity had low levels of success [13]. The same obstacles apply to COVID-19 vaccination programs.

Vaccine hesitancy is a major challenge that will posit additional strain on the immunization program. Low level confidence, illiteracy, religious beliefs, and mistrust of the government have fuelled vaccine – scepticism in Afghanistan [14]. During the polio vaccination campaigns, vaccine hesitancy has led numerous individuals, who were able to access vaccination centres, to abstain. In the next years, polio thrived among these individuals. When it comes to COVID-19 vaccine-hesitant groups can be involved in super-spread events or even in the emergence of mutant strains.

On top of the aforementioned, nationwide vaccination will take at least 3 years due to the inadequate number of doses allocated to Afghanistan through international support programs [15]. Serious concerns have been raised

with regard to the vaccination gap between developed and developing countries at this end. More specifically, high-risk populations or even essential workers in Afghanistan might receive a COVID-19 vaccine later than young and healthy individuals in developed countries. This reflects the insufficient level of protection of healthcare workers and vulnerable population groups in the developing world. The lack of vaccines will make lockdowns and restrictions in business and education necessary for a long time, putting the projected financial and social development of the country in peril.

Overall, it is high time that the government of Afghanistan takes necessary steps to contain and curb the virus by promoting vaccination programs all over the country and encouraging people to take the vaccine without hesitation. Frontline healthcare workers ought to be placed first in immunisation programs. Taking into account the negative effect of armed conflicts on vaccination, it is crucial to put COVID-19 vaccination under cease-fire agreements. Moreover, national resources and international support can be channelled to improving transportation services in the challenging mountainous terrain of Afghanistan. Furthermore, adjusting science communication to the cultural norms of Afghanistan can decrease vaccine hesitancy. Finally, yet importantly, lessons from the COVID-19 vaccination campaign can be used to improve vaccination programs dedicated to the eradication of polio and other diseases in the country.

Human and animal rights

The authors declare that the work described has not involved experimentation on humans or animals.

Informed consent and patient details

The authors declare that the work described does not involve patients or volunteers.

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References

- [1] Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. *Acta Biomed* 2020;91:157–60, <http://dx.doi.org/10.23750/abm.v91i1.9397>.
- [2] Ghosh S, Moledina N, Hasan MM, Jain S, Ghosh S. Colossal challenges to the healthcare workers combating the second wave of COVID-19 in India. *Infect Control Hosp Epidemiol* 2021;1–2, <http://dx.doi.org/10.1017/ice.2021.257>.

- [3] Lucero-Prisno DE, Ahmadi A, Yasir Essar M, Lin X, Adebisi YA. Addressing COVID-19 in Afghanistan: what are the efforts and challenges? *J Glob Health* 2020;10:1–3, <http://dx.doi.org/10.7189/jogh.10.020341>.
- [4] Lucero-Prisno DE, Essar MY, Ahmadi A, Lin X, Adebisi YA. Conflict and COVID-19: a double burden for Afghanistan's healthcare system. *Confl Health* 2020;14:1–3, <http://dx.doi.org/10.1186/s13031-020-00312-x>.
- [5] Roien R, Essar MY, Ahmadi A, Lucero-Prisno DE, Yousefi AA, Hasan MM, et al. Challenges of drug supply: how Afghanistan is struggling. *Public Heal Pract* 2021;2:100129, <http://dx.doi.org/10.1016/j.puhip.2021.100129>.
- [6] Safeguarding health in conflict. Attacks on healthcare in 23 countries in conflict, (n.d.). <https://www.alnap.org/system/files/content/resource/files/main/SHCC2019final.pdf>.
- [7] World Health Organization. Strategic Situation Report: COVID-19, (n.d.). https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/strategic_sitrep_covid-19_23_july_2020_final.pdf [accessed June 29, 2021].
- [8] The Wall Street Journal. What is Covax and how will it deliver COVID-19 vaccines to poorer countries?, (n.d.). <https://www.wsj.com/articles/covax-covid-19-vaccine-11624557473> [accessed June 29, 2021].
- [9] ReliefWeb. COVID-19 vaccines shipped by COVAX arrive in Afghanistan. <https://reliefweb.int/report/afghanistan/covid-19-vaccines-shipped-covax-arrive-afghanistan> [accessed June 29, 2021].
- [10] The New York Times. Afghanistan, in Crisis, Gets 700,000 Vaccine Doses From China. <https://www.nytimes.com/2021/06/10/world/afghanistan-sinopharm-covid-vaccine.html>.
- [11] The Wall Street Journal. US offers Afghanistan 3 million J&J COVID-19 vaccine doses. <https://www.wsj.com/articles/u-s-offers-afghanistan-3-million-j-j-covid-19-vaccine-doses-11624551266> [accessed June 29, 2021].
- [12] Cousins S. Polio in Afghanistan: a changing landscape. *Lancet* (London, England) 2021;397:84–5, [http://dx.doi.org/10.1016/S0140-6736\(21\)00030-1](http://dx.doi.org/10.1016/S0140-6736(21)00030-1).
- [13] World Health Organization. Afghanistan to commence first polio vaccination campaign of 2021, (n.d.). <http://www.emro.who.int/afg/afghanistan-news/afghanistan-to-commence-first-polio-vaccination-campaign-of-2021.html?format=html>.
- [14] Ahmadi A, Essar MY, Lin X, Adebisi YA, Lucero-Prisno DE. Polio in Afghanistan: the current situation amid COVID-19. *Am J Trop Med Hyg* 2020;103:1367–9, <http://dx.doi.org/10.4269/ajtmh.20-1010>.
- [15] Mullard A. How COVID vaccines are being divvied up around the world. *Nature* 2020, <http://dx.doi.org/10.1038/d41586-020-03370-6>.

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