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SHORT REPORT

The challenges of COVID-19 vaccination in a war-torn country – Syria

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Since it was first identified in December 2019 and spread worldwide, leading to an ongoing pandemic, COVID-19 has put tremendous burdens on health systems and all other life aspects (1, 2). Thus, it has been critical for all health entities throughout the world to compete tirelessly to develop effective vaccines, with safety considerations. The aim of vaccine delivery is to limit disease through herd immunity, which requires a sufficient amount of vaccine available for large-scale distribution (3). As of March 25, 2022, 119 vaccines are currently being tested on humans and 12 vaccines are full-use approved (3, 4).

The World Health Organization (WHO) announced that Syria is a high-risk area since the beginning of the pandemic (5). To prevent the spread of COVID-19, the Syrian government imposed strict precautionary measures. The first detected case of COVID-19 in Syria was on March 22, 2020, while after few days, the first death case due to COVID-19 was confirmed. The officially declared statistics related to COVID-19 cases are not reliable, due to insufficiency of detection tests and their high, non-affordable costs (6).

As millions of people are still bearing the brunt of the 11-year-old conflict in Syria, the COVID-19 pandemic has presented an additional strain for the already deteriorated health system. It is estimated that up to 90% of the Syrian population lives below the poverty line, with millions considered internally displaced or as refugees. Multiple cumulative problems reframe the current damaged health reality in Syria. Approximately 50% of public hospitals and health centers are reported to be partially or non-functioning; healthcare workforce and chronic medical equipment shortages have left the health infrastructure at a minimum level of service delivery during COVID-19 waves; and the acute economic decline and currency deterioration have made adoption of internationally recommended measures like quarantine and use of protective equipment unbearable for the whole population (6–8). In such a fragile health system in a war-torn country, the best method to minimize the spread of COVID-19 is through vaccination.

In government-controlled areas in February 2021, the Syrian Ministry of Health conducted a vaccination campaign for frontline healthcare workers, and then within 3 months, a national immunization program was launched, using an official online platform providing registration application (9, 10). The vaccine doses delivered within the first batch were divided equally into two parts: one half for the first dose and the other half for the second dose of a vaccine series. With the following batches, all doses were administered and were never divided; this method was followed in the northwest areas since the first consignment was provided (10).

By February 5, 2022, government-controlled areas in the northwest and northeast had received a total of 8,352,740 COVID-19 vaccine doses through COVAX, and 2,713,640 through bilateral agreements, enough to cover 38% of the population. Only 1,765,745 people received at least one dose of COVID-19 vaccine in these areas, however, which represents 10.1% of total population in the whole country (10). This wide gap between available vaccine doses and uptake highlights the significant need for deeper investigation of all associated factors. There is still a long way for Syria to go to channel global efforts to reach a target of an appropriate vaccination rate and attempt to contain the pandemic with a herd immunity strategy.

Many researchers have tried to understand the acceptance of COVID-19 vaccines in Syria, and the population beliefs and opinions in different contexts of the pandemic. When COVID-19 associated cases and deaths were at or near their peaks and before the time when the vaccines were available in the region, Zein et al., in a survey conducted for adults residing in Jordan, Syria, and the west bank region, revealed that 67.8% were unwilling or uncertain to get the vaccine (11). Later, when various types of vaccines were available, other studies also showed low acceptance rates of COVID-19 vaccinations in Syria, which were the lowest compared with other

developed countries like the United States of America and Canada, conflict zones like Libya, and nearby Arab countries like Lebanon, Iraq, and Saudi Arabia (12, 13). This highlights that the current crisis, economic situation, and the cultural background alone are insufficient to explain the underlying reasons for low COVID-19 vaccine uptake.

One of the major factors leading to the decreased demand for COVID-19 vaccines in Syria may be vaccine hesitancy, which is considered one of the top 10 challenges to global health systems according to the WHO (11–13). Important predictors of vaccine hesitancy, which are common globally in the COVID-19 context and even in normal health situations, include: personal beliefs, reliable information resources, fear of side effects, wait and see approach, and a lack of confidence in the pharmaceutical industry, among others. In the case of the Syrian population, with all the aforementioned obstacles, it is crucial to build reliable and trustworthy communication with the entities concerned in confronting COVID-19, by raising awareness about the significance of vaccination in the current crisis; ensuring equitable access to safe and effective vaccines provided to everyone, starting with the most vulnerable; delivering effective messages by trusted experts as credible sources of information; and most importantly dismantling misinformation.

The negative findings reflecting the knowledge and awareness levels of COVID-19 vaccine acceptance among the Syrian population, and the deteriorating state of the Syrian healthcare system in each COVID-19 wave, have raised the alarm of the pandemic's future in Syria in the absence of effective preventive measures.

Thus, it is recommended to establish public awareness of multiple aspects of immunization like vaccine formulae, mechanisms of action, and side effect probabilities through nation-wide media campaigns, and most importantly to secure an adequate amount of vaccine through the concerted efforts of all concerned entities.

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Declaration

This commentary reflects the insights and opinions of the authors.

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Ethical approval

Ethics approval was not required.

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