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**LETTERS TO THE EDITOR**

# Hesitancy towards a COVID-19 vaccine in selected countries in Africa: Causes, effects, and strategies for improving COVID-19 vaccine uptake

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## Abstract

Covid-19 has affected many countries globally. Many countries have started vaccinating populations to curb the spread of COVID-19. The Ministries of Health and not-for-profit organizations in African countries have been responsive towards providing their citizens with evidence related to the COVID-19 vaccine. However, vaccine hesitancy continues to threaten the achievement of the required herd immunity to reduce the burden of the disease for many countries. Therefore, interventions to build COVID-19 vaccine trust among populations are critical. Firstly, the engagement of community stakeholders and social influencers is important to address misconceptions about vaccines and debunk social media misinformation. Secondly, information on the COVID-19 vaccine should be simplified for all groups of the population, to ensure that people are not deprived of access to health information and the opportunity to receive the COVID-19 vaccine. This article aimed to describe COVID-19 vaccine acceptance rates, causes, effects, and strategies for improving COVID-19 vaccine uptake in selected countries in Africa.

**Keywords:** COVID-19, COVID-19 vaccine, vaccine hesitancy, vaccine uptake, Africa

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## Background

The first coronavirus (COVID-19) case was reported in Wuhan, China, in December 2019. As of 9 October 2021, nearly 239 million people have been infected by COVID-19 globally, with Africa accounting for more than 8 million cases (1). Globally, nearly 5 million COVID-19 related deaths have been reported, and over 214,252 deaths in Africa by October 2021 (1). To curb the spread of COVID-19 and save lives, many countries have started preparations and some have started vaccinating their populations. While Africa has not experienced the same scale of devastation from COVID-19 seen in other regions (2), mental health issues resulting from COVID-19 restrictions, including lockdowns and isolations, have been devastating (3). A high rate of public acceptance of the COVID-19 vaccine is required to reduce the burden of COVID-19 and achieve herd immunity (4-6).

COVID-19 vaccination programmes globally face a high level of vaccination hesitancy among populations (7). COVID-19 vaccine hesitancy can be defined as any form of delay or refusal in accepting vaccination despite the availability of vaccine services (8, 9). COVID-19 vaccine hesitancy is one of the public health threats to achieving herd immunity and reducing the

burden of the disease for many countries (10). However, the vaccination rollout in Africa has been rather slow, compared with the rest of the world (11). As of 8 October 2021, Africa had vaccinated only 7.1% of their population; 4.6% had been fully vaccinated and 2.4% had been only partially vaccinated (1). Insufficient COVID-19 vaccine supply across the continent has contributed to a low vaccination rate, compared to the developed countries. However, even when COVID-19 vaccines have been procured, several factors contribute to a slow vaccine roll-out, including poor health systems capacity, lack of trained personnel and hesitancy among populations (10).

Given the slow pace of COVID-19 vaccinations in Africa, it is essential to understand the factors contributing to hesitancy and the slow uptake of COVID-19 vaccines. Currently, insufficient evidence is available about COVID-19 vaccine acceptance and uptake intentions in Africa. Therefore, this article aimed to describe the causes and effects of COVID-19 vaccine hesitancy in selected countries in Africa, as well as the strategies for improving vaccine uptake.

## Methodology

This paper reports on evidence from articles conducted in some African countries. COVID-19 vaccine acceptance was defined as the proportion of participants in the study who showed a willingness to receive a COVID-19 vaccine. We searched for literature in the following databases; PubMed, Google Scholar, World Health Organization, and EBSCOHost. Search terms COVID-19, SARS-COV-2, vaccine, acceptability, hesitancy, and Africa were used to identify relevant articles to inform this perspective. Following a thorough literature review, articles conducted in the following African countries were used to support the authors' perspectives: Democratic Republic of Congo (DRC), Nigeria, South Africa, Cameroon, Ghana, and Zimbabwe. Due to COVID-19, some of the studies were conducted using an online survey, between 2020 and 2021. For example, a study conducted in DRC included 2,310 participants who responded in a cross-sectional study using an online survey in 2020, and a study conducted in Ghana included health care providers as participants, in 2021.

### *COVID-19 vaccine acceptance rates in Africa*

Low COVID-19 vaccine acceptance has been reported in Africa. South Africa has experienced the first, second, and third waves of the COVID-19 pandemic. Throughout these waves, the prevalence of COVID-19 cases and deaths was highest in South Africa. South Africa has only been able to vaccinate 22% of the population (1). The suboptimal vaccination rates could be explained by the occurrence of vaccine hesitancy to a large extent (12). To assess support for the COVID-19 vaccine among 75,518 people in South Africa, the Council for Medical Schemes conducted a cross-sectional online survey between February and March 2021 (12). Questions asked in the survey included trust in the COVID-19 vaccine, acceptability of the vaccine, intention to get vaccinated, and reasons for vaccine hesitancy. The results of the survey showed that 82% of the respondents were willing to get vaccinated. Regarding trust in the COVID-19 vaccine, 76% would trust the vaccine if someone close to them got vaccinated, and 71% reported that they would trust the vaccine if 100% efficacy of the vaccine against COVID-19 is assured. COVID-19 vaccine hesitancy was primarily adduced to the following: the novelty of the vaccines, concerns about the possible side effects (21%), and lack of trust in the government (14%) (12).

Findings from a web-based survey conducted among healthcare workers between December 2020 and January 2021 in Egypt across Facebook and WhatsApp revealed that nearly 80% of Egyptian healthcare workers were hesitant towards receiving the COVID-19 vaccine. Membership of the COVID-19 team or previous involvement in the management of COVID-19 cases were determinants of willingness to accept any of the COVID-19 vaccines. Hesitancy was

primarily due to a lack of trust in COVID-19 information being broadcast (11).

Results of an analytical cross-sectional study conducted among 613 healthcare workers in 23 Congolese referral hospitals revealed that nearly one-third of these healthcare workers were unwilling to accept the COVID-19 vaccine. Those who had heard about the COVID-19 vaccine and demonstrated positive attitudes towards COVID-19 had a higher likelihood to accept the COVID-19 vaccine. A noteworthy paradox however was the fact that sufficient knowledge of COVID-19 or the demonstration of COVID-19 preventive practices had no association with healthcare workers' intention to receive the COVID-19 vaccine. Since healthcare providers serve as important sources for educating patients with information regarding the COVID-19 vaccine, all healthcare workers' concerns need to be addressed to increase their uptake of the COVID-19 vaccines (13).

Among the 2,310 participants in a cross-sectional study using an online survey, conducted over two months between August and September 2020 in the Democratic Republic of Congo (DRC), only 56% were reportedly willing to be vaccinated for COVID-19 (12). Among them, healthcare providers were less likely to accept a COVID-19 vaccine when they were offered (OR = 0.46, CI: 0.36–0.58) (14).

Similar results were observed from a cross-sectional study conducted among adults in Nigeria, where 29-65% of participants indicated their intentions to accept COVID-19 vaccines when available (15). From a web-based cross-sectional study in Somalia, it was reported that nearly 77% of Somalis expressed willingness to receive the COVID-19 vaccine when it becomes available. Reasons for hesitancy among the hesitant group included concerns about the effectiveness of the vaccines, fear of side effects, and confidence in a strong immune system. However, the rates of COVID-19 vaccine acceptance were even lower among young adults in Cameroon (15%) (16). A study conducted in South Africa reported that 81% of the population were willing to accept the COVID-19 vaccine (17).

### *Causes of COVID-19 vaccine hesitancy*

#### Lack of clarity on the safety of the COVID-19 vaccine

Evidence from South Africa, the country with the highest COVID-19 cases and deaths in Africa, reveals a direct linear relationship between COVID-19 vaccine acceptance and hesitancy, with both recording nearly equal proportions (18). As the process of vaccine production was not easily accessible and understood by the general population, many individuals questioned the safety of the COVID-19 vaccines (16). The South African government has been responsive towards providing evidence-based knowledge regarding the COVID-19 vaccine while dispelling rumors through both traditional and modern media. However, COVID-19 vaccine hesitancy still exists.

A similar experience of COVID-19 vaccine hesitancy has been reported in Nigeria. The results of a web-based cross-sectional study conducted in August 2020 in Nigeria revealed that 37% of respondents questioned the reliability of the clinical trials used in the production of the COVID-19 vaccines (19). Among the participants who were not willing to be vaccinated in DRC, 60% indicated that they did not trust the vaccine (14). Evidence from a web-based cross-sectional study conducted among health care providers in Ghana, over two months of January and February 2021, also reveal that the rapid production and roll-out of the COVID-19 vaccines prompted many questions regarding the integrity and safety of the COVID-19 vaccine that has gained licensure barely one year after the declaration of COVID-19 as a pandemic (20). In Zimbabwe, a rapid national survey conducted in February 2021 (21) and a cross-sectional study conducted in May 2021 among 551 randomly selected household heads (22) revealed that 55% of the population (21) and 55.7% of the household heads (22) reported intending to vaccinate themselves or members of their households (21, 22). In both studies, the likelihood of vaccine intentions was most strongly associated with confidence in vaccine safety (21, 22).

#### The fear of side effects

The fear of the side effects of the COVID-19 vaccine has significantly contributed to a reduced proportion of individuals who have accepted the COVID-19 vaccine (23). With some individuals reporting side effects such as headache, fever, and thromboembolism, many individuals consider the uptake of the COVID-19 vaccine as a risk factor to other illnesses which may not ordinarily manifest in their bodies (24). Cross-sectional community surveys conducted in Nigeria and Uganda reported that nearly three-quarters of respondents were aware of the effectiveness of the COVID-19 vaccine (20, 21). Despite this, information regarding side effects experienced after vaccine acceptance has prompted hesitancy among many (25, 26). Worries about the short and long-term side effects of the COVID-19 vaccines have also been reported from Cameroon and South Sudan (24).

More evidence about COVID-19 vaccine safety and effective methods of communicating with different sectors of the population is needed to provide clarity and convince communities to accept vaccinations. Such approaches would need to be tailored to specific audiences to maximize reach and address complex social issues in simple language canvassed in various formats such as drama, jingles, poetry, and music. Much of COVID-19 vaccine messages on social media are anti-vaccination campaigns. These, therefore, contribute to negative perceptions which may promote COVID-19 vaccine hesitancy among the population (16, 27).

#### *Interventions to improve COVID-19 vaccine acceptance in Africa*

##### Initiation of a context-tailored approach to vaccine awareness initiatives

The COVID-19 pandemic has revealed the need for governments to tailor their pandemic responses to suit the country's context. Similarly, a one-size-fits-all approach may not be effective in ensuring COVID-19 vaccine acceptance. In this context, local stakeholders and communities have a central role in designing and implementing successful COVID-19 vaccine awareness campaigns (28). Vaccine awareness strategies must be based on local needs, capacities, and guided by effective community engagement. Community engagement efforts should include research aimed at better understanding how the communities perceive the vaccines (29). Such initiatives will also allow governments to effectively convey accurate information and facilitate optimal vaccine uptake. Likewise, this approach will take into account effective methods for communicating evidence-based COVID-19 vaccine-related information to the different groups in the population.

##### Integration of COVID-19 vaccine awareness initiative in existing structures and programs

To strengthen interventions aiming to promote and sustain acceptance of COVID-19 vaccines, integration of the COVID-19 vaccine into the routine immunization programs would not only strengthen the health system but also has the potential to improve the uptake of the COVID-19 vaccine (30). For instance, COVID-19 vaccine awareness strategies can leverage successful vaccine promotion strategies for other vaccines (e.g., polio and measles vaccines) through engaging community-level health workers that have championed these awareness strategies (6). When COVID-19 vaccine awareness initiatives are part of an integrated and broader strategy, it reduces vaccine hesitancy among the communities (18).

##### Multifaceted community engagement interventions

Optimal community involvement requires collaboration between government and civil society to better reach high-risk groups and those with a history of low rates of vaccine acceptance (31). Further, utilization of an array of communication strategies will strengthen the yield and lower vaccine hesitancy rates. For instance, social media and social media influencers could play an important role in education and encouraging health-seeking behaviours. Given that social media has already been implicated for COVID-19 misinformation, authorities may utilize the same platforms to debunk disinformation and misinformation using reputable sources such as social media handles of the Ministry of Health.

## Conclusion

Despite the many efforts by governments, COVID-19 vaccine uptake remains low in Africa. Interventions to build COVID-19 vaccine trust among populations are critical. Therefore, we recommend that the engagement of community stakeholders and social influencers is important to address misconceptions about vaccines and debunk social media misinformation. Information on the COVID-19 vaccine should be simplified for all groups of the population to ensure that people are not deprived of access to health information and the opportunity to receive the COVID-19 vaccine.

## Declaration of competing interest

The authors declare that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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