

The challenge of Vaccine hesitancy and rejection, with a focus on Cameroon and Africa: a mini review

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Abstract

Background: The proportion of COVID-19 vaccination in Africa countries remains lower than other low and middle-income countries around the world. This rate is much lower in sub-Saharan Africa especially Cameroon. The low rate among these countries is attributed to vaccine hesitancy, mainly due to misinformation about vaccine origin, efficacy, and safety and the use of local herbs. **Methods:** From January to April 2022, we gathered latest experiences and opinions on four vaccine hesitancy-related areas, namely policies, perceived low risk, religious factors and use of local herbs in Cameroon in particular and some selected African countries in general; from published information in the literature. **Results and recommended local solutions:** The report mentions that political influences, religious beliefs and low perceived risk exists, vaccine safety and effectiveness and consumption of local herbs do contribute to COVID-19 vaccine hesitancy, collectively. Systematically monitoring the drivers of COVID-19 vaccine hesitancy, implementing tailored interventions promoting vaccine acceptance, and evaluating the impact of these interventions reduce vaccine hesitancy drastically.

Key words: COVID-19, Vaccine hesitancy, Cameroon

Résumé

Introduction: Le taux de vaccination contre le COVID-19 dans les pays africains reste inférieur à celui des autres pays à revenu faible et intermédiaire du monde. Ce taux est beaucoup plus faible en Afrique sub-saharienne notamment au Cameroun. Le faible taux parmi ces pays est attribué à la hésitation à la vaccination, principalement en raison de la désinformation sur l'origine, l'efficacité et la sécurité des vaccins et l'utilisation d'herbes locales. **Méthodes:** De janvier à avril 2022, nous avons recueilli les dernières expériences et opinions sur quatre domaines liés à l'hésitation à la vaccination, à savoir les politiques, le faible risque perçu, les facteurs religieux et l'utilisation d'herbes locales au Cameroun en particulier et dans certains pays africains sélectionnés en général; à partir d'informations publiées dans la littérature. **Résultats et solutions locales recommandées:** Le rapport mentionne que les influences politiques, les croyances religieuses et un faible risque perçu existent, la sécurité et l'efficacité des vaccins et la consommation d'herbes locales contribuent à la hésitation à la vaccination contre la COVID-19, collectivement. La surveillance systématique des moteurs de la hésitation à la vaccination contre la COVID-19, la mise en œuvre d'interventions sur mesure favorisant l'acceptation du vaccin et l'évaluation de l'impact de ces interventions réduisent considérablement la hésitation à la vaccination.

Mots-clés : COVID-19, hésitation à la vaccination, Cameroon

Received: 29/08/2022

Accepted: 26/09/2022

DOI: <https://dx.doi.org/10.4314/jcas.v18supplement.7>

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Background

Globally, as of 5 June 2022, over 529 million confirmed cases and over six million deaths from coronavirus disease 2019 (COVID-19) pandemic have been reported (WHO 2022a) while the 55 African Union member states have reported more than 11 million cumulative COVID-19 cases and 252,000 deaths (Africa CDC 2022). Despite the decline in the number of new weekly cases since the peak in January 2022, COVID-19 continues to remain a global public health burden. The most sustainable solution to the cases and deaths is the use of COVID-19 vaccines, complemented by other preventive non-pharmaceutical interventions such as face mask-wearing, social distancing, hand washing, and hand sanitizing.

Popular opinion of public health experts in the Africa region are increasingly concerned about the low-pace of vaccination rate as less than 10% of African countries may met the 2021 end-of-year's 40% target, and 70% by mid-2022 (WHO 2022b), despite COVAX and African Vaccine Acquisition Trust (AVAT) efforts to attain equitable COVID-19 vaccine access. This has been attributed to the high reported rates of vaccine hesitancy (VH) in African countries generally. Examples include; 33% of the population in South Africa, 50% of the population in Zimbabwe (Mundagowa *et al.*, 2022) and Ghana (Acheampong *et al.*, 2021), and 85% reported in Cameroon (Dinga *et al.*, 2021).

Major reasons for VH included vaccine mistrust issues, vaccine safety, and lack of reliable information are perceived barriers to uptake of the COVID-19 vaccine (Mundagowa *et al.*, 2022, Acheampong *et al.*, 2021, Dinga *et al.*, 2021). COVID-19 vaccine hesitancy can be attributed to perceived low vaccine effectiveness, perceived low risk of contracting SARS CoV-2, misinformation and fear of side effects in the central African sub region and other low- and middle-income countries (Solís Arce *et al.*, 2021).

The willingness to be vaccinated was high in some countries (Acheampong *et al.*, 2021) but this changed when COVID-19 vaccines were introduced due to mistrust of the vaccine producing companies or countries (Dinga *et al.*,

2021), doubts in vaccine efficacy (Dinga *et al.*, 2021, Solís Arce *et al.*, 2021), and fear of severe adverse effects following vaccination (Solís Arce *et al.*, 2021). In the central African sub region, misinformation is widespread (Dinga *et al.*, 2021), feeding incorrect information about the vaccines, leading to vaccine hesitancy (Dinga *et al.*, 2021).

In this report, we seek information from selected countries from the five regions of Africa in general and Cameroon in particular. The countries included Morocco, Tunisia, Tanzania, Zimbabwe, South Africa, Ghana, Kenya, Cameroon, Liberia, Nigeria, and Uganda in four key areas that could relate to vaccine hesitancy. The key areas of concern were: health policies related to COVID-19 vaccine, religious beliefs, perceived risks to COVID-19 infection, influence of social media and consumption of local herbs. This report intends to highlight the barriers and propose local solutions to facilitate the achievement of herd immunity in Africa generally and specifically in Cameroon.

Policies promoting vaccine hesitancy: The COVAX facility coordinated by GAVI was created to ensure fair and equitable access to vaccines for each participating economy. Whereas 74% (34/46) of the sub-Saharan countries, including Kenya, Uganda and Zimbabwe, had started vaccinating their population in January 2021, other countries including Cameroon, Morocco, Tunisia and Tanzania had not joined COVAX or only commenced vaccination against COVID-19 only after the first quarter 2021 (UNICEF 2022). Also, the fact that there was initial refusal of the existence of disease and the fact that some populations think “eradication of COVID-19” could be achieved through divine powers created an anti-vaccine atmosphere and contributed to VH. Later efforts through statements from influential public and government officials, delayed COVID-19 vaccination program roll out in April 2021 (Cameroon) and August 2021 (Tanzania), and hosting national level launch of the COVID-19 vaccination campaign, did little to dispel rumours and decrease VH (Table 1). Table 1 also shows that the vaccination rates in the population remains relatively low across the

selected countries with Tunisia having the highest vaccination rate of 72.6% whereas it is 6% in Cameroon (Our World in Data 2022).

Table 1: Start of mass COVID-19 vaccination, Vaccine Hesitancy rates, and factors associated with it across selected countries in the five regions of Africa.

	Country	Vaccine Hesitancy rate (%)	Member of COVAX	Started mass immunization	Vaccination rate as of August 2022 (%)	Factors associated with vaccine hesitancy
1.	Cameroon	65.4	Yes	May 2021	6	
2.	Ghana	17.2	Yes	March 2021	34.6	Lack of reliable information, vaccine safety, Christians, many years of education,
3.	Kenya	36	Yes	March 2021	23.9	Rural regions, no perceived infection risk, vaccine safety, and religious and cultural reasons
4.	Liberia	66	Yes	April 2021	51	Mistrust in the health system, misinformation, complacency
5.	Morocco	26.9	Yes	January 2021	67.4	Vaccine safety, misinformation, confidence, and complacency
6.	Nigeria	39.1	Yes	November 2021	19.3	Lack of trust in approved vaccines, vaccine safety, complacency
7.	South Africa	55	Yes	February 2021	37.5	race, lack of reliable information, trust in the health system, flu vaccination status and risk perception for COVID-19 infection
8.	Tanzania	65	Yes	August 2021	30.2	Male gender, low education, occupation, COVID19 knowledge
9.	Tunisia	51.9	Yes	July 2021	72.6	Vaccine safety, misinformation, confidence, and complacency
10.	Uganda	30.7	Yes	March 2021	40	Lack of trust in health system, vaccine safety,
11.	Zimbabwe	50	Yes	February 2021	40.1	Vaccine safety, misinformation, confidence, and complacency

At the beginning of the vaccination programs, some countries did not wish to be accountable for any adverse effect that may occur due to COVID-19 vaccination and insisted the programs were optional and voluntary. For example, in Cameroon, Morocco, Uganda and Tanzania, the official communication from the relevant health ministries and directorates did distinguish voluntary from mandatory. The requirement of a signed written consent before vaccination exonerated the government from any responsibility for the adverse effects, but this increased suspicion among the population. However, in countries like Kenya and Tanzania, after realizing the hesitations by policymakers, the affluent began importation of vaccines ahead of the government. This led to a multiplicity of vaccine brands in these countries, making the provision of the desirable vaccination schedule and regulatory oversight practically impossible.

In Cameroon and most African countries, initially the vaccine was reserved for group of persons most at risk, for example, advanced age and medical profession and government officials having a significantly higher exposure to the general population. However, vaccine distribution points were few compared to the target population and the turnout to the designated health facilities remained low. As a result, governments lifted the waivers and opened more points (Cameroon, Tanzania, Kenya, Uganda and Zimbabwe). Again, in Cameroon, Kenya and Tanzania only hospitals at regional and district levels were providing the vaccine. In Uganda, as of November 2021, several private facilities and small health centers had been permitted to provide vaccines.

Religious beliefs: In some countries in Sub-Saharan Africa, significant portions of the population belong to faith-based groups which resist health care, including vaccines (Dzinamarira *et al.*, 2021) with Religious leaders as the trusted source of information. However, as the COVID-19 pandemic entered the second wave, religious leaders became divided on whether to vaccinate; some openly vaccinated on national TV while others used religious gatherings for anti-vaccine campaigns (South Africa, Ghana, Kenya, Zimbabwe and

Tanzania). However, apostolic sects have always resisted vaccination programs and acceptability for most of these sects remains low in Cameroon and Zimbabwe. Due to the seriousness of the impact of the second wave of the pandemic and improved awareness, many churches opened their doors only to those that are vaccinated (Nigeria and Zimbabwe). Meanwhile in Uganda, despite some sects having beliefs against vaccination, they did not publicly express anti-vaccine sentiments for fear of the consequences, such as reprehension and prosecution by the government.

The role of social media in misinformation:

The social media platform has been used to spread vaccine myths, misconceptions and misinformation (UNICEF 2022), leading to the rapid spread of anti-COVID-19 vaccine campaigns. This situation has been made worse by the lack of accurate information through COVID-19 health communication (Kabakama *et al.*, 2022).

In countries like Cameroon, Tunisia, Morocco, Ghana, South Africa and Zimbabwe, several circulating myths, misconceptions, and rumors regarding the origins of SARS-CoV-2 and the dangers of the vaccines have spread in a disproportionate manner despite sensitization and strict media laws prohibiting the circulation of misinformation through social media. In most cases this misinformation has associated with misinterpretation of the scientific information as was evident in studies from Cameroon and Kenya.

Lack of reliable source of information. Due to the protracted lockdown in most countries to curb the spread of the disease, the social media became the only or the main source of information on vaccines and their efficacy. In specific cases like in Cameroon and Uganda, the misinformation was directed to certain brands of vaccines as being ineffective.

Perceived low risk (Complacency): At the beginning of the pandemic, most Cameroonians as well as people in other African countries believed they were less vulnerable to COVID-19, which might have contributed to poor vaccine uptake (Dinga *et al.*, 2021, Musa *et al.*, 2021).

When COVAX delivered the vaccines to African countries, most gave priority to certain groups of person who were considered at risk. This included; senior government officials, health care workers, persons over 50 years, teachers, and those with chronic ailments or comorbidities (Cameroon, Uganda, Tanzania, Ghana, and Kenya). Those left out considered were considered low risk and this gave the impression that the vaccines were not important for them especially in Uganda (11). Some countries even embraced herbal medicine and steam inhalations as both protective and cure of COVID-19; hence the populations did not think taking the vaccine was important as a preventive measure (Uganda and Tanzania).

Contribution of African traditional medicine to COVID-19 vaccine hesitancy:

Drugs from western companies have generally been perceived by the average income-earning African as expensive. This led to seeking alternative treatments which is based on herbal knowledge passed down from their ancestors. This approach was also employed during the COVID-19 pandemic and the relative low death rates on the African continent due to COVID-19, people are generally hesitant to the COVID-19 vaccine (UNESCO 2022).

Change of vaccine hesitancy proportions and associated factors over time

Comparative analysis between a previous study carried out in 2020 (Dinga *et al.*, 2021) and 2022 (Dinga *et al.*, 2022) shows that the policy of the government of Cameroon has helped to significantly reduce vaccine hesitancy in the country. Unfortunately, this reduction is not enough to ensure herd immunity which is needed to protect the entire population against COVID-19. The two studies also showed that the factors associated with vaccine hesitancy changed over time in Cameroon (Table 2).

Suggested local solutions for vaccine hesitancy in Cameroon

We highlight below some high-level interventions that could address COVID-19 Vaccine hesitancy and improve vaccine acceptance.

- i. Governments, policymakers and health workers should be empowered through capacity building on the scientific basis of the interventions, such as with vaccines. They should be empowered to counter the rumours associated with VH and detail explain facts about COVID-19 vaccines. This will include misinformation associated with development and efficacy of the vaccines which in turn address their concerns on safety and effectiveness.
- ii. In depth monitoring and understanding of drivers (facilitators and barriers) of COVID-19 vaccine hesitancy among the general population. For example, using broad categories of healthcare workers such as physicians and nurses to assess vaccine hesitancy is insufficient as variability exists among subcategories of nurses and physicians. Others include drivers associated with each specific COVID-19 vaccine and how these drivers change over time.
- iii. Social marketing and tailored interventions promoting vaccine acceptance among specific groups and the general population. This include; direct interventions at unvaccinated groups or those with low vaccine coverage, increase knowledge and awareness about vaccines and vaccination, improve convenience and access to vaccination, mandate vaccination or imposing “sanctions” for non-vaccination, employ reminders and follow-up, and finally engage religious and other influential leaders to promote vaccination.
- iv. Evaluate the impact of the interventions. Measuring the outcomes and outputs interventions is necessary to understanding the value gained by the actions taken. This will permit the appreciation of the changing characteristics as the COVID-19 pandemic evolves on the local and national stage. Successes and lessons learnt can be applied to strengthen national immunization programmes in addressing vaccine hesitancy in the wider public.

Table 2: Comparison between two COVID-19 Vaccine Hesitancy studies carried out 19 months apart in 2020 and 2022 in Cameroon

Characteristics	Dinga <i>et al.</i> , 2021	Dinga <i>et al.</i> , 2022
1. No. of participants	2512	6732
Male	45.1%	44.3%
Female	54.9%	55.7%
2. Vaccine Hesitancy	86.4%	64.6%
3. Vaccine Acceptance	Not assessed	35.4%
4. Factors associated with Vaccine Hesitancy	<ul style="list-style-type: none"> • communication and media environment • perception of pharmaceutical industry, reliability • source of vaccine <ul style="list-style-type: none"> • cost 	<ul style="list-style-type: none"> • living in an urban setting <ul style="list-style-type: none"> • being a female • jobless or a student • working in the education sector • working in politics/policy maker/administration <ul style="list-style-type: none"> • being an Engineer or Technician • having a medium income • no education or studied to the Primary school level • had secondary/high school/professional training.
5. Two major reasons for vaccine hesitancy	Not assessed	<ul style="list-style-type: none"> • Confusing information/scare-mongering on social media • Lack of detailed evidence-based information on vaccines
6. Factors associated with Vaccine Acceptance	Not assessed	<ul style="list-style-type: none"> • Being a male • healthcare personnel • high income earners • people who do not take local herbs or remedies have been or know someone who has been infected by COVID-19 <ul style="list-style-type: none"> • chronic illness or comorbidity
7. Two major reasons for vaccine acceptance	Not assessed	<p>“I would like to protect myself and loved ones from COVID-19 infection”</p> <p>“I do not want to fall sick with COVID-19 infection”</p>

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