LETTER TO THE EDITOR

Vaccines hesitancy in Africa: how COVID-19 pandemic may affect malaria vaccination campaigns

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According to the WHO Strategic Advisory Group of Experts on Immunization (SAGE), vaccine hesitancy (VH) refers to the delay in accepting or refusing vaccination despite the availability of vaccination services [1]. VH is complex and context-specific, varying across time, place and vaccines, and the term itself is debated, considering the variety of different and complex situations and determinants it implies [1].

Although VH was already considered a global health issue and it was therefore listed among the 10 global health threats identified by the WHO in 2019 [2], the COVID-19 pandemic and the management of the COVID-19 vaccination campaign, have contributed to making VH a contingent problem that might jeopardize future vaccination campaigns all over the world. In this context, waiving patents and recognizing vaccines as a global public good would have built a powerful trust engendering mechanism [3]. From this concept and by taking the recent approval of the antimalarial vaccine in areas of high endemicity as an example, we hereby discuss the possible influence that VH may have on the acceptance of new vaccines in the future.

Even in Africa, VH is becoming a major challenge despite the remarkable progress made by long-standing vaccination programmes through the improvement of routine childhood vaccination coverage [4], such as the rising in coverage of three doses of diphtheria-tetanus-pertussis containing vaccines (DTP3) from 57% to 74% in 15 years [5], or the decline of 85% in measles mortality between 2000 and 2015 [6] and the certification of the WHO African Region as free of wild poliovirus on August 25th 2020, after four years without a single case [7].

On 6th October 2021, the World Health Organization (WHO) recommended the widespread use of the RTS, S/AS01 (RTS,S) malaria vaccine among children in sub-Saharan Africa and in other regions with moderate to high *P. falciparum* malaria transmission [8]. Although results from the pilot programme represent a historical momentum in the fight against malaria, growing VH recently powered by issues related to the management of the response to the COVID-19 pandemic, may hamper the real-world acceptance of RTS,S across the continent [9].

The rollout COVID-19 vaccines in Africa has been primarily halted by shortage and barriers to purchase, partially due to western countries hoarding. Driven by lack of corporate and institutional transparency, misinformation and misconceptions circulating on social media, VH threatens to further hamper the vaccination process [10]. Beliefs rooted in the history of unethical western medical practices in the African continent [11], and in the enduring legacy of colonial violence, fosters scepticism against vaccination [12]. A recent survey conducted across 15 African countries, showed a COVID-19 VH range going from 4 to 38% [13], while another study highlighted high rates (60%) in Benin, Liberia, Niger, Senegal, and Togo. The hesitancy was not confined to the general population only, but also among health workers in Ethiopia and Republic Democratic of Congo, frequently worried about safety, side effects and effectiveness of the vaccine against COVID-19 [14].

Generalized vaccine distrust boosted by the priority given to the economic benefits of the patent system, along with misinformation in mainstream media and social networks, and ineffective communication from some scientific and political representatives regarding COVID-19 vaccines [3], could compromise ongoing vaccination programs, also targeting other diseases. Consequently, it could also affect the introduction of new vaccines, such as the recent one approved by WHO against malaria in Africa. In fact, the pandemic has already altered parental health-seeking behaviour; a recent WHO global poll reported that 73% of countries have witnessed reduction in demand for immunization, higher for countries in the WHO Africa region (89%) [15].

The issue is not new, and the causes are numerous. For example, in 1990 the anti-tetanus vaccination campaign was halted in Cameroon because of the belief among the general population that vaccines would make young girls infertile [16]. In 2015, Ebola vaccine trials were suspended in Ghana in response to media accusations that researchers were infecting participants with Ebola

virus [17]. In 2003-2004, Nigeria saw a general polio vaccine boycott due to the belief that the vaccine contained a contraceptive that would render children infertile, resulting in a five-fold increase in the polio incidence between 2002 and 2006 [18]. Vaccine hesitancy was also at the root of the refusal of measles vaccination among Apostolic communities in Zimbabwe [19], the reticence towards vaccination in Benin [20], and in Nigeria, where in a recent survey 42% of respondents stated that they were immune to coronavirus, highlighting their belief in God as the reason, and more than a third of Nigerians were unwilling to get vaccinated [21].

A mix of myths and misinformation on the one side and lack of an effective communication policy by the authorities on the other, create distrust within communities, extending VH to consolidated vaccines and consequently to possible outbreaks and deaths by preventable diseases. Hence, it urges putting in place appropriate risk communication strategies to understand and tackle vaccine mistrust, specially at community level. Fact checking within communities is a great challenge. Once the misinformation is shared, it becomes almost impossible to have control over it. Community members, including local leaders and community health professionals, need to be mobilized and trained to understand the reasons of generalized mistrust, explain short term, as well as unknown long-term risks, and disseminate the benefits of routine vaccination, with decades long consolidated vaccine programs, to increase trust. It should be acknowledged that a dogmatic approach might not always be a suitable strategy to address persistent rumours that hamper vaccination programs.

Understanding the role of rumours in the collective identity of a community might facilitate the development and implementation of effective interventions targeting vaccine hesitancy [22]. Additionally, as evidence on VH from low-middle income countries is still emerging [23] little is known about the nature and causes of VH in Africa, considering its high variability, context-specificity, and multiplicity of contextual factors [24]. There is a need for conducting research, which i) integrates social science and the medical perspective; ii) builds transdisciplinary knowledge, integrating expertise and experiential knowledge from different academic and non-academic fields [25], including sociology, anthropology, psychology, and education; iii) implements interventions to address concerns rather than only describing them.

Vaccination against malaria should be introduced effectively, and trust toward regular immunization programmes would be regained only through transparent information on vaccines' risks and benefits at all levels, and according to age groups and health conditions. History shows that once people's confidence in vaccines is compromised, it is difficult to gain it back. Distrust in one vaccine can lead to distrust in other vaccines, and this is particularly dangerous for the African continent, where reaching the general population through health promotion and education programs can be challenging.

To conclude, the peculiar conditions in which the COVID-19 vaccines were developed could both hamper the COVID-19 vaccination campaigns and pose a risk for future vaccinations. Although the causes of VH are multiple and complex, authorities and politicians have a crucial role in building transparency and trust, particularly by ensuring access for all [3].

Finally, while global agendas are increasingly focusing on biomedical technical solutions to health issues, we urge reinforcing the importance of public policies and health interventions, and to address societal health determinants. Within this framework, commitments to health equity and social justice, and whole of society intersectoral policy action are required, targeting structural determinants of health and the social mechanisms at the roots of inequity and distrust.

Ethical approvals

Ethics approval was not required for this manuscript.

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Conflict of interest statement

We have read and understood the Journal of Preventive Medicine and Hygiene policy on declaration of interests and have no relevant interests to declare.

Authors' contributions

NS conceptualised the viewpoint. NS, BA, BF, MV, SB and SU drafted the manuscript. LM, FC and EM contributed to reviewing and finalising the manuscript. All Authors approved the final version of the manuscript.

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