

## Article

# A Descriptive-Multivariate Analysis of Community Knowledge, Confidence, and Trust in COVID-19 Clinical Trials among Healthcare Workers in Uganda

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**Abstract:** Background—misinformation and mistrust often undermines community vaccine uptake, yet information in rural communities, especially of developing countries, is scarce. This study aimed to identify major challenges associated with coronavirus disease 2019 (COVID-19) vaccine clinical trials among healthcare workers and staff in Uganda. Methods—a rapid exploratory survey was conducted over 5 weeks among 260 respondents (66% male) from healthcare centers across the country using an online questionnaire. Twenty-seven questions assessed knowledge, confidence, and trust scores on COVID-19 vaccine clinical trials from participants in 46 districts in Uganda. Results—we found low levels of knowledge (i.e., confusing COVID-19 with Ebola) with males being more informed than females (OR = 1.5, 95% CI: 0.7–3.0), and mistrust associated with policy decisions to promote herbal treatments in Uganda and the rushed international clinical trials, highlighting challenges for the upcoming Oxford–AstraZeneca vaccinations. Knowledge, confidence and trust scores were higher among the least educated (certificate vs. bachelor degree holders). We also found a high level of skepticism and possible community resistance to DNA recombinant vaccines, such as the Oxford–AstraZeneca vaccine. Preference for herbal treatments (38/260; 14.6%, 95% CI: 10.7–19.3) currently being promoted by the Ugandan government raises major policy concerns. High fear and mistrust for COVID-19 vaccine clinical trials was more common among wealthier participants and more affluent regions of the country. Conclusion—our study found that knowledge, confidence, and trust in COVID-19 vaccines was low among healthcare workers in Uganda, especially those with higher wealth and educational status. There is a need to increase transparency and inclusive participation to address these issues before new trials of COVID-19 vaccines are initiated.

**Keywords:** COVID-19 clinical trials in resource poor countries; COVID-19; clinical trials in Africa; COVID-19 and medical workers; vaccines; COVAX

## 1. Introduction

Understanding community knowledge and trust has become increasingly important in the design of effective and ethical clinical trials. From 1991 to 2018, Africa contributed only 2.5% to the global total of clinical trials [1]. From a pharmacovigilance standpoint, the continent offers many potential advantages including genetic diversity and a large number of potential participants who are naïve to drug or vaccine products [1]. However, fear, distrust and suspicion are important barriers to trial participation [2,3]. Several factors contribute to skepticism regarding clinical trials and the products they test. Regulations and ethical guidelines to protect patients, while present in Egypt, South Africa, Uganda, and Ghana, are inadequate in many other African countries [1]. Additional factors causing fear and mistrust include a history of inadequate commitment and/or skill on the part of researchers and their staff, shortages of medical personnel, the failure of researchers to understand local culture, poor infrastructure, an absence of national regulatory requirements, and ineffective ethical counseling, community engagement and informed consent processes [1–3]. Inadequate human and/or financial resources contribute to the inability to build awareness regarding individual trials [1].

Misunderstanding also contributes to widespread myths and fears associated with infectious disease clinical trials. However, it is important to note that such fears are often related, in various ways, to a legacy of distrust due to past medical misconduct and unethical experimentation, which in some cases has led to major international lawsuits [4]. Fear of contracting infectious agents such as the Ebola virus from vaccines (EBOVAC) can also be compounded by psychological trauma following receipt of vaccines [2–5]. The media, advocacy groups, medical journals, and public information services can each shape