COVID-19 vaccine hesitancy among health workers in rural Uganda: A mixed methods study

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ABSTRACT

Background: COVID-19 vaccination is the latest preventive intervention strategy in an attempt to control the global pandemic. Its efficacy has come under scrutiny because of break through infections among the vaccinated and need for booster doses. Besides, although health workers were prioritized for COVID-19 vaccine in most countries, anecdotal evidence points to high levels of reluctance to take the vaccine among health workers. We assessed COVID-19 vaccine hesitancy among health workers in Dokolo district, northern Uganda.

Methods: This was a mixed-method, cross-sectional descriptive study. A customised self-administered data collection tool was used to collect quantitative data on characteristics, vaccination status and factors for or rejection of vaccine uptake. We conducted multivariable logistic regression to assess the association between selected exposures and vaccine hesitancy using Stata version 15. Conversely, qualitative data were collected using key informant interviews (KIIs) among 15 participants that were purposively selected. Data were analysed using thematic content analysis with the help of NVivo 12.0.

Results: Of the 346 health workers enrolled, (13.3% [46/346]) were vaccine hesitant. Factors associated with vaccine hesitancy included fear of side effects (Adjusted Odds Ratio [AOR]: 2.55; 95% Confidence Interval [95%CI]: 1.00, 6.49) and health workers' lack of trust in the information provided by health authorities (AOR: 6.74; 95% CI: 2.43, 18.72). Similar factors were associated with vaccine hesitancy when we used the vaccine hesitancy score. Fear of side effects, distrust in vaccine stakeholders, and lack of trust in the vaccine were barriers to COVID-19 vaccination among health workers.

Conclusion: A small proportion of health workers were found to be hesitant to take the COVID-19 vaccine in this study. The paucity of COVID-19 vaccine safety information, which eroded the health workers' trust in the information they received on the vaccine, was responsible for health workers hesitancy to take up the vaccine in Uganda.

1. Introduction

Uganda recorded its first COVID-19 case on March 22nd, 2020, 11 days after the World Health Organization declared COVID-19 a global pandemic, and since then, the cases of COVID-19 have peaked with seasonal variations that correspond with infection waves [1]. The Government of Uganda instituted stringent measures to contain the COVID-19 spread at the population level by applying the longest country wide lockdown in the world [2]. These measures included restricting public transport and other movements, instituting prohibition of social gathering, closedown all institutions of learning, wearing of masks and social distancing among others [3]. However, the safety and effectiveness of these measures remain doubtful as the infection continued unabated [4].

With the development of the COVID-19 vaccines, the WHO recommended COVID-19 vaccination under emergency use

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in health authorities was a significant barrier to receiving the COVID-19 vaccine [24,30,31].

4.2. Strengths and limitations

We utilized a mixed-methods sequential explanatory design, combining both quantitative and qualitative methods of data collection. The use of the two approaches in this study increased the rigor, trustworthiness, and angles at which we investigated the outcomes. The quantitative phase was followed by a qualitative phase. The qualitative findings helped us make meaning of the quantitative results. For instance, the key informant interviews gave us meaningful insights into the factors associated with COVID-19 vaccine hesitancy among health workers in Dokolo district. To ensure trustworthiness in this study, we ensured that after transcribing the transcript and analyzing data, the results were read to a few participants for validation. The use of two coders also helped us to increase the coding rigor and credibility of our results. Since we recruited almost all the registered health workers from both private and public health facilities (3 5 0) and 346/350 participated in the study, we believe selection bias could be minimal in our study. Since we investigated outcomes like willingness to take COVID-19 vaccine, misclassification of the outcomes is probably minimal in the study. All the health workers interviewed were followed to their respective health facilities, this reduced selection bias. Additionally, the knowledge that the principal investigator in this study was a member of the district health team and the focal person for COVID-19 surveillance in Dokolo district and also played a key role in coordinating COVID-19 vaccination activities, could have biased the way health workers were recruited and also may have introduced a social desirability bias since at the time there were threats to terminate unvaccinated health workers all over the world [32]. Many health workers could have lied about their vaccination status to a DHT member. Lastly, varying statistics globally due to changes in trends of managing COVID-19, changes in the information, evidence and also changes in tools for measuring vaccine hesitancy. Our definition of COVID-19 vaccine hesitancy could have created an information bias. However, sensitivity analyses with a much more inclusive definition resulted into similar results.

5. Conclusions

The prevalence of COVID-19 vaccine hesitancy among health workers in Dokolo district was low at 13.3%. The factors associated with COVID-19 vaccine hesitancy were lack of trust in the information provided by the health authorities and fear of side effects. Qualitative participants identified fear of the side effects, distrust in vaccine stakeholders and feeling coerced to undergo COVID-19 vaccination as barriers to COVID-19 vaccination among health workers in Dokolo district. We therefore recommend that health stakeholders, including the Ministry of Health Uganda, the World Health Organization, and non-state actors should explain COVID-19 vaccine safety and embark on rigorous information dissemination on the known side effects and management strategies, to restore vaccine confidence among health workers and the public and also accurately packaging the information on COVID-19 vaccine from the national and sub-national level, and use correct and reliable channels to disseminate the information to erase distrust in the information passed out on COVID-19 vaccine.

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Data availability

Data will be made available on request.

CRedit Author Statement

Patrick DioxOuni: Conceptualization, Formal analysis, Funding acquistion, Investigation, Methodology, Project administration, Resources, Visualization, Original draft, Review. **Racheal Namulondoa:** Conceptualization, Data curation, Methodology, Review. **Benon Wanume:** Data curation, Formal analysis, Review. **David Okia:** Data curation, Formal analysis, Methodology, Review. **Peter Olupot Olupot:** Methodology, Review. Ritah Nantale: Project administration, Software, Supervision, Visualization, Original draft, Review. **Joseph K.B. Matovu:** Methodology, Validation, Review. **Agnes Napyo:** Methodology, Validation, Review. **Yovani A.Moses Lubaale:** Methodology, Validation, Review. **Nathan Nshakira:** Methodology, Review. **David Mukunya:** Conceptualization, Methodology, Project administration, Supervision, Original draft, Review.

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Data will be made available on request.

Declaration of Competing Interest

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

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