



## Hesitancy, Perceptions and Attitudes towards COVID-19 Vaccination Programme among Health Care Workers in Tanzania

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### Abstract

**Introduction:** Development of a vaccine against the COVID-19 virus is considered successful preventive measure and the current hope over the fight against the present pandemic. However, the World Health Organization (WHO) acknowledged hesitancy as a threat towards the uptake of the vaccine.

**Objective:** This study aims to explore the perception and attitudes of Health Care Workers (HCWs) and hesitancy towards the COVID 19 vaccination programme in Tanzania.

**Methods:** We conducted a cross sectional qualitative study. In-depth interview was done to 153 respondents to explore their views, opinion and concerns toward the COVID-19 vaccine. This study used a thematic approach to analyze the data. Finally, syntheses and summaries were generated and key terms, phrases and expressions of the participants were used to support the findings.

**Results:** HCWs understand that the vaccine are not effective by 100% however when they outweigh the risk of COVID-19 severity and vaccine risks, their choice is to get vaccinated. Due to uncertainty, insufficient information about safety and efficacy and few clinical trials some HCWs are delaying to make choice of decision to be vaccinated.

**Conclusion:** HCWs in Tanzania are optimistic towards the COVID-19 vaccine and are ready to get vaccine. They perceive that regardless of unknown and uncertainty about the vaccine, the risks of COVID-19 severity outweigh the risk of vaccine. Few of them feel they need more evidences and trials in order to be vaccinated.

**Keywords:** COVID-19; Corona; Vaccines; Hesitancy; Perception; Attitudes

### Introduction

Coronavirus disease 2019 (COVID-19) is a respiratory disease caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) discovered in China in December 2019 [5]. The infected person experiences a range of symptoms such as fever, difficulty in breathing, headache, fever, and loss of taste and smell,

or may be asymptomatic [4]. Since its discovery, SARS-CoV-2 has spread around the globe, with over 154 million confirmed cases and over 3 million deaths in 203 countries as of 6 May 2021 according to the John Hopkins University [9].

Development of a vaccine against the virus is considered successful preventive measure which has proved its capability to

stop infections and save lives over the years [17]. According to the World Health Organization (WHO) as of 18 February 2021, at least seven different vaccines across three platforms have been distributed globally [17]. These vaccines differ in composition, storage requirements, and effectiveness (70.4%-95%) [7]. Vaccine hesitancy is considered as a stumbling block to achieve herd immunity in the fight to control global pandemic, despite this unprecedented scientific discovery [10]. In 2019, the WHO identified vaccine hesitancy as one of the top ten global health threats [10,15]. Misinformation, lack of trust and poor communication with populations have been the drivers of this trend over the past 15 years [15].

### Tanzania's position on the COVID-19 pandemic and vaccination programme

The first COVID-19 case was recorded on March 16, 2020 at Mount Meru Hospital in Arusha, a small city in northern Tanzania. By April 2020, the government of Tanzania stopped releasing COVID-19 statistics. According to the John Hopkins University there had been 509 COVID 19 positive cases, 21 deaths, and 183 recoveries, this figure is unchanged officially to date [9].

The Tanzanian government promptly implemented numerous WHO recommended precautions in the early months of the pandemic between February and April 2020, and the Ministry of Health has issued 15 guidelines as of February 27, 2021 [11]. The government decided against implementing a lockdown because it would have restricted public access to health services, particularly for patients with chronic illnesses such as tuberculosis and HIV infection, which would have had serious consequences in setting like Tanzania where the burdens of infectious and non-infectious disease are high [11]. Lockdown might have also restricted citizens from working, affecting households' ability to afford food or health care services and forcing more people into poverty. In June 2020, the late President Hon John Magufuli declared the country to be free from COVID-19 because of God's intervention [3,18]. The government revised and reissued guidelines in February 2021, insisting on WHO-recommended measures and built local capacity to manufacture personal protective equipments. The government has also adopted complementary traditional therapies and remedies that are thought to boost human immunity [16]. However, these efforts have been misinterpreted as compromising COVID 19 control measures. On Feb 2, 2021, the ministry of health declared that the country "has no arrangements in place to accept COVID-19 vac-

cines" [11]. According to him, Tanzania's ministry of health could only approve vaccinations that have been certified by Tanzanian experts [11]. In a World Report about COVID-19 vaccine perspective in Tanzania, local context was not sufficiently considered to fully understand the country's position regarding the COVID-19 pandemic and its acceptance of COVID-19 vaccines [11].

When she took over, a new president Samia Hassan formed a taskforce on COVID-19. Among others in mid-May the task force advised that the virus presence should be publically acknowledged, Covid data should be made public and Tanzania should join a global vaccine sharing program Covax [18]. The president publically announced that the government has budgeted \$470 million to buy COVID-19 vaccine. Up to the time of writing this article the vaccines already arrived in the country and the ministry has announced that the uptake of vaccine will be voluntary.

Whilst there is limited research concerning vaccine hesitancy among HCWs, uncertainties are still arising among the population about the pandemic and vaccination program. To our knowledge, this is the first study in Tanzania aiming to determine the perception and attitude of healthcare workers, identifying the determinants of their perception and attitude that could help to increase vaccine acceptance. This study represents a guide for public health experts and government to enable them to understand the situation and potential determinants of acceptance of COVID-19 vaccines.

## Methodology

### Study population

According to WHO, health care workers are "all those people engaged in actions whose primary goal is to improve health." The participants were physicians, pharmacists, physiotherapists, dentists, and nursing personnel from two zonal hospitals and one regional referral hospital located in two big cities. HCWs represent the guidance, trusted and reliable source of information to the general population about vaccination program. They can protect against confusing and misleading and information.

### Study design, sampling and data collection

We conducted a cross sectional qualitative study. Purposive sampling technique was used to recruit 153 respondents from one regional and two zonal hospitals. In-depth-interviews were con-

ducted with health care workers from April to June 2021. Interviews were conducted in a private room at the respective hospitals where respondents were located. Interviews lasted between 20 and 30 minutes and were audio-recorded with permission of the respondents.

### Data processing and analysis

This study used a thematic approach to analyze the data [2]. These steps were followed for data analysis. First, recorded interviews were transcribed verbatim in Kiswahili by the first author (AK) and checked for accuracy by the second author (SC). Second, AK developed a codebook based on the objectives of the study, and coded the data manually based on a predefined codebook. SC checked for accuracy of the coding process. Additional codes which emerged during coding were added concurrently following consensus after review of both authors. Saturation achieved at time when there were no more codes emerged from the data. After this process, the data were sorted and grouped under patterns that were considered to be more generalizable. Finally, syntheses and summaries were generated and key terms, phrases and expressions of the participants were used to support the findings.

## Results

### HCWs' perceptions and attitudes towards the COVID-19 vaccination programme

There was a general consensus among HCWs that vaccination offered a new hope over the war against the pandemic. They said that vaccinations is the only possible escape strategy because they believed that infection prevention and control measures that mainly relied on public behavior had failed to effectively control infections transmission. HCWs hoped that the vaccination programme would relieve pressure on the health care system which is already burdened by other infectious diseases such as HIV and TB. They have hope that the vaccine will reduce the number, complexity and acuity of COVID-19 cases. HCWs also raised concerns about vaccination's broader societal implications, such as its influence on the economy and daily life. HCWs also stated that by limiting virus transmission, immunization could reduce the virus's potential ability to mutate into more lethal variants.

Some quotes from the respondents:

- "We have tried many preventive and control measures such as lockdown, distancing, wearing facemask, quarantine and

so many efforts but still COVID-19 is continuing with its devastating consequences on health, life, and economics, I feel that it is time to try vaccine" (A Tanzanian medical doctor aged 45 years old).

- "We were vaccinated from our child hood, and in the last four months I was vaccinated for Hepatitis prevention, the vaccines works, other issues are arising due to the influence of social media, I will be the first to be vaccinated" (A Tanzanian gynecologist aged 39 years old).
- "Science is clear the truth will be revealed and conspiracy theories will be separated, COVID 19 is not the first disease to be controlled by vaccine, I will be vaccinated, is better I die of vaccine than dying trying nothing" (A Tanzanian nurse officer aged 31 years old).

HCWs said that trusting scientific evidence on vaccination effectiveness was important, and that the data from clinical trials was generally convincing. The data indicating that vaccines were highly effective in reducing the severity of infections was particularly encouraging for HCWs, given that the number of people with severe illnesses requiring hospitalization and intensive care was reportedly the main factor causing strain on the healthcare system. Although most HCWs were optimistic, some believed that the vaccines would be ineffective in isolation.

Some quotes from respondents:

- "Over many past years science has proven the achievement of several dangerous infections like Ebola and yellow fever; why are we doubting the Covid 19 vaccine, we should trust scientists who sacrifice their life to do trials even to themselves" (A Tanzanian nurse officer aged 27 years old).
- "No evidence no right to say, most politicians are talking too much to influence their followers, there is many trials that reported decrease of hospitalized patients after introduction of vaccine, I hope many research will be conducted and more improved vaccine will be manufactured" (A Tanzanian Radiotherapist aged 37 years old).

They stated that in addition to mass vaccination, other infection prevention and control measures, such as border controls, would be required to reduce the global spread of infection. HCWs noted the threat of mutant COVID-19 variants to vaccine effectiveness, as

well as the difficulties of maintaining vaccines up to date with virus mutations. They were concerned that this might compromise the vaccine program's success. HCWs also acknowledged that the success of the vaccination programme generally would rely on mass participation and political support. When weighing the risks of getting vaccinated against the risk of COVID-19-related severe illness, HCWs were generally willing to accept the risk of vaccination in order to reduce their risk of COVID-19-related severe illness.

Some quotes from the respondents:

- “Getting vaccinated doesn’t mean that you should abandon other preventive measures, we health care providers understand the Infection, Prevention and Control measures so we are supposed to be champions of the general population, you can be vaccinated today and tomorrow you get the infection of another variant or other infections if you don’t protect yourself” (A Tanzanian Lab scientist aged 43 years old).
- “In order to have successful program the government should ensure that there is mass vaccination in order to have herd immunity” (A Tanzanian Nurse officer aged 26 years old).
- “Vaccination is effective way to control this pandemic, the challenge is with these new variants which arise almost after few months, I get scared even myself how many doses should I receive and for how long” (A Tanzanian pharmacist aged 31 years old).

### COVID 19 vaccine hesitancy

Hesitancy and fear about COVID-19 vaccination was influenced in part by a poor or lack of information about the vaccine. Some HCWs who generally had no confidence in vaccination, expressed that they were unwilling to be vaccinated against COVID-19 due the lack of evidence available. There were also worries that the vaccine development process was rushed, which meant that a lot about the vaccines was still unknown when the program was implemented, making it difficult to reach a decision. With situation of new, frequent changing of guidelines and emerging data, HCWs’ level of uncertainty increased, and they were left concerns “what is right and what is not right”. HCWs were unsure about the impact of mutant strains of the disease on vaccination effectiveness, as well as the booster dose schedules and long-term negative effects of the vaccines. Given that the optimum dose is uncertain, some HCWs found it difficult to assess the risks and benefits of vaccination. Although

several expressed a desire to wait for further evidence before making a decision, they were unwilling to incur the unknown risk:

- “Tanzania is a blessed country, Ebola didn’t kill any Tanzanian, COVID 19 is like flue, people were dying before Corona and they will continue dying after corona, the most important step is to continue with other control measures until when we will have enough evidences on vaccine there is no need of rushing” (A Tanzanian Medical doctor aged 33 years old).
- “There is few evidences about effectiveness and efficacy of vaccine even the manufacture and the government they don’t trust the vaccine, how can I get vaccinated, if you observe the consent form the government is not ready to protect their citizen, so I have to protect myself” (A Tanzanian Lab scientist aged 48 years old).
- “There is no need to rush into something while we have time to do more research and come up with evidences or more effective vaccine which will control all new variants, for me I don’t ignore the vaccine however I can’t rush into we still have time to think and make decision” (A Tanzanian physiotherapist aged 28 years old).

### Discussion

To our knowledge, this is the first qualitative study that has been undertaken to understand the HCWs’ perception and attitudes towards COVID-19 vaccination in Tanzania. This study captured HCWs’ perceptions and attitudes in real-time as the vaccination programme was being rolled out in Tanzania after long time of denial being among the three countries in Africa which rejected the Covax facility program with fellow countries Burundi and Eritrea. Healthcare practitioners’ perception and attitude towards COVID 19 vaccines play an important role in the general population’s vaccination behavior throughout their daily duties. The findings of this study demonstrated the positive response of most participants being ready for vaccination. The diversity of representation from age groups, healthcare categories, genders and proximity in dealing with COVID-19 patients represents strength in this study. Meanwhile, our findings concur with the study conducted in France, which found that 77.6% of respondents agreed to get vaccinated [5]. Also, these findings agreed with Barry, *et al.* [1] who conducted study to assess COVID-19 vaccine confidence in a MERS-CoV ex-

perienced country and found that two-thirds of HCWs expressed willing to receive COVID-19 vaccine.

The risk associated with COVID-19 disease was the most common reason for acceptance among people who are willing to receive the vaccine once it became available. This was supported by with almost all studies every study that assessed into COVID 19 vaccine acceptability and hesitancy [5,8]. While, for reasons of vaccination refusing and hesitancy, the most prevalent reason was knowledge insufficient about its safety and insufficient clinical trials [8]. The respondents showed a high level of concern about COVID-19 vaccine safety and its efficacy. This agreed with Dodd., *et al.* [6] study which was conducted in Australia, where concern about the safety of vaccines was 36% among the hesitancy group and 11% among the participants who were willing to receive vaccination. Concerns for duration of clinical trial testing, effectiveness and safety of vaccine safety, effectiveness, were common findings in many studies [1,5,8].

Vaccine hesitancy, which the World Health Organization (WHO) defines as a "delay in accepting or refusing vaccines despite of the availability of vaccine services," could be a possible barrier for the COVID-19 vaccination program [13]. Vaccine hesitancy is a complex issue with many associated factors, which vary across place, time and type of vaccine [13]. Hesitancy arises when there is a low perception of the need for a vaccine, worries about the vaccine's efficacy and safety, and consideration of the vaccine's accessibility. Factors associated with vaccine hesitancy are complex and variable, driven in part by sociocultural factors, insufficient information and decreasing trust in governmental institutions [19]. While vaccines are known to be successful public health measures, some people believe vaccines are neither safe nor necessary [6].

Tanzanian public health authorities and the government are on a quest to create successful immunization programs with high coverage. To guarantee high acceptance, the WHO recommends that every immunization program be well planned ahead of time [14]. The current study provides authorities with in-depth knowledge and insight of the expected barriers, concerns, and options for achieving the desired vaccination coverage.

## Conclusion

Given the increased risk of exposure to COVID-19 and high risk of transmitting the infection to vulnerable patients, most HCWs

are ready to protect themselves from the virus through vaccination. There is a lot still unknown about the vaccines that have been manufactured to protect against COVID-19, however the risks of COVID 19 severity outweigh that of vaccine that influence them to make decision to receive vaccine. There is feeling that according to the current situation of the pandemic the vaccine is the most successful weapon and hope we still have compared to other control measures that were implemented from the eruption of COVID 19. Uncertainties, insufficient information and little trials on vaccines make some HCWs feel that they have to wait for moment to make decision of being vaccinated.

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## Competing Interest

The authors declare that they have no competing interests.

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