

# Barriers affecting COVID-19 vaccination in Phalombe District, Malawi: A qualitative study

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**Background.** In Malawi, only 1 072 229 people out of a national target population of 13 546 324 had received at least one dose of the AstraZeneca COVID-19 vaccine by 26 December 2021, and only 672 819 people were classified as fully vaccinated. Phalombe District in Malawi had particularly low COVID-19 vaccine uptake, with only 4% ( $n=8\,538$ ) of 225 219 people being fully vaccinated by 26 December.

**Objectives.** To explore reasons for vaccine hesitancy and refusal among people living in Phalombe District.

**Methods.** This cross-sectional qualitative study employed six focus group discussions (FGDs) and 19 in-depth interviews (IDIs) to collect data. We purposefully selected two traditional authorities (TAs), Nazombe and Nkhumba, as study areas, and conducted FGDs and IDIs in 6 randomly selected villages in these two TAs. Participants were religious leaders, traditional leaders, youths, traditional healers and ordinary community members. We explored reasons for vaccine refusal and hesitancy, how contextual cultural beliefs influenced people's decision to receive the COVID-19 vaccine, and which sources of information were trusted in the community. Data were analysed using thematic content analysis.

**Results.** We conducted 19 IDIs and six FGDs. Themes that emerged from the data were reasons for vaccine refusal and hesitancy, contextual cultural beliefs affecting the decision whether to be vaccinated, ways to improve COVID-19 vaccine uptake, and means of communicating information about COVID-19 vaccines. Participants mentioned that myths contributing to vaccine refusal and hesitancy circulated in the community through social media. With regard to contextual cultural beliefs, most participants believed that COVID-19 was a disease of rich people, while others believed that it signalled the end of the world and that it could not be cured.

**Conclusion.** Health systems should recognise and acknowledge the reasons leading to vaccine hesitancy and refusal and address these appropriately to improve vaccine uptake. Effective community sensitisation and engagement should be enhanced to clarify myths and address misinformation about the COVID-19 vaccine.

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The COVID-19 pandemic has had an unprecedented impact worldwide. Apart from loss of life, the response to the pandemic has negatively affected global health, education, trade, agriculture and socioeconomic growth.<sup>[1]</sup> When COVID-19 was first reported, most people adopted public health preventive, mostly non-pharmaceutical, measures that included frequent hand washing with soap, maintaining social distancing and using face masks.<sup>[2]</sup> Scientific communities across the globe went to great lengths to rapidly develop several types of COVID-19 vaccines.

The availability and uptake of COVID-19 vaccines vary significantly worldwide, with European countries getting more doses ( $n=516\,679\,197$ )<sup>[3]</sup> than African countries ( $n=6\,000\,000$ ).<sup>[4]</sup> Some studies have indicated that the COVID-19 vaccine is verbally accepted in both high-income<sup>[5,6]</sup> and low- to middle-income countries (LMICs).<sup>[7,8]</sup> However, despite high verbal acceptance, relatively few doses have been administered in LMICs, indicating low uptake. The low uptake of COVID-19 vaccines in LMICs may be due to existing socioeconomic challenges and supply-chain issues. Low uptake may also be attributed to misinformation and misconceptions about COVID-19 vaccines. A considerable information vacuum surrounds vaccine safety, efficacy and side-effects.<sup>[9,10]</sup>

In March 2021, the Malawi government received a donation of 360 000 doses of the AstraZeneca COVID vaccine as a first dose for eligible people.<sup>[11]</sup> The government prioritised this first shipment for

people who were deemed to be at high risk of contracting COVID-19, including healthcare workers, people with underlying comorbidities such as diabetes and asthma, and elderly people (>60 years of age). Uptake was so disappointing that 19 610 doses of the vaccine expired and were destroyed in May 2021.<sup>[12]</sup> While the rest of the world was trying to curb COVID-19 through vaccination, most Malawians, especially those in rural areas, refused the vaccine.

The reasons for low vaccine uptake in Malawi are unknown. Negative propaganda, misinformation and lack of community awareness have been suggested as causes. The COVID-19 vaccine was also introduced in Malawi with few community awareness and engagement meetings being conducted. By 26 December 2021, only 1 072 229 out of a national target population of 13 546 324 had received at least one dose of the AstraZeneca vaccine, and only 672 819 people had been fully vaccinated.<sup>[13]</sup> The number of vaccinated people is low relative to the proportion of population at risk and who require COVID-19 vaccination.

As the world strives to vaccinate most of its population against COVID-19, considerable attention has been given to drivers of vaccine hesitancy, including conspiracy theories and other sources of mis- and disinformation.<sup>[14]</sup> Social media monitoring from December 2020 found rumours of adverse events including potential severe allergic reactions, facial palsy and infertility.<sup>[15]</sup> In Malawi, prominent figures including politicians were voluntarily vaccinated in public

settings to reassure people about the safety of the COVID-19 vaccine.<sup>16</sup> Vaccine uptake was particularly low in Phalombe District, with 35% ( $n=3\ 000$  of  $8\ 500$ ) of unexpired AstraZeneca vaccine doses being returned to central government for redistribution. These returned vaccine doses would have contributed to the total number of vaccines that expired and were destroyed at national level due to hesitancy. By 26 December 2021, only 4.0% ( $n=8\ 538$ ) of people were fully vaccinated, although the target was 225 219 (COVID-19 daily information update, Health Management Information System, Phalombe District Health Office, December 2021 – unpublished, but available from [andrewkaphamtengo@gmail.com](mailto:andrewkaphamtengo@gmail.com) or [mtuwatereza@gmail.com](mailto:mtuwatereza@gmail.com)). However, despite the vaccine hesitancy, the district intensified community sensitisation and awareness to address the challenges faced.

In this qualitative study, we explored community members' perceptions of the COVID-19 vaccine and reasons for refusing the vaccine in Phalombe District.

## Methods

### Study design

This was an exploratory, cross-sectional study employing a qualitative methodology. We purposefully selected two traditional authorities (TAs) that had known low uptake of the COVID-19 vaccine.

### Study setting and participants

This study was conducted in the Nazombe and Nkhumba TAs in Phalombe District. The district is situated in the south-eastern part of Malawi and shares boundaries with Mulanje to the south and west, Zomba to the north and Mozambique to the east. Most inhabitants belong to the Lomwe tribe, who largely depend on domestic farming.

Fifty-eight people participated in focus group discussions (FGDs), of which each had 8 - 12 participants. The FGD participants included religious leaders, traditional leaders, traditional healers and ordinary community members, both men and women, who were aged >18 years. In each TA, we randomly selected three villages, resulting in six villages where data were collected. In each village, we conducted one FGD and four in-depth interviews (IDIs). The IDI participants did not take part in the FGDs and were purposefully selected based on their roles in the community: they were traditional leaders, religious leaders or volunteer community health workers. We purposefully sampled and included all members of the community who had ever heard of COVID-19 disease and the COVID-19 vaccine. We also included people who had only received the first dose of AstraZeneca vaccine and who had missed the second dose when it was due.

### Data collection and management

We conducted FGDs using a structured interview guide that was followed by probing questions to reach an in-depth understanding of the topic. The interviewers were equipped with techniques on how to pose probing questions. For IDIs, we used an open-ended questionnaire. Interviewers were not allowed to ask leading questions. In total, we conducted six FGDs and 19 IDIs. We originally planned to conduct 24 IDIs, but we reached data saturation after the 19th interview. We used two voice recorders during each session so that we did not miss any information in case one of the voice recorders malfunctioned. The interviewers obtained informed consent from each participant before recording the sessions. The data were entered into a database using a password-protected computer.

### Data analysis

We listened to the recordings of the interviews before transcribing

the data in Chichewa. The transcriptions were later translated into English by an expert from the Department of Languages at the University of Malawi. We read the transcriptions several times to familiarise ourselves with and explore the themes emerging from transcriptions and memos, and coded the emerging themes. The main themes were aligned with the study objectives. The main ideas from each participant were isolated and assigned to the relevant theme. The data were then imported into NVivo 12 (QSR International, USA) for final analysis.

## Results

We conducted 19 IDIs and six FGDs. In total, the study had 65 participants (31 men and 34 women), ranging from age 18 to 65 years, of whom the majority had primary school education. The results were grouped into the following themes: information resulting in vaccine refusal and hesitancy; contextual cultural beliefs affecting the decision whether to be vaccinated; methods of communicating information about COVID-19 vaccines to communities; and methods to improve COVID-19 vaccine uptake. We present findings from the IDIs and FGDs together. The themes are supported by relevant quotes.

### Information resulting in vaccine refusal and hesitancy

Community members believed some of the misinformation and myths surrounding the COVID-19 vaccine that were spread through social media such as WhatsApp and Facebook. A female participant reported:

'I have heard that those vaccinated will die in two years [aziama magazi] as their blood will be clotting as time goes.' (FGD 1, participant 9, aged 26)

A male participant reported:

'I cannot be vaccinated, I have heard that the vaccine can suck one's blood and eventually die.' (IDI, participant 14, aged 19)

Some community members were afraid to receive the COVID-19 vaccine because they believed that the vaccine may cause permanent infertility. One participant believed that vaccinated people will no longer bear children as they will be sterile. A male participant reported:

'I have heard that those who will be vaccinated will no longer have kids in future as they will be sterile.' (IDI, participant 1, aged 38)

### Contextual social and cultural beliefs affecting the decision whether to be vaccinated

Most of the participants considered COVID-19 to be a disease of rich people, and that poor people did not need to be vaccinated. A female participant reported:

'COVID disease is for rich people and you can see that the ones dying are the rich, so I do not see a reason for getting the vaccine.' (IDI, participant 14, aged 61)

Some participants associated the name 'coronavirus' with name of a cross, the holy symbol used in many Christian churches. A male participant reported:

'The disease is an indication of the end of time as the name of the disease is in our Bible, as a result no need to be vaccinated as you might be seen as someone against the words of God.' (FGD 6, participant 2, aged 48)

Some religious leaders discouraged their followers from taking the COVID-19 vaccine because they thought that the disease and the vaccination were satanic. Another male participant reported:

'Our church leaders prohibit us from taking part in anything related to COVID-19 as well as vaccination, because the disease is satanic in nature.' (FGD 3, participant 11, aged 54)

Some participants believed that the vaccine did not protect from severe COVID-19 disease. Their faith in the COVID-19 vaccine was lessened by the recommendation that vaccinated people should still wear masks and wash their hands. This was reported in both FGDs and IDIs. A female participant reported:

'I do not think that the vaccine does protect against COVID-19, I have seen those that have been vaccinated wearing face masks.' (IDI, participant 4, aged 29)

Another female participant reported:

'Mmmhhhh, I think it's waste of time, I mean why should I waste my time being vaccinated, yet those who have been vaccinated are still wearing masks and frequently washing hands like everyone else?' (FGD 2, participant 1, aged 32)

Participants did not mention any cultural beliefs that prevented them from accepting the COVID-19 vaccine. We tried to probe on cultural beliefs, but no answers were forthcoming that seemed to represent barriers to vaccine uptake.

### Methods of communicating information about COVID-19 vaccines to communities

When we explored which means of communicating COVID-19 vaccination messages were preferred by participants, various methods of communication emerged. Most participants said that they would believe information passed to them through their community leaders, including TAs, group village headmen and village headmen. A male participant reported:

'Achimwene [my brother], as the situation is about COVID-19 vaccination, I can only believe in information coming from our traditional leaders especially our TA here, other than health workers.' (FGD 1, participant 6, aged 47)

Another male participant reported:

'Eeeh! It is difficult to trust everyone on COVID-19 vaccine, we have been misled and we are living in fear, possibly I can trust information passing through our village headman.' (FGD 3, participant 12, aged 26)

Interestingly, some participants reported that they would only trust information about COVID-19 vaccination if it was provided by someone who had been infected and treated, had recovered and had also been vaccinated. This was reported in some of the FGDs. A female participant reported:

'We have those who have suffered from the disease and if I can hear messages from them then I can believe, unlike those who just give information based on hearsay.' (FGD 5, participant 8, aged 18)

Participants in the FGDs had different preferences for communication of vaccine information compared with IDI participants. Most of the IDI participants mentioned that they thought healthcare workers would be a reliable source of information. A male participant reported:

'Mmmmm achimwene [my brother], the right information I can trust is that one from health workers only. However, it is only sad to note that even some of the health workers are not vaccinated and this erodes our trust as well.' (IDI, participant 18, aged 53)

Another male participant reported:

'Although things are out of hand with COVID-19-related issues including vaccine but still more I can only believe on something said by a health worker as they are the ones trained in that field.' (IDI, participant 7, aged 30)

Some participants mentioned that they preferred the mobile communication van, their fellow community members and volunteers as reliable sources of COVID-19 vaccine information. A female participant reported:

'I can believe in information delivered through the mobile vans, I think those people cannot lie to us.' (IDI, participant 10, aged 21)

Another female participant reported:

'If my fellow community members, especially those vaccinated, can give out COVID-19 vaccine information, then I can trust them as they cannot betray us.' (IDI, participant 4, aged 44)

Another female participant indicated:

'Let the health officials use volunteers in our community to deliver rightful information about the vaccine to us and we can believe them.' (IDI, participant 19, aged 18)

### Methods to improve COVID-19 vaccine uptake

We explored participants' suggestions for improving COVID-19 vaccine uptake. Participants suggested that vaccine uptake could be improved through community sensitisation, use of role models, vaccinating traditional leaders in public places, service integration, and using a single-dose COVID-19 vaccine vial.

### Community sensitisation and engagement meetings

Most participants mentioned that vaccine uptake could be improved through community sensitisation and engagement meetings. Participants reported that most community members were not aware of the benefits of the vaccine, because vaccinated people were still using preventive measures. Participants also reported that most community members believed information shared through social media, and that this information needed to be counteracted by engaging with correct and accurate information about the COVID-19 vaccine and its benefits. A female participant reported:

'I know that some of the vaccines like polio do prevent someone from catching the disease but am wondering with this vaccine. Those vaccinated are still putting on face masks, to me this is an indication that the vaccine has no benefit at all, hence let those who know about the benefits of the vaccine tell us.' (FGD 6, participant 3, aged 38)

Another female participant reported:

'Rumours and myths should be cleared, the issues surrounding the vaccine should be well explained as why those who have been vaccinated can also get sick from the same COVID-19.' (FGD 3, participant 8, aged 39)

In addition, a male participant reported:

'I hope if they can use mobile vans and drama groups to educate people here on the benefits of the vaccine, people can start getting it.' (IDI, participant 9, aged 26)

### Use of role models

Some participants mentioned that role models should include people who had been infected with the virus and received treatment, and had also received the COVID-19 vaccine. Role models should

include healthcare workers. Community members should be able to ask questions and receive real information from role models, which may reduce fears and encourage vaccine uptake. A male participant reported:

'Ayi ndizobvuta [it is not easy] for me just to wake up and go for COVID-19 vaccination, at least if I can see someone who was once infected, treated and also vaccinated giving testimony of the benefits of the vaccine then I can go and get vaccinated, otherwise I cannot go.' (FGD 1, participant 5, aged 27)

A female participant reported:

'If people could see the vaccinated people still living, coming out to testify, I hope those not vaccinated can be motivated.' (IDI, participant 12, aged 48)

Another female participant reported:

'Some of the health workers in our areas have not been vaccinated including their family dependents. This erodes my trust regarding vaccine safety, efficacy and effectiveness. I will only get vaccinated if all the health workers in my area get the vaccine as well.' (FGD 3, participant 9, aged 31)

#### **Vaccination of community leaders in a public place**

Participants suggested that vaccine uptake could be improved if community leaders were vaccinated in a public place in view of community members. Participants suggested that they would be motivated and less afraid, and have fewer concerns related to COVID-19 vaccination. A female participant reported:

'I can only get vaccinated if I can see one of our leaders here being vaccinated in full view of the community members.' (IDI, participant 14, aged 41)

A male participant said:

'I wonder where do our community leaders gets the vaccine, why don't they come and get vaccinated in our presence so that we can trust that the vaccine is real, I think there is something being hidden here [pali za chinyengo].' (FGD 1, participant 11, aged 59)

#### **Service integration and availability of a single-dose COVID-19 vaccine vial**

Participants suggested that service integration and availability of a single-dose COVID-19 vaccine would improve vaccine uptake. Participants mentioned that some people travel long distances to access health facilities, while other people depend on outreach clinics to access health services such as immunisation for children. Integrating COVID-19 vaccination into these outreach clinics may allow more people to be vaccinated. Participants expressed concerns that some people who wanted to be vaccinated were sent away because healthcare workers could not open a vaccine vial for just one person (each vial contained 8 - 10 doses of vaccine, and opening for just one person would lead to vaccine wastage). People were told to leave their contact numbers so that they could be called when enough people had booked. A female participant reported:

'The health facility is far away from here and one needs to have transport money to access services. If health workers can visit us here with the vaccine, the same way they are doing with child immunisation, then we can have a chance to get vaccinated.' (IDI, participant 7, aged 25)

Another female participant reported:

'I understand people are being sent back because the vial cannot be opened for one or few people and they are told that they will be

called once enough people have been booked, this discourages some of us to go and get the vaccine.' (FGD 6, participant 10, aged 57)

## **Discussion**

This study took place during the second phase of Malawi's vaccination campaign. We investigated people's perceptions of the COVID-19 vaccine to develop immediate recommendations to improve COVID-19 vaccination uptake in Phalombe District. In this study, we found that participants believed the information being circulated on social media, including that the vaccine caused blood clots and possible infertility. Religious leaders discouraged people from receiving the COVID-19 vaccine. Participants suggested that vaccine uptake could be improved by effective community engagement, by role models who advocate the vaccine, and by integrating COVID-19 vaccination into community outreach services.

We live in a modern world where new technologies and social media platforms have resulted in a flood of publicly accessible information. False information on the COVID-19 vaccine may circulate through rural communities. Community engagement efforts should be directed at sensitising the community on the need for vaccination<sup>[17]</sup> against COVID-19 disease so that people may develop positive perceptions.

We found that some people avoided the COVID-19 vaccine on the basis of religious grounds and beliefs. Similarly, in Zambia, Pugliese-Garcia and Heyerdahl<sup>[18]</sup> reported that people were hesitant to take the oral cholera vaccine because of their religious beliefs. We cannot ascertain how the COVID-19 vaccine is associated with religious beliefs, but we assume that inadequate and incorrect information may contribute to this line of thinking. Continuous community sensitisation may increase knowledge and awareness among individuals with little or no education and improve uptake of health interventions.<sup>[19,20]</sup> Religious leaders are considered to be gatekeepers who have access to community members and can deliver health information to their congregations.<sup>[21]</sup> In our study, religious leaders discouraged their followers from being vaccinated. We suggest that health specialists engage with religious leaders so that they can provide accurate messages to their followers.

In Phalombe District, vaccine hesitancy was driven by misinformation circulated on social media. The COVID-19 vaccine was said to cause blood clots and also cause infertility. Similarly, Jimenez *et al.*<sup>[22]</sup> explored community perspectives on COVID-19 mitigation behaviours, testing and vaccines in the black and Latino communities. They reported vaccine scepticism, as some participants did not trust vaccination. Schaler and Wingfield<sup>[23]</sup> reported that the COVID-19 vaccine did not affect the fetus or fertility. Regarding blood clots, Williams and Dienes<sup>[24]</sup> reported that vaccine hesitancy in the UK was linked to concerns over possible side-effects, including blood clots. However, the European Medicines Agency (EMA) indicated that the AstraZeneca vaccine was safe and effective, and that its benefits outweigh the risks of blood clots.<sup>[25]</sup>

Contextual cultural beliefs may influence people's decision whether to receive the COVID-19 vaccine. People in Phalombe District also held certain cultural beliefs that influenced their decision whether to vaccinate. Our study showed that people believed that COVID-19 was a disease affecting rich people. We believe that people may associate COVID-19 with wealth because SARS-CoV-2 originated in a developed country, namely China.<sup>[26]</sup> In Malawi, COVID-19 testing rates are also much higher in urban areas than in rural areas. Phalombe District only has two testing sites, situated around Boma, a village in the district. As a result, more COVID-19 cases were detected close to Boma than in other parts of the district. The testing disparity in Malawi has also resulted in fewer positive cases in rural areas than

in urban or semi-urban areas. People in rural areas therefore perceive that they are at low risk of contracting COVID-19, and associate the disease with rich people living in urban areas. We assume that rural communities did not have access to adequate information regarding the risks and health impacts of COVID-19. In our study, some community members were hesitant to receive the COVID-19 vaccine because many vaccinated people were still using preventive measures. Community members had expected that receiving the vaccine would prevent transmission of or contracting the virus. This is another misconception that needs to be cleared through effective and continuing health education in the community to improve vaccine uptake. Community engagement should emphasise that people who have been vaccinated against COVID-19 can still be infected by and transmit the virus, but are protected against severe disease.<sup>[27,28]</sup>

Uptake of the COVID-19 vaccine may be encouraged through effective communication that rural communities can relate to. In the Phalombe District community, participants suggested that trusted community members could influence the beliefs of other community members. For example, people would trust vaccine information given to them by TAs, group village headmen and village headmen. Similarly, in Liberia, female traditional leaders played a central role in enforcing health regulations during the Ebola outbreak in 2014 and 2015.<sup>[29]</sup> Chimatiro *et al.*<sup>[30]</sup> also reported that community leaders played an important role in addressing HIV and sexual and reproductive health issues in Mulanje, Malawi. We suggest that trusted community members should be involved in giving out health information to the community, which may reduce myths and misconceptions related to the COVID-19 vaccine.

In Phalombe District, some community members said that they would trust information given to them by someone who had been infected, was treated, had recovered and was vaccinated. Participants mentioned that they would value testimonies on experiences with the virus and positive outcomes associated with the COVID-19 vaccine. In HIV healthcare, 'expert clients' include people who are being treated and whose disease is controlled. Expert clients encourage their friends to be tested for HIV and, if positive, to take their medication as prescribed.<sup>[31]</sup> In our study, FGD and IDI participants had different ideas about who such trusted individuals would be. IDI participants suggested using mobile vans and drama groups. In Phalombe District, those strategies have been used regularly in health-related campaigns, but have been less effective in promoting COVID-19 vaccination. We assume that community members have lost their trust in drama groups and mobile vans because of the information circulated on social media. Public health specialists and global health pundits should investigate why community members have lost faith in interventions such as mobile vans and drama groups. While continuing with community engagement and sensitisation, the health system should also ensure that the COVID-19 vaccine be available immediately to people who seek it. All relevant stakeholders should listen to concerns raised by community members and address these to clear fears and myths surrounding the COVID-19 vaccine. The vaccine should be supplied as a single-use vial, which may improve vaccination uptake and minimise wastage.

## Conclusion

The first steps to addressing COVID-19 vaccine hesitancy should include recognising community members' perceptions and misgivings. Modern technology and social media platforms have promoted circulation of information, both false and accurate. Many people in our communities also have to travel long distances to health facilities. The health system needs to ensure that these people receive the vaccine when they eventually reach a health

facility. The supply of vaccine can be improved if the vaccines are packaged as a single dose, which will reduce wastage. We also recommend that COVID-19 vaccine uptake be improved through effective community sensitisation and engagement to dispel myths and misinformation about the vaccine. All stakeholders should be involved in improving vaccination uptake, and community members should be informed that being vaccinated does not prevent one from contracting and spreading the virus, but reduces disease severity. Health information should be shared by trusted community members, including traditional leaders, religious leaders and chiefs.

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