Knowledge, practices and adherence to COVID-19 preventive measures by community members in the Phalombe District Malawi: a cross-sectional qualitative study

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Abstract

Background: The COVID-19 pandemic has strained already struggling health systems in low- and middle-income countries such as Malawi. To slow the spread of the virus, the World Health Organization recommended non-pharmaceutical measures including frequent hand washing, wearing of face masks when in groups or social gatherings and maintaining physical distance. To ensure adequate uptake of these preventive measures, many communities intensified engagement, advocacy meetings and health promotion interventions. In this study, we investigated knowledge, practice and adherence towards COVID-19 preventive measures of people living in the rural community of Phalombe District of Malawi.

Methods: In this cross-sectional, qualitative study, data were collected in focus group discussions and in-depth interviews. Participants were selected from six randomly selected villages under traditional authorities, namely Nazombe, Jenala and Nkhumba from Phalombe District. Data were thematically analysed to identify emerging themes.

Results: Most participants knew about and were aware of, but reported poor adherence to COVID-19 preventive measures. Two major themes emerged, namely, perceived low-risk of COVID-19 and non-adherence to preventive measures. Various sub-themes emerged regarding the use of preventive measures when participating in social gatherings. These sub-themes included knowledge of preventive measures, use of face masks, observing physical distance and hand washing practices.

Conclusion: People living in the rural district of Phalombe District of Malawi were able to identify COVID-19 preventive methods. Participants reported low adherence to preventive methods, which was associated with low perceived risk. Community perceptions and willingness need to be considered when mandating preventive measures for future pandemics.

Keywords: COVID-19, knowledge, preventive measures, NPI, adherence

Introduction

Coronavirus disease (COVID-19) is an infectious disease that has left many countries in financial strain due to the effect it had on the socioeconomic status of the world both directly and indirectly. The incidence of the pandemic grew rapidly with many people becoming affected by either illness or getting quarantined fearing to transmit the disease. There were 657,977,736 confirmed cases globally while 9,453,366 were reported from Africa as of 31 December 2022 (1). In order to arrest the situation, the World Health Organization (WHO) enforced a few preventive measures to address the growing pandemic. Malawi, being one of the low-income countries, was no exception at all; it was equally affected insomuch that schools and workplaces were closed except for the hospitals and other crucial departments.

Malawi is highly dependent on farming and unskilled labour. Therefore, it was difficult to enforce some of the preventive measures which were in place during the pandemic for fear of dying of hunger. It was argued that using measures to contain COVID-19 transmission similar to high income countries was not feasible for the country; and such measures were overruled in court (2,3). In addition, the COVID-19 pandemic strained the already struggling health system in Malawi (4). When the disease was first reported in the Chinese city of Wuhan (5), public health preventive measures were implemented in Malawi (6). Various non-pharmaceutical interventions (NPIs), including hand washing facilities and sanitizers, were placed in markets, banks and shops. Likewise, Phalombe District ensured that hand washing facilities, sanitizers and face masks were distributed in all public places and strengthened health education on the use of these NPIs (3). During the early stages of the COVID-19 pandemic, high fear levels drove most people to voluntarily wash their hands frequently. Many shops had attendants who sanitized every incoming customer. Most people used face masks to cover their mouth and nose to avoid spreading and contracting the virus. People who used public transport were required to wear face masks and have their hands sanitized by drivers (7).

The adherence to NPIs changed when Malawi started reporting cases. In Malawi, relatively few cases were reported per month, with case numbers ranging from three on 30 March 2020 to 650 on 20 July 2020, mostly associated with international travel (8). Cumulatively, the WHO reported that there were 5026 cases in Malawi by August 2020 (2). Few internal transmissions were reported during the second COVID-19 wave (9). As in other African countries, positivity and case fatality rates were relatively low in Malawi when compared against global data (10). However, the case fatality rate for Malawi was on the slightly higher side when the African continent data were analysed (11). This high case fatality rate was attributed to the decreased testing capacity, as not all cases were identified (10,11). We assume that people began to perceive the risk of COVID-19 as low, especially if they had no history of international travel.

Most people in Malawi started abandoning preventive measures both in the urban and the rural areas since the fear of the disease was low. An assumption of this phenomenon can be explained by the Health Belief Model (12), in which people are more likely to participate in preventive measures if they perceive themselves to be susceptible to the threat or when they perceive the threat to be severe. In French Guiana, people's adherence to preventive measures and perception of risk for chikungunya, a mosquito borne disease, changed over time and in response to the perceived prevalence of the disease (13). Similarly, in Democratic Republic of Congo, adherence to hand washing as a preventive measure was most observed in the region which had previously had experienced Ebola virus disease and the community understood the

threat that such pandemics could pose (14). Also face mask wearing was at least being adhered to in Kinshasa, where the morbidity and mortality were high (14).

Some studies show that knowing about disease and prevention methods may be associated with good preventive practices. In Cameroon, authors report of high knowledge (94.4%) of COVID-19, its transmission and increased attitude of health-seeking behaviour; though their practice score for COVID-19 preventive measures was low, that is, 39%, participants would seek traditional health options (15). Contrary, in north-east Ethiopia, knowledge levels on COVID-19 were quite low in Dessie and Kombolcha City (16), which would affect the implementation of preventive practices like the use of NPIs.

Malawi literacy level is low with an estimate of 67.3% by the year 2021. There is a high variation of literacy levels across districts in Malawi with high levels in urban as compared with rural areas (12). Effective health education and promotion could improve health literacy in a population which may reduce internal transmission of disease and other comorbid conditions (17). Health education campaigns to raise public awareness of preventive measures should use clear and shared terminology (18). Effective use of NPIs may help to reduce pressure on facilities by reducing admissions. To prepare for future pandemics, we need to explore the knowledge of people living in rural areas, and how this translates to adherence to suggested NPIs. The objective of this study was to explore the COVID-19 knowledge, practices and adherence to preventive measures of people living in Phalombe District of Malawi.

Methods

Study design

This was a cross-sectional, qualitative study which involved face to face interviews with respondents and focus group discussions. We aimed to explore how the community members in Phalombe District per-ceived the COVID-19 preventive measures, hence chose a phenomenological research study. This study aims to understand the experience or the perception of an individual/participant, but the researcher makes inferences after studying the phenomenon (19).

Study setting and participants

We purposively selected the three Traditional Authorities (TAs) with a low number of COVID-19 testing sites and vaccinated individuals in the Phalombe District in order to achieve the objectives. The selected TAs were Nazombe, Jenala and Nkhumba, with estimated populations of 41,781, 60,193 and 76,439 respectively. The reasons for selecting these TAs are reported in detail by Chimatiro *et al.* (20). The district covers an area of 1633 km^2 and lies to the south-east of Malawi and shares boundaries with Mulanje to the south and west, Zomba to the north and the Republic of Mozambique to the east. Most of the inhabitants belong to the Lomwe tribe, who depend on subsistence farming.

A total of 65 people participated in both focus group discussions (FGDs) and in-depth interviews (IDIs). FGDs were composed of 46 participants with each group having an average of eight participants. Participants included both male and female community members who were older than 18 years of age. We used simple random sampling by writing all the villages in the TA on pieces of paper and putting them in a box. We asked one person to pick one paper at random to get the selected village. We managed to select two villages in each TA in similar

fashion, culminating in six villages. In each village, we conducted one FGD and three IDIs. We purposively selected religious leaders, traditional leaders, traditional healers and ordinary community members to participate in IDIs. These individuals were selected as they are considered to be custodians of customs and we thought they have rich information within their communities. We sampled and included all community members who had ever heard of COVID-19.

Data collection and management

Data collection was conducted from March to April 2022. We conducted a pilot study after training of the interviewers to ensure that they were familiar with the study tools. We used interview guides which were developed based on the study objectives, followed by probing questions to collect data during the FGDs. During FGDs, there were three interviewers who were assigned specific duties. The first interviewer was responsible for asking guide questions and probing for further clarification. The second person was responsible for note taking and also asking follow-up questions in the form of probes. The third person was responsible for note taking and passing on the voice recorders to the study participants. The study guide was prepared based on the study objectives. In IDIs, two interviewers were involved in data collection. All of the interviewers were trained in how to ask a probing question. During IDIs, we used an open-ended interview guide and interviewers refrained from asking leading questions to ensure that we collected rich data. The study participants started giving already mentioned responses after conducting six FGDs and 18 IDIs of the planned 25 IDIs. This is the point when the study reached saturation, and the interviewers therefore stopped conducting further interviews after reaching this point. Each FGD and IDI was recorded using two voice recorders, to avoid data being lost if one recorder developed a fault. The data were entered in-to a database using a password protected computer.

During the data collection, the participants were not coerced to provide information but were encouraged to have their voices heard. The participants gave informed consent during the recruitment process and confidentiality was ensured. The interview/FGD did not have identification of names or people so that the participants would freely share their thoughts.

Data analysis

The recordings of the interviews were repeatedly listened to before being transcribed in the local language, Chichewa, for formalization. Furthermore, we examined the clarification and availability of information that was recorded in the notebooks by interviewers. All the information in the notebooks were included in the final transcription. The transcriptions were translated into English by a language expert from the University of Malawi. For the thematic analysis, we read the transcriptions several times to familiarize ourselves with the data. Similar concepts were grouped to form emerging themes, which were coded. Using the codes, we generated the data into main themes, which were aligned to the study objectives. The main themes generated were named under knowledge, practices and adherence to COVID-19 NPIs. The data were then transferred into NVivo software for final analysis.

Ethical approval

We obtained permission to conduct the study from the Phalombe District Commissioner and the Phalombe Health Research Committee before engaging with the participants. Ethical clearance was obtained from the National Health Sciences Research Committee, Malawi

(21/09/2788). All participants gave informed consent to participate in the study in writing. Those who were unable to write were asked to make a finger print on the consent form after a person of their choice read the consent and agreed to take part in the study. Each participant gave consent to being recorded and for the publication of the results.

Results

Socio-demographic characteristics

We conducted six FGDs ($n = 46$), consisting of both males and females, and IDIs ($n = 19$), with 65 participants in total. The socio-demographic characteristics of participants are shown in Table 1. Participants' ages ranged from 23 to 65 years for both IDIs and FGDs. However, the mean age for IDIs was 48 years (25–65 years with standard deviation (SD) of 13) whereas the FGD participants' mean age was 43 years (23–65 years with SD of 11). Most of the participants had primary school education, 39% and 65% for the IDI and FGD groups respectively. The majority of participants were Christians, 91% and 81% for IDIs and FGDs, as shown in Table 1.

Table 1. Socio-demographic characteristics of study participants during FGDs and IDIs.

Characteristics	**IDI % (*n* = 19)**	**FGD % (*n* = 46)**
Age group		
<30	21.1	17.4
30–39	10.5	34.8
40–49	36.8	21.7
50–59	5.3	21.7
60–70	26.3	4.3
Education status		
No formal education	21.1	17.4
Primary school	36.8	67.4
Secondary school	42.1	15.2
Religion		
Christians	89.5	84.8
Muslims	10.5	15.2
Marital status		
Married	36.8	87.0
Single	63.2	13.0
Gender		
Male	52.6	52.2
Female	47.4	47.8
Role in the community		
Traditional heads	31.6	
Religious leaders	52.6	
Traditional healers	15.8	
Other community members[a]		100.0

[a]Lay community members.
IDI: in-depth interview; FGD: focus group discussion

Themes

Three major themes emerged on knowledge, practice and adherence towards preventive measures about COVID-19. The first theme was risk perception, the second theme was knowledge of preventive NPIs and the third was practices when in social gatherings. Several sub-themes emerged under the second and the third theme, namely knowledge of preventive measures, use of face masks, observing physical distances and hand washing practices.

Knowledge of COVID 19

Risk perception

Participants perceived COVID-19 to be a low-risk disease. Most participants knew the signs and symptoms of COVID illness. A common response from both IDIs and FGDs was that COVID-19 only affects rich people. Many participants stated that older people had greater risk for COVID-19, and that children and younger people do not get sick.

Another participant said:

> 'It is true that COVID-19 is among us, however, majority of those suffering are rich people and not the poor. For instance, here in Phalombe, the disease is only attacking people around the district administrative centre (Boma) where rich people stay.' (A male respondent, businessman, IDI 11.)

Another participant reported that:

> 'I have only heard of COVID-19 affecting old people, and I think children or young ones cannot suffer from the disease.' (A male respondent, herbalist, IDI 5.)

When asked to mention the signs and sympto-ms of COVID-19, most participants mentioned headache, high fever, cough and sneezing. A few participants reported diarrhoea as a sign of the virus.

A participant reported that:

> 'I know that headache, fever and cough are signs of COVID-19.' (A male respondent, community member, IDI 2.)

Almost all participants knew that the COVID-19 was airborne spread.
'You can get COVID-19 when you breathe air contaminated with the virus.' (A female respondent, chair of women group, IDI 7.)

Another participant reported that:

'The virus is spread through air when you are in groups or congested like during weddings, church gathering or when you are using public transport.' (A male respondent, church elder, FGD 1.)

Preventive measures

Most participants had good knowledge of COVID-19 preventive measures. Almost all FGD and IDI participants mentioned at least two or three of the WHO's recommended NPIs, such as the use of face masks, frequent hand washing and practising physical distance at social gatherings.

A participant reported that:

> 'I know the preventative measures like hand washing, wearing of face masks and standing or seating two metres away from your friend.' (A female respondent, village elder, FGD 3.)

Another participant reported that:

> 'We hear through the radio, from health workers and mobile vans that we can avoid COVID-19 by frequent hand washing, wearing face masks and standing two metres away from one another.' (A male respondent, a carpenter, IDI 14.)

Practice of COVID-19 preventive measures during gatherings

Most participants expressed that few people adhered to NPIs during social gatherings. They explained that few people put on face masks, washed their hands or practised social distancing when at funerals, wedding ceremonies, market places, public transport, local dances or sports events. This was a recurring theme during both IDIs and FGDs.

Use of face masks

Most participants reported owning one or more reusable face masks made from cloth but rarely used it. Most participants acquired face masks during free community distribution campaigns. Only few participants had purchased their own face mask.

A participant reported that:

> 'I have more than one face mask in my house although I don't use them during gatherings like funeral.' (A male respondent, businessman, IDI 1.)

Another participant reported that:

> 'I have face masks which I bought when I was in town but I have never used them because I feel so panic and I don't breathe properly after putting it on.' (A female respondent, member of Area Development Committee, FGD 2.)

Another participant reported that:

> 'I have a cloth face mask but I rarely wear it because I do not breathe well when in face mask.' (A male respondent, a farmer, IDI 17.)

Social distancing

Participants indicated that few people practised social distancing when in gatherings. Participants explained that people only practised social distancing in banks and health facilities.

A participant reported that:

> 'When we are at gathering like funeral or wedding, we do not seat away from each other.' (A female respondent, a farmer, IDI 6.)

Another participant reported that:

> 'I was made to observe physical distance when I visited a bank at Phalombe Boma.' (A male respondent, retired officer, FGD 5.)

Hand washing

Participants indicated that it was uncommon to find someone washing hands when at a gathering, including weddings and sports events, without any reason. They indicated that hand washing facilities were always available but that people only washed their hands after going to the toilet or before eating.

A participant reported that:

> 'It is not common to find someone washing hands when at wedding place unless if coming from toilet, or before eating.' (A male respondent, a village head, FGD 8.)

Another participant reported that:

> 'Hand washing facilities are always available during gatherings although we do not use them frequently, unless there is a good reason to do that.' (A male respondent, Group village head, FGD 14.)

Staying at home

We asked participants how they felt about staying home to avoid contracting the virus. Most participants explained that it was impossible for them to stay at home as this might affect their daily living standards. To feed their families, most participants depended on doing small business to supplement their agricultural activities. These participants were mostly men who are considered breadwinners in their communities.

A respondent reported that:

> 'In our community, majority of us depend on small businesses to supplement agricultural activities so that we feed our families throughout the year and it is difficult for us to stay at home because of the COVID-19.' (A male respondent, a businessman, IDI 9.)

Practices when seeking healthcare services

Interestingly, participants described following all NPIs when visiting a health facility for medical attention. Most participants agreed that health facilities were high risk environments for contracting COVID-19 and that they adhered to NPI practices.

A participant reported that:

> 'I always put on face mask and wash my hands whenever I visit a health facility.' (A male respondent, faith-based member, IDI 18.)

Another participant reported that:

> 'Health centre is a likely place where one can get COVID-19 as a result I always wear a face mask and wash hands whenever I go there for treatment.' (A female respondent, community volunteer, FGD 1.)

Discussion

This study used a qualitative approach for an insight and understanding of the literacy, practice and adherence on COVID-19 preventive measures among rural people in Phalombe District of Malawi. The findings of the study showed that participants had good knowledge of the preventive measures that were put in place by the government. Despite having good knowledge, the majority of the participants reported not adhering to those measures. The participants stated that they would adhere to the measures where it was enforced (21), like in the banks and the health care setting. We assume that going to the banks without adhering to the measures meant that the participants would not get access to the services. This directive that was being enforced by the banks was to ensure safety of all users as well as respecting the measures that were put in place by the government (2). Unfortunately, we did not explore this further. Similarly, the participants reported that they followed the measures at the health facilities because the health setting is quite infectious and they were afraid of contracting infections, as one of the participants alluded.

In this qualitative study, we explored the knowledge, practice and adherence to COVID-19 NPIs among rural people in the Phalombe District of Malawi. Evidence suggests that COVID-19 can easily be contained if most of the global population follow the WHO's prescribed COVID-19 preventive methods (22). Despite having good knowledge of these NPIs, some communities do not adhere to the WHO's guidelines for various reasons, as revealed in this study.

In the TAs that were studied from Phalombe District, most community members perceived COVID-19 as low risk despite having high knowledge and awareness of preventive methods. The high knowledge about COVID-19 symptoms and NPIs has been reported in studies from Cameroon (15) and West Africa (23), which were similar to our study. In contrast to Cameroon and West Africa, we found that having excellent knowledge did not necessarily translate into adherence to NPIs. Understanding this gap between knowledge and practice is vital when planning for future pandemics or the next wave of COVID-19. In rural settings, such as the Phalombe District of Malawi, policy makers and health workers need to be sensitive to local conditions to provide health education that changes perceptions of health recommendations,

towards COVID-19 and other public health concerns. A scoping review of 28 studies conducted in 2021 by Nwagbara *et al.* (24) also found that most people in sub-Saharan Africa had good knowledge of COVID-19 but were not always positive about adhering to NPIs.

One of the primary NPIs suggested by the WHO was the use of face masks. Participants suggested that people in the area were reticent to wear face masks in public places, even during the early stages of the pandemic. Participants reported owning one or more face masks at home but mentioned that they rarely used face masks because they struggled to breathe. We cannot dispute or agree with participants' assertions that face masks cause difficulty in breathing but we can assume that people in these areas of Phalombe District have a negative attitude towards wearing face masks. In the Karonga District of Malawi, few people wore face masks, especially in rural areas (25). Likewise, in the Democratic Republic of Congo, Ditekemena *et al.* (14) reported low use of face masks. Even in European settings, in the Netherlands, people reported negative attitudes to wearing face masks in public spaces, where more than 80% of participants reported that they struggled to communicate while wearing face masks (26). Most people in the studied areas have different experiences when wearing face masks, with some people struggling to breathe and others not. The WHO recommended wearing face masks at indoor social gatherings to limit transmission of the virus from infected individuals, especially in communities (27). We suggest that, since face masks may reduce the spread of pathogens, such as SARS-COV-2, in communities, community members should be educated on how best to follow measures, such as selecting appropriate materials for making home-made masks. People with limited risk perception should also be empowered to take NPIs more seriously to prevent the spread of the disease.

The WHO also recommended social distancing to prevent the spread of COVID-19. In our study, most participants did not practise social distancing when in groups and social gatherings, which are mostly held outdoors. They practised social distancing only when in bank halls and health facilities. In addition, the participants indicated that they did not observe social distancing at funeral ceremonies, markets or even at sports events. People's lifestyles and cultural beliefs have an important role in adhering to COVID-19 preventive measures. Most people in Malawi show love and compassion by shaking hands and staying very close to one another in the community. Non-adherence to social distancing was also reported in other areas of Malawi (25) and in Ethiopia and Uganda (28,29). In contrast, a survey in Mozambi-que which sampled mostly urban residents and government workers found a high level of compliance to social distancing guidelines (30). We assume that continuous community engagement, sensitization and awareness of the importance of adhering to NPIs may encourage adherence to NPIs in future pandemics and future waves of the COVID-19 pandemic.

Even though hand washing facilities were acce-ssible, the research participants from the Phalombe District of Malawi rarely cleansed their hands during group events or social gatherings. The Cen-tres for Disease Control and Prevention in the US repeatedly emphasized the importance of frequent hand washing to reduce the spread of the virus (31). However, the public's adherence to hand washing guidelines remains low in many places. Other studies have also reported high non-compliance to hand washing despite good knowledge of its efficacy (32,33). Some studies have attributed non-com-pliance to hand washing to COVID-19 misinform-ation (34,35). Hands are a critical vehicle for tra-nsmission of microorganisms (36), including viruses, especially when infected people come into contact with non-infected people.

Our study had some limitations; we did not explore the literacy level of the participants and did not quantify the magnitude of the participants' knowledge on COVID-19 and the preventive

measures. Fur-thermore, selecting a more representative sample from TAs with low and high vaccination rates to ascertain their COVID-19 knowledge would have been ideal; however, it was hindered by inadequate funding to reach all study sites.

Conclusion

The study participants during March and April 2022 in Phalombe District of Malawi were well-informed about COVID-19 and NPIs, but believed the virus posed little risk. To improve adherence to NPIs, policymakers and healthcare workers should change community perceptions and engage stakeholders. Continual community sensitization, health education and stakeholder engagement are recommended. Further research is needed to investigate solutions to low adherence and identify high-risk groups in rural areas.

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Ethics information

National Health Sciences Research Committee (NHSRC), Malawi (21/09/2788).

Declaration of conflicting interests

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