Community acceptability of public health measures during the coronavirus pandemic in Malawi: a cross-sectional survey of knowledge, attitudes, and practices

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Abstract

Background. The knowledge, attitudes, and practices (KAP) of people during the coronavirus pandemic are pivotal to the uptake of recommended preventative strategies.

Objective. This paper describes the Malawian KAP related to coronavirus and associated public health measures.

Methods. This was a multi-site cross-sectional survey where data was collected through personal one-on-one interviews in nine Malawian districts over 3 weeks (5-25 October 2020). 521 participants (>18 years) were enrolled to answer a questionnaire.

Results. We found that all respondents were aware of the ongoing coronavirus pandemic with the majority using the Radio. 75% of participants displayed knowledge of all key symptoms of coronavirus disease (cough, fever, and shortness of breath) and additionally, the majority of participants (97%) knew enough to take some sort of intervention (calling a hotline or visiting the nearest hospital) if they developed symptoms. Participants also demonstrated a high perception of the risk of coronavirus, where >60% believed to be susceptible to the coronavirus under the current preventative measures, and >50% believed they would die from the infection. Communities displayed a high perceived effectiveness of all preventative measures, with "hand hygiene using soap and water" being perceived as effective by the majority of respondents. Although the majority of the participants (>80%) were willing to self-isolate at home, various barriers to home isolation were raised which would ultimately influence their ability to do so.

Conclusions. Baseline community psychosocial and behavioral information which influence the adoption of public health measures in Malawi has been highlighted alongside recommendations for best practices.

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Key words: COVID-19, humans, cross-sectional studies, Malawi.

Acknowledgments: the authors acknowledge the respective District Health Offices and data collection teams for identifying the participants to take part in this study. The authors further acknowledge the study participants for taking the time to share their views about the pandemic with us.

Contributions: RC, conceptualized the study, performed data management, and wrote the initial draft of the manuscript; HHT, performed statistical analysis and helped with the revision of the manuscript; CS, CM, helped with the study conceptualization, direction, and revision of the manuscript. All the authors approved the final version to be published.

Conflict of interest: the authors declare no potential conflict of interest.

Funding: this work was supported by the Malawi Ministry of Health.

Availability of data and materials: the data that support the findings of this study are available on a public repository, Mendeley Data, found at the following link: https://data.mendeley.com/datasets/7w3469hnsj/draft?a=1de959b3-429d-4d7b-a6ce-f90c83f3ae04

Received for publication: 5 September 2023
Accepted for publication: 5 November 2022.

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Journal of Public Health in Africa 2023; 14:2314
doi:10.4081/jphia.2023.2314

Introduction

The novel coronavirus was officially named "Severe Acute Respiratory Syndrome Coronavirus 2" (SARS CoV-2) by the International Committee on Taxonomy of Viruses. The coronavirus Disease 2019 (COVID-19) encompasses symptoms and signs similar to many other respiratory diseases.[1,2] Patients typically present with symptoms such as fever, cough, dyspnea, and myalgia.[2] Following its unpredictable spread to countries outside China, COVID-19 was declared a "Public Health Emergency of International Concern" (PHEIC) on 30 January 2020 and subsequently characterized as a pandemic by the World Health Organization (WHO).[1]

The COVID-19 pandemic, a major global health burden, currently has over 511 million confirmed cases and over 6 million attributable deaths as of the 1st of May 2022.[3] The experience in all countries to date is an immense pressure on national health systems, with an increased demand for intensive care beds and related resources (such as oxygen).[4] This pressure is more pronounced in low-income settings where resource capacity is lowest.[4] One of the strategies available for countries to minimize the incidence of cases, thereby reducing the burden faced by the health system, is the adoption of non-pharmaceutical interventions (NPIs). These NPIs are actions, apart from getting medicine or vaccinated, that people and communities adopt to slow the spread of an illness such as COVID-19.[5,6] Social distancing, cough hygiene, and hand hygiene with soap and hand sanitizers are all examples of non-pharmaceutical interventions recommended by the WHO.[6]

Following a COVID-19-prompted declaration of a National State of Disaster in March 2020,[7] Malawi also instituted NPIs to minimize disease transmission. These included strict social distancing, thor-

ough hand, and respiratory hygiene, intensified border screening, and closure of schools. Additionally, in accordance with the National Public Health Act,[8] the Minister of Health of Malawi endorsed a nationwide lockdown which was intended to take place for a 21-day duration.[9] However, due to a widespread outcry by the population of Malawi against a lockdown and a subsequent court-ordered suspension on its implementation, Malawi is one of few countries that did not subscribe to this intervention amidst the increasing fatalities attributed to COVID-19. The success of NPIs heavily relies on the intrinsic psychosocial phenotype of the populations adopting them. According to the Health Belief Model,[10] a theory that describes which factors influence health behavior in people, health behavior is described as a balance between the perceived threat of a disease, the perceived benefits of adopting preventative actions against a disease, and the perceived barriers of adopting those actions. With reference to this model, the inability to adopt beneficial health behavior alludes to an imbalance in the knowledge or perception of disease and preventative action. This imbalance can be best described through knowledge, attitudes, and practices (KAP) assessment studies.

A COVID-19 KAP survey conducted in Kenya[11], in March 2020, with the aim of describing the knowledge levels and prevailing attitudes of Kenyans living in informal settlements, showed that despite 97% of participants understanding basic information about COVID-19, misinformation regarding specific symptoms was still evident in the majority of respondents. In this KAP survey, younger participants displayed a lower perceived risk of COVID-19 and additionally, the majority of participants (74%) did not think the coronavirus was highly transmissible. The misinformation by Kenyans hugely influenced their adoption of important COVID-19 prevention behaviors. Ultimately, this KAP assessment emphasized important focus areas for the Kenyan Ministry of Health to adopt during COVID-19 mitigation strategies. Other KAP assessments conducted in the wake of the COVID-19 pandemic in HICs,[12,13] such as China and the United Kingdom, emphasized that the ability to adopt and comply with certain NPIs is lower in the most economically disadvantaged in society, therefore urging their governments to implement appropriate social and economic policies. While studies on the KAP in relation to COVID-19 are available, these studies are mainly context-specific, thus adoption of recommendations in other countries, like Malawi, is not always feasible. The primary aim of this survey is to describe the baseline COVID-19 psychosocial and behavioral attributes of Malawian communities. Information from this study will bridge the information gap on the factors which are influencing the success of NPIs in Malawi.

Materials and Methods

Ethical considerations

The study was approved by the National Health Sciences Research Committee (NHSRC), an Institutional Review Board of the Ministry of Health of Malawi (NHSRC Protocol No.20/08/2598). This study conformed to the ethical guidelines in the Declaration of Helsinki. Written informed consent was obtained from all participants.

Design

This was a cross-sectional survey that collected data through personal one-on-one interviews conducted in communities from nine districts in all three regions of Malawi: Blantyre, Lilongwe, Mangochi, Mzimba, Chitipa, Zomba, Chikwawa, Dowa, and Nkhatabay. The survey was conducted between 5 October 2020 and 25 October 2020.

Study population

Districts were selected for inclusion using the risk classification system adopted in the National COVID-19 Preparedness and Response Plan for the period March to June 2020.[14] This risk classification system was based on the presence of an international airport and the volume of people traveling from high-risk transmission areas into the district of interest. Nine districts were included, each belonging to one of the three categories of risk. “Category 1” districts (Blantyre, Lilongwe, and Mangochi) were those with international airports and a potential of daily passengers from COVID-19-affected countries. “Category 2” districts (Chitipa and Zomba) were areas with a high volume of travelers using ground crossing routes from other affected countries. “Category 3” districts (Chikwawa, Dowa, and Nkhatabay) were areas classed to have the risk of local transmission only. Data collection officers were identified through the respective District Health Offices of each of the nine aforementioned districts.

Participants were resident adults of the communities in the selected districts who were 18 years and older, and who consented to taking part in the survey.

Study tool

The Likert scale-based questionnaire used here was adapted from another one in a similar study conducted in Hong Kong.[12,15] This questionnaire had four components: i) socio-demographic characteristics; ii) risk perceptions towards COVID-19; iii) preventive behaviors; iv) willingness and ability to self-isolate.

Socio-demographic characteristics consisted of sex, age, ethnicity, marital status, caring responsibilities, area of residence, and socio-economic status (SES). SES was assessed using five indicators: education level, employment status, household income, savings, and household tenure.

Risk perceptions towards COVID-19 were measured by perceived susceptibility and perceived severity. Susceptibility was measured by asking respondents about the perceived likelihood of being infected with COVID-19 under the Government’s current preventive measures. Severity was measured by asking respondents about the perceived seriousness of symptoms if they were infected with COVID-19.

Preventive behaviors included information on perceived effectiveness and actual adoption of preventive behaviors (to protect oneself and others), to prevent both contracting COVID-19 and onward transmission, and were collected under three categories: i) hygiene practices (wearing a face mask, washing hands more frequently with soap and water, using hand sanitizer more regularly, covering nose and mouth when sneezing or coughing); ii) travel avoidance (travel to affected countries and travel to areas inside and outside Malawi, regardless of whether they were affected); iii) social distancing (avoiding public transport, social events, going out in general, going to the hospital or other healthcare settings, crowded places, and contact with people who have a fever or respiratory symptoms).

Study procedures

Data were collected through personal one-on-one interviews, where data collectors interviewed participants found in communities. Participants were identified using systematic sampling where the 3rd participant was selected for enrolment.

Sampling

Sample size calculations were based on the findings of a similar study from Kenya[11] which found that the probability of having knowledge of the novel coronavirus disease was 97%, with a 26% proportion of survey non-response. Thus, at a 95% confidence

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interval, a limit of precision of 5%, and a design effect of 1.0, the calculated sample size was 57 participants per district, giving a total of 510 participants.

Statistical analysis

The primary study objective was to investigate the knowledge, perceptions, and behaviors towards the COVID-19 pandemic in the Malawian community. The secondary objective was to investigate the barriers to the uptake of COVID-19 preventative measures in this community.

Statistical analyses were performed using R (version 4.0.0), 2020 (Vienna, Austria: R Foundation for Statistical Computing), and Stata. Participant distribution was described using mean and standard deviation for numerical data, and proportions for categorical data. Baseline characteristics were compared between males and females using Chi-square tests and Fisher's exact tests. Perception was scored numerically from 1 to 5 denoting one of the following responses respectively: strongly disagree, disagree, neutral, agree, strongly agree. The scores were summed up and a multivariate regression analysis was used to examine factors associated with a high perception score (defined as a score of 45 to 60).

Results

Baseline characteristics

Table 1 describes the baseline characteristics of the participants who took part in the survey. A total of 521 participants were interviewed, 98.8% (507/521) of whom were Malawian nationals. The overall proportion of women was 53.9% (281/521). The commonest age group of the respondents was 25-34 years (43.1%, 224/521). There was no significant difference in the age distribution between male and female respondents.

Most of the participants (88.2%, 480/521) had at least some level of education, though only one in five participants (21.6%, 112/521) had had some tertiary level training. The proportion of respondents who were unemployed was 27% (137/521), and female respondents had a significantly higher proportion of unemployed individuals (36.1%, 97/281) compared to male respondents (16.9%, 40/240). Commonly, participants were unable to work from home (46.3%, 224/521), amongst whom there were significantly more males (55.2%, 123/240) than females (38.2%, 99/281).

Most participants (70.6%, 357/521) had very good self-reported health, with only one in five (19.3%, 99/521) participants reporting having a chronic non-communicable disease. The commonest non-communicable disease reported was hypertension (6.15%, 32/521) followed by asthma (4.2%, 22/521). There was no significant difference in the prevalence of self-reported chronic diseases between males and females, though males were more likely to report very good health (75.4%, 175/240) than females (66.5%, 181/281).

Information exposure

All respondents were aware of the ongoing COVID-19 pandemic. Table 2 summarises the sources of information on COVID-19 among the study participants. The radio was the main platform [overall proportion of 32.9%, 95%, confidence interval (CI) 30.4-35.6%] through which participants gained information on COVID-19 across all age ranges and sexes. Other common sources of information were family and friends (22.3%, 95% CI 20.1-24.7%), television (17.4%, 95% CI 15.4-19.7%), and social media (15.3%, 95% CI 13.4-17.4%). Less than 1% of all respondents (0.8%, 95% CI 0.4-1.5 %) would have heard about COVID-19 from either a health facility, their local church, an information car, or their local Chief. Figure 1 additionally shows the sex- and age-stratified information sources of COVID-19.

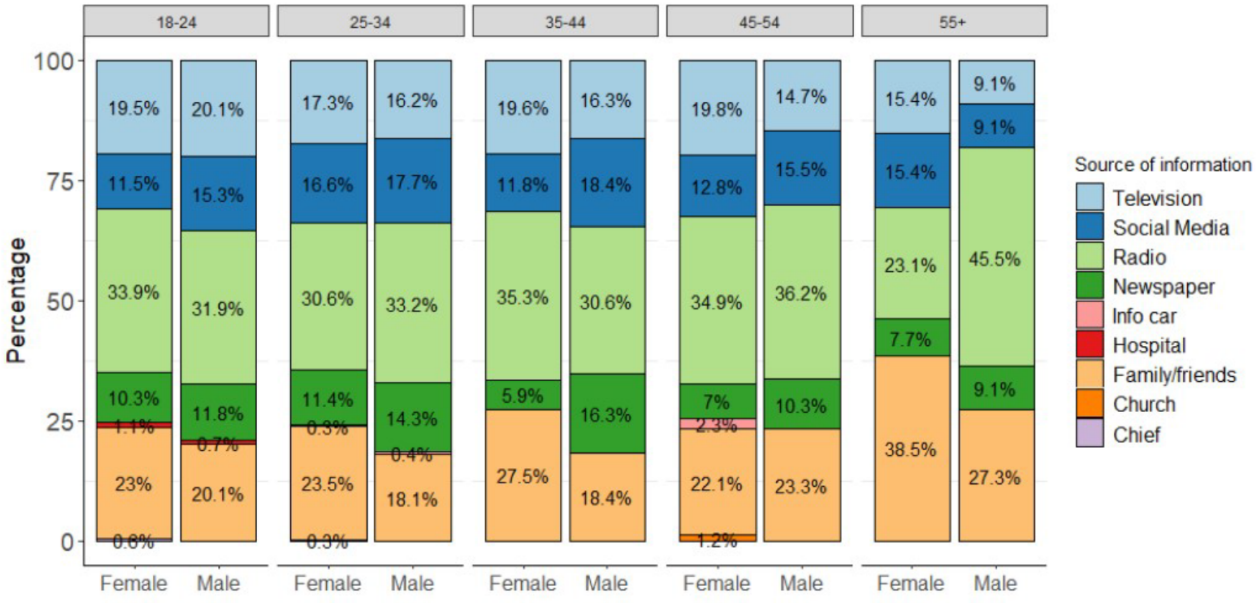

Figure 1. Age- and sex-stratified sources of information on COVID-19.

Table 1. Baseline characteristics of survey participants.

Characteristics	Overall N=521	Female n=281	Male n=240	P value
Age group (%)				0.493
18-24	128 (24.6)	74 (26.6)	54 (22.5)	
25-34	224 (43.1)	120 (43.2)	103 (42.9)	
35-44	44 (8.5)	24 (8.6)	19 (7.9)	
45-54	88 (16.9)	40 (14.4)	48 (20.0)	
55+	36 (6.9)	20 (7.2)	16 (6.7)	
District (%)				0.141
Blantyre	60 (11.5)	40 (14.2)	20 (8.3)	
Chikwawa	60 (11.5)	34 (12.1)	26 (10.8)	
Chitipa	57 (10.9)	34 (12.1)	23 (9.6)	
Dowa	57 (10.9)	22 (7.8)	35 (14.6)	
Lilongwe	57 (10.9)	30 (10.7)	27 (11.2)	
Mangochi	59 (11.3)	34 (12.1)	25 (10.4)	
Mzuzu	57 (10.9)	31 (11.0)	26 (10.8)	
Nkhatabay	55 (10.6)	25 (8.9)	30 (12.5)	
Zomba	59 (11.3)	31 (11.0)	28 (11.7)	
Nationality (%)				0.816
Malawian	507 (98.8)	270 (98.5)	235 (99.2)	
Non-Malawian	6 (1.2)	4 (1.5)	2 (0.8)	
Marital status (%)				0.242
Married	322 (62.2)	167 (59.9)	154 (65.0)	
Separated	42 (8.1)	27 (9.7)	15 (6.3)	
Single	137 (26.4)	73 (26.2)	63 (26.6)	
Widowed	17 (3.3)	12 (4.3)	5 (2.1)	
Education status (%)				0.083
None	61 (11.8)	41 (14.6)	20 (8.5)	
Primary level	115 (22.2)	67 (23.8)	48 (20.3)	
Secondary level	231 (44.5)	118 (42.0)	112 (47.5)	
Tertiary level	112 (21.6)	55 (19.6)	56 (23.7)	
Employment status (%)				<0.001
Domestic worker	6 (1.2)	4 (1.5)	2 (0.8)	
Paid employee	158 (31.2)	72 (26.8)	86 (36.4)	
Piece worker	59 (11.6)	22 (8.2)	36 (15.3)	
Retired	3 (0.6)	2 (0.7)	1 (0.4)	
Self-employed	121 (23.9)	64 (23.8)	56 (23.7)	
Student	22 (4.3)	7 (2.6)	15 (6.4)	
Unemployed	137 (27.0)	97 (36.1)	40 (16.9)	
Volunteer	1 (0.2)	1 (0.4)	0 (0.0)	
Able to work from home (%)				<0.001
Don't know	144 (29.7)	99 (38.2)	45 (20.1)	
No	224 (46.3)	99 (38.2)	123 (55.2)	
Yes	116 (24.0)	61 (23.6)	55 (24.7)	
Health worker (%)				0.673
No	414 (82.6)	222 (83.5)	191 (81.6)	
Yes	87 (17.4)	44 (16.5)	43 (18.4)	
Able to study from home (%)				0.273
Don't know	335 (66.1)	189 (68.7)	146 (63.4)	
No	114 (22.5)	54 (19.6)	59 (25.7)	
Yes	58 (11.4)	32 (11.6)	25 (10.9)	
Household income (%)				0.156
<50000	232 (50.8)	133 (55.6)	99 (45.8)	
>500000	8 (1.8)	5 (2.1)	3 (1.4)	
100-250000	77 (16.8)	40 (16.7)	37 (17.1)	
250-500000	29 (6.3)	11 (4.6)	17 (7.9)	
50-100000	111 (24.3)	50 (20.9)	60 (27.8)	
Living arrangement (%)				0.601
Dependent	70 (13.8)	39 (14.4)	30 (12.7)	
Owns house	199 (39.2)	109 (40.4)	89 (37.7)	
Rented house	239 (47.0)	122 (45.2)	117 (49.6)	
Caring responsibilities (%)				0.562
No	107 (21.1)	55 (20.0)	52 (22.5)	
Yes	401 (78.9)	220 (80.0)	179 (77.5)	
Self-reported health (%)				0.023
Average	15 (3.0)	11 (4.0)	4 (1.7)	
Fairly good	116 (22.9)	73 (26.8)	42 (18.1)	
Fairly poor	18 (3.6)	7 (2.6)	11 (4.7)	
Very good	357 (70.6)	181 (66.5)	175 (75.4)	
Chronic diseases (%)				0.224
Asthma	22 (4.2)	12 (4.3)	10 (4.2)	
Cancer	1 (0.2)	1 (0.4)	0 (0.0)	
Cardiovascular	7 (1.3)	3 (1.1)	4 (1.7)	
Diabetes	8 (1.5)	3 (1.1)	5 (2.1)	
don't know	17 (3.3)	12 (4.3)	5 (2.1)	
Hypertension	32 (6.1)	23 (8.2)	9 (3.8)	
None	422 (80.7)	218 (77.6)	202 (84.2)	
Other	14 (2.7)	9 (3.2)	5 (2.1)	
Relative with chronic diseases (%)				0.98
Don't know	49 (9.9)	27 (10.1)	22 (9.6)	
No	330 (66.4)	177 (66.3)	151 (66.2)	
Yes	118 (23.7)	63 (23.6)	55 (24.1)	

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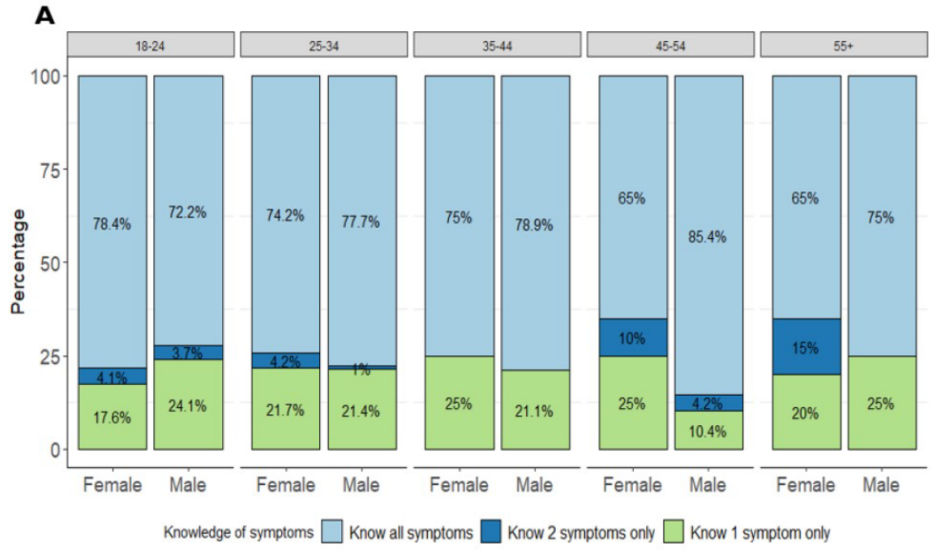
Knowledge regarding COVID-19 symptoms

Figure 2 describes the knowledge of participants on COVID-19 symptoms and interventions when symptomatic. Three-quarters of all participants (75.2%, 95% CI 71.4-78.7%) displayed knowledge of all three key symptoms of COVID-19 (cough, fever, and shortness of breath), though female participants aged 35 and below had higher proportions of those who know all symptoms than older age groups. The highest proportion of knowledge of all symptoms was displayed by male respondents aged 45-54 years (85.4%).

The majority of respondents (97%, 507/521) had an idea of existing interventions that could be sought upon developing any symptom suggestive of a COVID-19 infection. When asked about which intervention was appropriate, 51.6% (270/521) responded "stay-at-home and call a hotline" while 45.3% (237/521) suggested "visiting the nearest hospital".

Attitudes

Responses on the perceived threat of COVID-19 to the study participants are summarised in Figure 3. Overall, 80.6% (420/521) of participants were worried about COVID-19, though only two-thirds (63.3%, 330/521) of the respondents believed that under the current preventative measures, they would most likely get infected. With regards to the severity of the disease they would have if infected with the coronavirus, 50.3% (262/521) believed they may die, while only 34.9% (182/521) believed they may have asymptomatic disease.



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	Number of respondents (%)
Intervention known	
call hotline	270/521 (51.6)
hospital	237/521 (45.3)
don't know	14/521 (2.9)
Knowledge of any intervention	
No	14/521 (3.0)
Yes	507/521 (97.0)

Figure 2. Knowledge about COVID-19 symptoms and intervention. A) Age- and sex-stratified distribution of knowledge about primary symptoms of COVID-19 (i.e., cough fever and breathlessness); B) Proportion of respondents who knew potential interventions if COVID-19 was suspected or if an individual came into contact with a COVID-positive case.

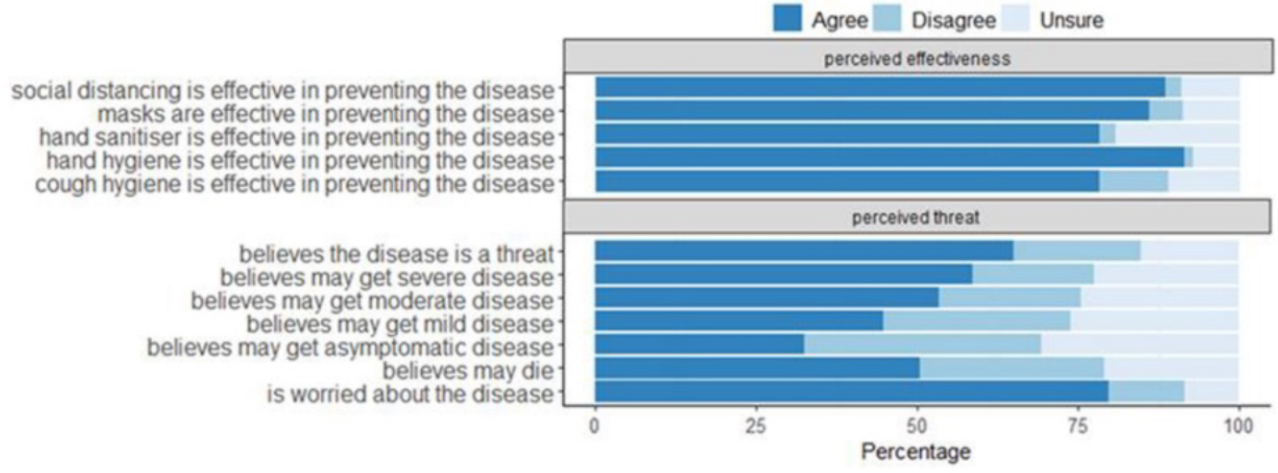

Figure 3. Perceptions about COVID-19 and recommended preventative measures.

Perception of COVID-19 was significantly associated with the district where the respondent resides and the participant's gender (Table 3). The odds of male respondents having a high perception score was 6.3 (95% CI 1.9-21.0) times higher than female respondents. Participants from all other districts apart from Chitipa had higher odds of a high perception score than Blantyre. No other factor demonstrated an association with the perception of the disease.

Preventative measures

Most of the participants believed that the prescribed preventative measures were effective in preventing COVID-19 (Figure 3). Practicing hand hygiene with soap was perceived by the highest number of participants (90.2%, 470/521) as an effective measure. The use of hand sanitizers had the highest number of participants (18.6%, 97/521) who were unsure about its effectiveness in preventing coronavirus transmission. Table 4 displays the number of preventative measures practiced by participants based on their cues to action. Only one participant reported not observing any COVID-19 preventative measures. The majority of participants practiced all five preventative measures (160/521, 30.7%), and mostly reported adopting them for the reason of "preventing the spread of COVID-19 to others" (74/160, 46.2%). Participants who adopted preventative measures because "they comprehended the importance" or were "following friendly advice" had the least number of respondents who adopted all five measures [4/160 (2.5%) and 3/160 (1.9%) respectively]. When asked about adherence to COVID-19 home isolation if infected, 89.1% (464/521) of participants were willing to isolate (Figure 4). Conversely, various barriers to isolation were highlighted. Most [79.3% (413/521)] of the participants believed that isolation would lead to loss of income for the isolated individual, 66.8% (348/521) noted that isolation would make it difficult to get supplies such as food and medicines, 65.5% (341/521) noted that isolation may affect their mental health and 62.2% (324/521) noted that it would be difficult to separate self from others in the household.

Discussion

The findings in this survey demonstrated that individuals in the community displayed adequate knowledge about all three key COVID-19 symptoms and the majority of participants were aware of existing interventions to be taken if any of these symptoms developed. While 51% of the community preferred to "stay at

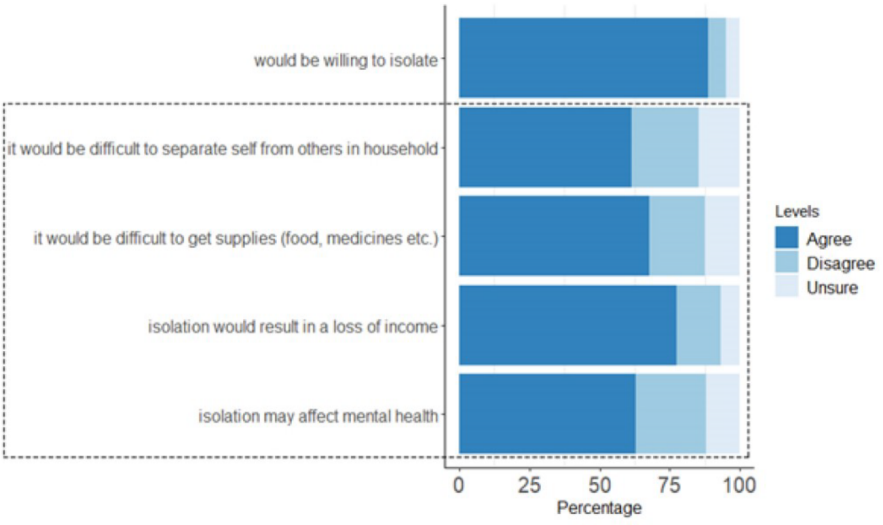

Figure 4. Barriers to adherence to COVID-19 home isolation. Barriers are enclosed in the dotted box.

Table 2. Summary of sources of information on COVID-19.

Source of information	Frequency	Percentage (95% CI)	Cumulative percentage
Radio	416	32.9 (30.4-35.6)	32.9
Family/friends	282	22.3 (20.1-24.7)	55.2
Television	220	17.4 (15.4-19.6)	72.6
Social Media	193	15.3 (15.3-13.4)	87.9
Newspaper	143	11.3 (9.7-13.2)	99.2
Info car	4	0.3 (0.1-0.8)	99.5
Hospital	3	0.2 (0.1-0.7)	99.8
Church	2	0.2 (0.04-0.6)	99.9
Chief	1	0.1 (0.02-0.4)	100
Total	1264	100	100

CI, confidence interval.

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Table 3. Unadjusted univariate odds ratios for potential factors associated with high perception scores.

Factor	OR	Lower CI	Upper CI
Age group			
18-25 yrs.	REF	REF	REF
25-34 yrs.	1.8	0.4	8.1
35-44 yrs.	4.3	0.4	45.3
45-54 yrs.	0.2	0.03	1.1
55+ yrs.	0.1	0.004	0.6
Sex			
Female	REF	REF	REF
Male	6.3	1.9	21.0
District			
Blantyre	REF	REF	REF
Chikwawa	1663.5	145.8	18978.8
Chitipa	5.8	0.5	68.2
Dowa	284.5	24.2	3351.3
Lilongwe	55.7	4.7	655.6
Mangochi	49.9	4.3	575.3
Mzuzu	35.3	3.0	415.5
Nkhatabay	11.7	1.0	137.6
Zomba	31.1	2.7	357.9
Education level			
None	REF	REF	REF
Primary level	6.1	0.7	54.8
Secondary level	5.8	0.8	42.8
Tertiary level	6.0	0.7	54.6
Employment status			
Domestic worker	REF	REF	REF
Paid employee	8.0	0.03	2564.1
Piece worker	28.0	0.1	10759.4
Retired	5.3	0.0*	97298.1
Self-employed	2.5	0.01	821.7
Student	5.7	0.01	3421.5
Unemployed	2.0	0.01	658.5
Volunteer	1530.5	0.0*	5.0E9**
Household income			
<50000	REF	REF	REF
>500000	1.2	0.01	157.5
100-250000	1.4	0.2	8.1
250-500000	2.8	0.2	40.5
50-100000	2.5	0.5	12.0
Home owner			
No (dependent)	REF	REF	REF
No (rent)	3.5	0.1	23.3
Yes	0.9	0.1	6.3
Caring responsibilities			
No	REF	REF	REF
Yes	0.5	0.1	2.1

OR, Odds Ratio; CI, confidence interval.

Table 4. Number of measures practiced based on cues to action.

Cue to action	Number of methods practiced (N=521)					
	None n=1 (%)	1 n=68 (%)	2 n=61 (%)	3 n=119 (%)	4 n=112 (%)	5 n=160 (%)
Comprehends importance	0 (0.0)	2 (2.9)	6 (9.8)	3 (2.5)	2 (1.8)	4 (2.5)
Death of relative	0 (0.0)	0 (0.0)	1 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)
Fear of the disease	0 (0.0)	1 (1.5)	6 (9.8)	12 (10.1)	4 (3.6)	6 (3.8)
Following advice	0 (0.0)	0 (0.0)	0 (0.0)	2 (1.7)	1 (0.9)	3 (1.9)
Following government guidelines	0 (0.0)	6 (8.8)	3 (4.9)	12 (10.1)	11 (9.8)	10 (6.2)
Habitual	0 (0.0)	1 (1.5)	1 (1.6)	4 (3.4)	0 (0.0)	0 (0.0)
Has symptoms	0 (0.0)	0 (0.0)	1 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)
No reason given	1 (100.0)	28 (41.2)	8 (13.1)	26 (21.8)	17 (15.2)	29 (18.1)
Prevent getting and spreading COVID	0 (0.0)	1 (1.5)	4 (6.6)	9 (7.6)	7 (6.2)	15 (9.4)
Prevent getting COVID	0 (0.0)	18 (26.5)	19 (31.1)	29 (24.4)	29 (25.9)	19 (11.9)
Prevent spread of COVID to others	0 (0.0)	11 (16.2)	12 (19.7)	22 (18.5)	41 (36.6)	74 (46.2)

home and call a COVID-19 hotline" than "visit the nearest hospital", this preference was a reflection of the WHO guideline that was in effect at the time,[16] urging symptomatic people to "stay at home", especially in light of limited testing capabilities. This division in preferred intervention emphasizes the need for intensified health education programs that disseminate consistent and harmonized information. Furthermore, 10.3% of respondents were unaware of dyspnoea as a symptom of COVID-19, while this percentage is less than that cited by a similar study in Kenya,[11] it highlights the need to re-emphasize symptoms of the disease especially those that indicate severity and need for hospitalization.[17] Additionally, despite showing the majority of individuals utilized radio broadcasts as an information source (with Television broadcasts, social media, and information from family/friends also being common sources), other platforms, namely; Churches, information cars, and chiefs were revealed as underutilized media. It is recommended that these additional sources be explored to aid in wider information dissemination.

We reveal that Malawians displayed a high perceived threat to COVID-19 and are believed to be susceptible to disease as well as being likely to die or develop severe disease requiring hospitalization. This was coupled with a high perceived effectiveness of all the government-advocated COVID-19 preventative measures which were adopted by the majority of respondents. Our findings underscore the effectiveness of interventions in the early phase of the pandemic by the Ministry of Health (MoH) and in accordance with the progress made to date, the next strategy for the MoH depends on re-enforcing the community adoption of public health measures, including vaccine uptake. A major concern highlighted by this study dwells on the barriers to home isolation in individuals who were otherwise willing to isolate, viz. loss of income, difficulty to get supplies such as food and medicines, psychological harm and physical difficulty to separate in the home. These factors are in line with those raised by similar publications,[11,13] and recommend the use of government policies which protect the more socially disadvantaged individuals, in order to mitigate the long-term economic effects of COVID-19.

Limitations

This study has two main limitations. Firstly, the study tool predominantly featured closed-ended questions, therefore, it was difficult to adequately explore the depth of the responses given. Secondly, some participants may have given socially desirable responses in line with government recommendations rather than actual opinions. Additionally, the fast-changing landscape of the COVID-19 pandemic means it is difficult to accurately describe present-day perceptions of the disease. Further studies are thus required to explore attitudes and perceptions of the pandemic with the inclusion of novel measures of prevention and management of the illness.

Conclusions

During communicable-disease epidemics, such as COVID-19 which has no known treatment, the public needs to always adopt precautionary behaviors. This study demonstrates that while knowledge and risk perception of COVID-19 may favor the adoption of public health measures, Malawians experienced barriers that would otherwise hinder their capability to do so.

Our paper provides critical information for the government and public health organizations to utilize when implementing initiatives that are context-specific, as the success of NPIs heavily relies on the intrinsic characteristics of the populations adopting them.

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