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COVID-19 pandemic in Malawi: Did public sociopolitical events gatherings contribute to its first-wave local transmission?



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ABSTRACT

Introduction: The COVID-19 pandemic in Malawi emerged amidst widespread anti-government demonstrations and subsequent mass gatherings. This paper describes the incidence and factors associated with the spread of the COVID-19 pandemic in Malawi.

Methodology: This was a retrospective study of public data analysing geopolitical and immigration activities that occurred between 02 April and 08 September 2020. The Chi-square test of independence was used to tabulate sex and age-related fatality ratios among deaths due to COVID-19-related complications.

Results: The drivers for COVID-19 spread were mass gatherings secondary to the country's political landscape and repatriation of citizens from high-risk areas coupled with minimum use of public health interventions. The prevalence was higher in people aged 50–59 years, males and in urban areas. Men had an increased risk of COVID-19-related deaths (Case Fatality Ratio: 1.58 (95% CI 1.11–2.22)) compared with women. Furthermore, men and women aged ≥ 40 years were 16.1 times and 7.1 times more likely to die of COVID-related complications, respectively. Men aged ≥ 40 years had a 62% increased risk of deaths compared with women of the same age group.

Conclusion: Mass political gatherings and cross-border immigration from high-risk areas were drivers for infection. Males, older age and urban residence were associated with increased COVID-19 morbidity and mortality. To control the spread of COVID-19 there is a need to regulate mass gatherings and repatriation of citizens, and strengthen the use of preventive health interventions. Men, the older age groups and urban areas should be prioritised for COVID-19 prevention strategies.

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Introduction

Cases of the novel coronavirus were first identified and reported in the city of Wuhan, Hubei Province, China in December 2019. The virus began spreading across the globe and by February 2020 it was

named Coronavirus Disease 19 (COVID-19) by the World Health Organization (WHO, 2020). By March 2020, the coronavirus had reached the southern African region when South Africa reported the first case, which was imported from Italy (NICD, 2020). The spread of the disease to Africa raised huge concerns due to its already fragile health systems that are battling the health-related impact of high infectious disease burden, which is devastating for human development and health (Mehtar et al., 2020). Regardless of economic status, a health system's resilience is a key factor in how countries respond to pandemics (Nuzzo et al., 2019).

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Malawi is a landlocked country on the Great African Rift Valley and lies on the western shores of Lake Malawi. It is bordered by Tanzania to the north, Zambia to the west and Mozambique to the east, south and west. The 2018 Malawian population and housing census estimated a population of 18.147 million (NSO, 2019). The country is predominantly rural, having >80% of its population living in rural areas, and has a young population with 54% aged <18 years (NSO, 2019). The healthcare system, which is organized into four levels – community, primary, secondary and tertiary – faces huge challenges due to inadequate health financing and critical human capital shortages (Makaula et al., 2019).

Malawi had its first COVID-19 case on 02 April 2020, which was imported from India (Fiko, 2020). By this time, the Malawian national level response and preparedness included restrictions of public gatherings, visitors entering borders, mandatory hand-hygiene at its borders, and closure of schools (Gadabu, 2020). This was happening amidst political wrangles secondary to a February 2020 ruling by Malawian courts that ruled for a re-run of presidential elections in July 2020 due to irregularities observed in the May 2019 elections (Masina, 2020a). The announcement of the first cases escalated the pre-existing mistrust Malawians had in the then government (AFRO, 2017). Majority of the population's mistrust in government hampered its mitigation efforts, which posed a huge concern for Malawi in navigating the pandemic (Schrade, 2020).

Implementation of COVID-19 lockdown measures in Malawi faced resistance with nationwide demonstrations and a court injunction that stopped it because the plan was unclear, lacked stakeholder involvement, and the majority thought it was unsuitable for the country (Chiuta, 2020; Mehtar et al., 2020). Besides, health service providers went on strike, calling for the provision of personal protection equipment, health risk allowance, increased staff, and provision of transportation (Pensulo, 2020). These events concurrently occurred with mass demonstrations by the general public led by human rights organisations as well as the national judicial department against political interference by the ruling party, forcing the government to conduct a presidential election re-run (Al Jazeera, 2020). Parallel to these national demonstrations, both government and opposition parties were holding mass campaigns for the re-run elections, which were finally held on 23 June 2020 and the ruling party lost to the opposition (Gikandi, 2020), with minimal observance of preventive measures laid out for COVID-19. Even though efforts were sometimes made at political rallies by making handwashing water available, most people did not wear masks or observe any physical distancing, which defeated the basic pandemic control principles (Masina, 2020c).

Concurrently, the Malawian government was repatriating citizens who were stranded in South Africa and other countries due to lockdown measures, which left them jobless and with no access to available aid (ANA, 2020). By August 2020 about 7,000 returnees were registered; 5,000 were from South Africa (UNICEF, 2020a). Due to a lack of readiness of public systems for COVID-19 responses during the initial phase, the quarantine measures put in place for these returnees were poorly managed as hundreds were reported to be absconding from the quarantine shelters, making it difficult to control the disease spread (Masina, 2020b).

The experience of dealing with the COVID-19 pandemic suggests that delays in response and action combined with incorrect messages, non-uptake of preventive measures and ill-advised epidemic control approaches can disrupt even the best public health systems under huge pressure, as seen in Europe and the USA (Govender and Poku, 2020). In Malawi, since the emergence of the COVID-19 pandemic, the occurrence of national events attracting masses of people coupled with not following prevention measures (Masina, 2020c) along with the ill-managed

quarantine of returnees from the then high-risk countries like South Africa compromised the response (Masina, 2020b). Proper quarantine procedures with physical distancing have shown to aid in controlling the pandemic spread (Masina, 2020b). Since the onset of the first case, incidence and mortality rates have been continuously changing alongside various occurrences of political events in Malawi. Therefore, this paper describes the public sociopolitical gatherings and their association with the first wave of COVID-19 transmission in Malawi. The paper further explores other factors that were potentially associated with the increased rate of SARS-CoV-2 infections.

Methods

Study design and data sources

This was a retrospective review of publicly available data on COVID-19 cases generated by the Public Health Institute (PHI), Ministry of Health, Malawi (Malawi, 2020). The PHI runs a COVID-19 national surveillance program in coordination with 46 laboratories in Malawi.

Data analysis

The study used data gathered over 23 weeks from the first confirmed case of COVID-19 on 02 April 2020 to 08 September 2020. COVID-19 incidence and mortality were analysed by age, sex and place of residence. In addition, existing data on events that potentially explained the occurrence and associated increase in caseload were reviewed. Data were analysed using Stata version 15.1 (StataCorp, 2017). The association between sex, age and COVID-19 morbidity and mortality was assessed using Case Fatality Ratios (R). A significance level of $\alpha = 0.05$ was used as a cut-off point to assess significant associations.

Variable definitions and measurements

A confirmed case of COVID-19 was defined as a positive PCR test, as per the set laboratory protocol. The case positivity rate was defined as the proportion of positive tests over total tests conducted $\times 100$. Recovery rate was defined as the proportion of conversion to negative test after originally being positive to PCR test over the total number of confirmed cases $\times 100$. Relative case increase rate was defined as the proportion of the absolute difference between the currently identified numbers of cases less than the previously identified number of cases over the previously identified number of cases. The case doubling time in terms of case days was the number of days it took for COVID-19 cases to double in value. To find this value, the formula $(\ln(2)/\ln(1 + \text{Relative case increase rate} \times 100))$ was used, where $\ln(2)$ is a natural logarithm of 2. The case fatality rate, which was synonymously called 'death rate', was defined as the proportion of people infected with the SARS-CoV-2 who died due to COVID-19 complications.

Results

Characteristics of COVID-19 cases

As of 08 September 2020 Malawi had registered 5,630 (3,849 men, 1,773 women and eight unknown) cases, of which 176 (3%) (136 men and 40 women) died. The majority of these were within the 50–59 years age group.

Figure 1 shows that though there were more COVID-19-reported cases in those aged <40 years, most deaths were reported in the ≥ 40 years age group. The mean age for cases was 36.5 years (SD = 12.9), while the median age for reported deaths was 56 years.

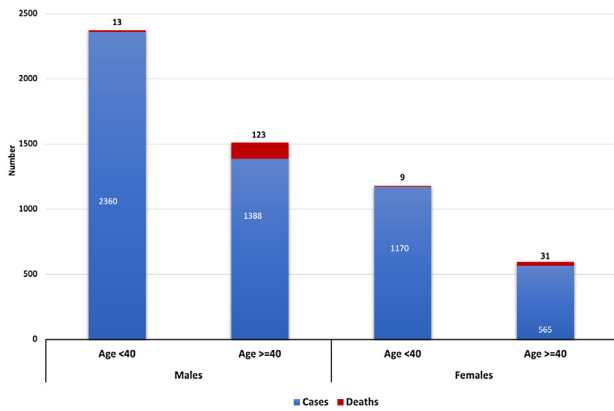


Figure 1. COVID-19 infections and deaths by sex and age with 40-year cut-off point.

Men had 1.58 times higher risk (case fatality ratio (CFR) = 1.58; 95% CI = 1.11–2.22; $\alpha = 0.01$) of dying due to COVID-19-related complications than women. Men aged ≥ 40 years had a 16.09 times higher risk (CFR = 16.09; 95% CI = 9.12–28.38; $\alpha < 0.001$) than younger men aged <40 years. Women aged ≥ 40 years had a 7.13 times higher risk (CFR = 7.13; 95% CI = 3.42–14.88; $\alpha < 0.0001$) than younger women aged <40 years. The risk of death was not significantly different between men and women <40 years ($\alpha = 0.438$), while men aged ≥ 40 years had a 62% increased risk (CFR = 1.62; 95% CI = 1.03–2.37; $\alpha = 0.01$) of death compared with women in the same age group.

Geographical distribution of COVID-19 in Malawi

Fig. 2a,b and c show that COVID-19 was reported in all 28 districts in Malawi. However, the COVID-19 epicentre was the four major cities: Blantyre and Zomba in the Southern region, Lilongwe in the central region and Mzuzu in the Northern region. The recovery, deaths and local transmission rates are shown in the Supplementary figures S1–S3.

Daily cumulative local and imported COVID-19 imported cases

This study also stratified COVID-19 cases by importation and local transmission, as shown in Figure 3. It was established that

before 21 July 2020 there were more imported cases in the country than those occurring through community transmission. Thereafter this picture changed, as the number of imported cases slowed down and a steep rise occurred because of increased community transmission, as evidenced by a steep increase in the number of cases between week 11 and week 20. The mean positivity rate at this time was 17.8% of the total samples tested followed by a decline in the number of cases, as seen in week 20 and evidenced by the mean positivity rate of 8.1%.

COVID-19 case positivity, recovery and fatality rates

The peak of the caseload for the first wave occurred between week 15 (09 July 2020) and week 17 (29 July 2020). However, higher mortality was observed between week 16 (16 July 2020) and week 18 (05 August 2020). On 08 September, a weekly moving average of 8.5 new cases was identified with an average of 178 tests performed. This translated into a 5.05 case positivity rate (Figure 4). The overall CFR was 3.13% (3.54% in men and 2.26% in women).

Social events linked to imported and local transmission of COVID-19 cases in Malawi

The occurrence of COVID-19 incident cases was linked to widespread sociopolitical mass gatherings preceding the presidential elections on 23 June 2020.

General trend overview

As shown in Figure 5, between 1 April and 22 May 2020 the number of daily cases was low; other corresponding days had no cases. However, between 22 May and 05 August 2020 an increase in the number of case was observed with some spikes. Below are details of the sociopolitical events and how they related to some of the observed case numbers.

Presentation of presidential nomination papers to MEC

There were mass gatherings in Blantyre on 06 May 2020 for the ruling and opposition parties’ presidential candidates presenting their election papers to the Malawi Electoral Commission (MEC) (Masina, 2020c). Two days later there was an increase in the number of cases from three to 15.

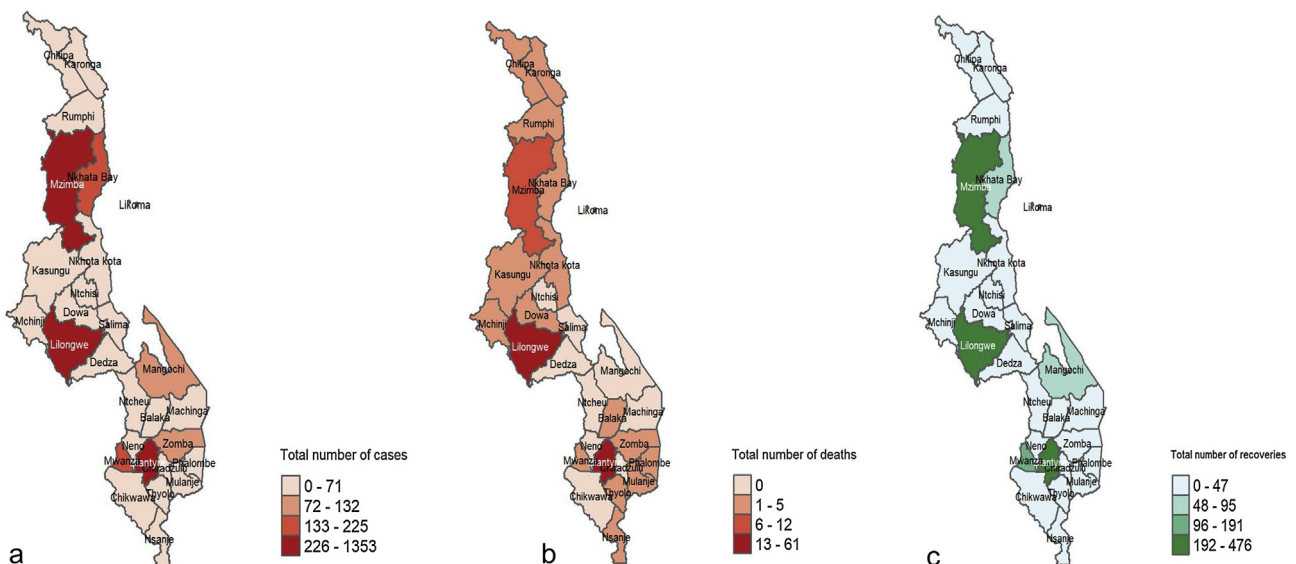


Figure 2. Heat map for national distribution of COVID-19 a) distribution of cases, b) deaths and c) recoveries.

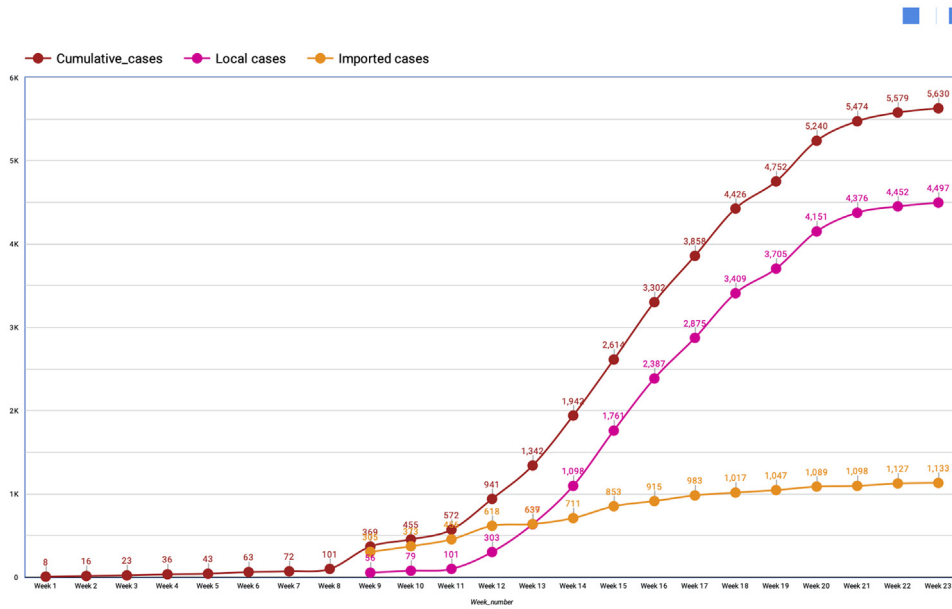


Figure 3. Daily cumulative local and imported COVID-19 cases up to 08 September 2020.

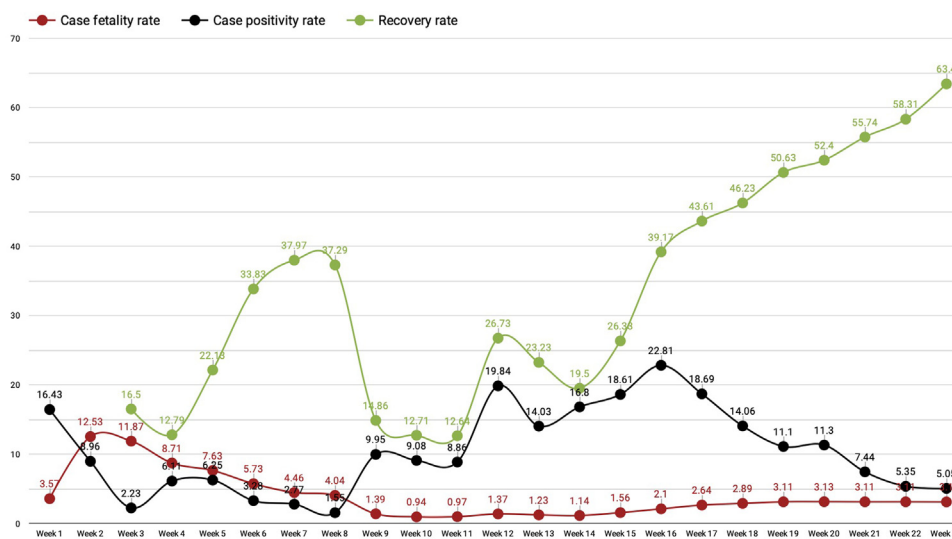


Figure 4. Case positivity rate, case fatality rate and recovery rate per week up to 08 September 2020.

Returning residents from South Africa

After the Republic of South Africa (RSA) enacted a nationwide lockdown; most Malawian migrants lost their jobs and income and were not entitled to any government relief programs (SABC, 2020). In May 2020, the Malawian government facilitated the repatriation of Malawian labour migrants stranded in RSA back to Malawi. From 22 May to around 22 June, several buses arrived in Malawi from RSA carrying returning citizens; Malawi had received about 7,000 returnees by August 2020, of whom about 5,000 were from RSA and 2,000 from other countries (UNICEF, 2020b). Most of the observed spikes in COVID-19 cases appear to have occurred within this period. Unmonitored entries allowed unregulated community permeability of the returning citizens and increased community risk of spread of SARS-CoV-2 infection.

Presidential election campaigns

During this same time period there were numerous political campaigns across the country by all presidential contenders in

readiness for the presidential elections scheduled for 23 June 2020. This presidential re-election followed the nullification by the Supreme Court of Malawi of the 2019 presidential elections in February 2020. While this was a hotly contested presidential election and attracted the interest of the population at large, the major challenge was that people attending these mass gatherings did not adhere to the public health prevention message of wearing masks at all times while outdoors, physical distancing and frequent handwashing. The election generated so much excitement that these COVID-19 preventive strategies were mostly ignored by politicians and the population at large, as shown in Figure 6.

Election and presidential inauguration day and onwards

The presidential voting day was on 23 June 2020, followed by the presidential inauguration ceremony on 06 July 2020. There was a gradual increase in cases, with the highest number of 190 cases reported in a single day on 11 July 2020. The highest 7-day case

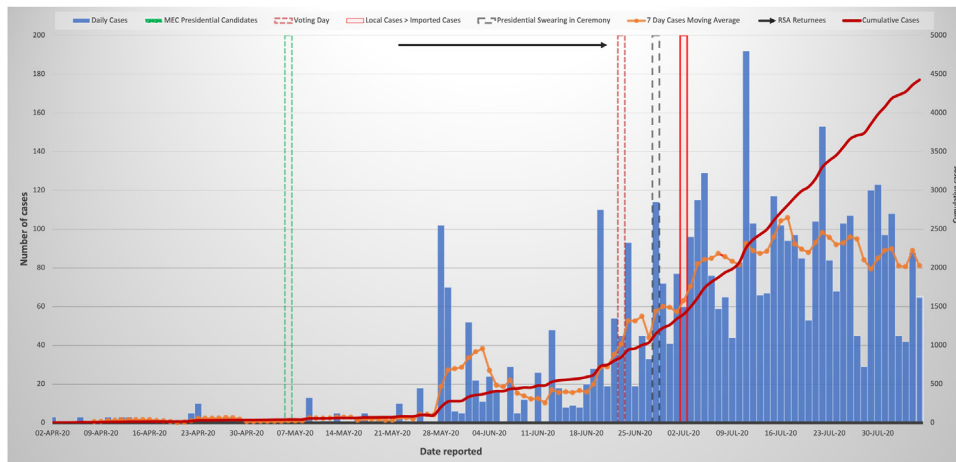


Figure 5. COVID-19 cases and major related events up to 08 September 2020.



Figure 6. Dr Lazarus Chakwera (centre on pick-up truck), presidential candidate for the then opposition Tonse Alliance and his running candidate, Dr Saulos Klaus Chilima (right), with their supporters on the submission of nomination papers to the MEC at Mount Soche Hotel, Blantyre, 06 May 2020 (Masina, 2020c).

moving average was observed in the week of 16–23 July 2020 (Figure 5).

Discussion

This study aimed to describe the incidence and factors associated with the spread of the COVID-19 pandemic and the role of sociopolitical mass gathering in propagating the spread in Malawi. The study established that the public sociopolitical mass gatherings were some of the key drivers for the COVID-19 pandemic in Malawi. Male sex and older age increased the risk of infection and death from COVID-19-related complications. Additionally, urban areas were more affected than rural areas. This is in agreement with the finding that large crowds facilitate transmission of the pandemic, as urban living is often crowded as opposed to rural living. Based on these observations, the study authors provide some suggested approaches to aid the Ministry of Health of the Government of Malawi and other supporting organisations for an effective approach to future responses of similar pandemics or continued waves of the current COVID-19 pandemic.

First, this study explored the effects of sociopolitical events on the spread of COVID-19. These events were shown to have been key drivers of the pandemic in Malawi. These sociopolitical events led to mass gatherings where politicians and those attending the political meetings did not adhere to public health preventive

strategies such as physical distancing and wearing facemasks. It is unfortunate that Malawi was stricken by the COVID-19 pandemic at the height of political uncertainties, as demonstrated by relentless civil disobedience, politically motivated demonstrations, health service providers strikes, the national judicial department, and regular mass political campaigns (Pensulo, 2020; Al Jazeera, 2020; Gikandi, 2020; Masina, 2020b; Gardaworld, 2020). Data presented in this paper support the observation that such activities spread and increased COVID-19 transmission, as shown by the spikes in numbers of people infected. It is generally believed that such a relationship exists, as the activities that were widespread and took place across the country mirrored an increase in the case load and were also invariably conducted with general disregard for COVID-19 public health intervention strategies. Physical distancing and wearing a face mask were generally not visible and mass crowds gathered in close proximity (Masina, 2020b). Besides, the majority of the population’s mistrust of the previous government hampered efforts to implement COVID-19 control measures (Schrad, 2020). In future, the government should make the safety and wellbeing of its citizens a priority and put measures in place to reinforce public health interventions to prevent high morbidity and mortality due to a pandemic.

Furthermore, the stratification of cumulative local and imported COVID-19 cases showed that local transmission started with the first imported case. The first case reported case on 02 April 2020, imported from India, was diagnosed together with two local transmission household members (Fiko, 2020). Of interest was the transmission rate, which doubled after the local transmission cases were more than the imported cases. Even though Malawi did not implement lockdown as other countries (Chiuta, 2020; Mehtar et al., 2020), the public data established that local transmission cases took almost 15 weeks to overtake the imported cases. Most of the imported cases were Malawian migrants repatriated from South Africa during lockdown (UNICEF, 2020a). For instance, districts with the highest cases namely; Nkhatabay, Mangochi, and Mzimba are also known to have high numbers of migrants to RSA (Nyirongo, 2019). The repatriation of South African returnees initially lacked proper quarantine systems upon arrival of the migrants with hundreds absconding from the government designated quarantine shelters making it difficult to control the spread of the pandemic (Masina, 2020b). This lack of appropriate public health readiness in their approach to handling returning residents from a country heavily hit by the pandemic was a pandemic spread driver. Going forward, the government needs to consider migrants as a high-risk focus group and institute appropriate and stringent measures such as active surveillance,

quarantine, rapid testing at borders, increasing awareness among migrants on prevention of COVID-19 spread. Specific attention needs to target districts with high numbers of migrated residents and prioritize tracing of the returnees using the existing structures such as the Health surveillance assistants (HSAs) as intermediates responsible for community households (Kok et al., 2016).

As observed in other countries, high morbidity and associated mortality was observed in males and older age groups in Malawi (Guan et al., 2020; Onder et al., 2020; Shim et al., 2020; Jin et al., 2020). Some of the plausible explanations for this are differences in expression of angiotensin-converting enzyme-2 (ACE 2; receptors for coronavirus), differences in immunity driven by sex hormones, gender lifestyle plus poor health-seeking behaviours in men, or behavioural differences (Bwire, 2020). It remains unclear why there is gender preponderance with COVID-19. This calls for more studies to understand this gender difference but also prioritization of men in COVID-19 prevention awareness and activities, and a more focused approach be given when managing men with COVID-19 (Thompson et al., 2016; Lavega et al., 2020).

In addition a low incidence of COVID-19 was observed among children and this could be because children have either less susceptibility or harbour more asymptomatic infection (Shim et al., 2020; Davies et al., 2020). The population in Malawi comprises 54% children and young adults, like most underdeveloped countries. As such the burden of COVID-19 is generally lower as opposed to western countries (NSO, 2019; Moeti, 2020). This has implications for the Government of Malawi's implementation of school closures, as burden of diseases in the school-going population is negligible.

Conclusion

COVID-19 cases drastically increased in Malawi during June to August 2020, facilitated by the political landscape of the country at that time as well as lack of preparation to circumvent the impact of such a pandemic on the country's economic system and human survival. This calls for public health policy reviews and political stocktaking as to the impact that political activities have on the spread of pandemics. The government needs to have a pandemic control plan to mitigate a future or continued rise in the current COVID-19 pandemic, so as to prevent massive loss of its citizens and mitigate the economic impact of such pandemics.

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Ethics approvals

The study has ethics approval sought and a permission letter to use the data from the Ministry of Health Malawi.

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Authors' contributions

JCYN conceptualised the research project and drafted the first version of this article. RJM analysed the data and generated all the graphs for the manuscript. All authors read, revised the drafts and approved the final manuscript. JCYN is the guarantor of the manuscript.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.ijid.2021.03.055>.

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