

CURFEWS AND LOCKDOWNS MAY NOT BE THE ANSWER AGAINST COVID-19 AND RELATED PANDEMICS IN AFRICA

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As the 2019 Covid-19 pandemic globally, nations around the world started instituting public health mitigations measures such as curfew and lockdowns to curb, contain or slow down the spread of the restrictions on population movements with curfews and lockdowns, intended to slow or stop the SARS-COV2 transmission and infections (Lone and Ahmad, 2020; Ossen, 2020; BMJ 2020; Haider et al., 2020; Rosenthal et al., 2020; El-Sadr and Justman, 2020; Martinez-Alvarez et al; 2020) . The use of lockdowns as measures to stop the spread transmission of epidemic pathogens have been utilized historically and have been successfully in controlling the spread of various epidemic pathogens, including Ebola in Africa and SARS-COV2 in various regions of the world.

However, in Africa, curfews and lockdowns as measures to contain Covid-19 pandemic infections probably helped to spread the SARS-COV2 virus among the population rather than slow it down (Bamgboye et al, 2021; Maeda et al., 2021; Mbow et al, 2020; Oppong, 2020, Wachira et al., 2022; Meo et al, 2020; Greyling et al., 2021; Okech et al.,

2020). Based on real-time anthropological observations and review of the current science around the virus, over 90 percent of SARS-COV2 infections causing Covid-19 happen indoors or in confined spaces (Wamai et al. 2021). In Sierra Leone, based on observations in Freetown and other regional areas, people spend less time indoors even at home and more time outside. The prevailing culture is one of “kip kompina veranda”, which literally translates to let us hang out in the veranda of the house. Apart from the communal culture that enhances this behavior, most homes are hot inside during the day, so it is a nice way of getting cool breeze while relaxing with family, friends, and neighbors. This predominant outdoor lifestyle found in Sierra Leone and other African countries contrasts with the predominant indoor culture found in western countries. Of course, the indoor culture of the US and European cultures, a consequence of weather and greater individualism, has some advantages when it comes to social distancing and lockdowns for control of Covid-19. I will come back to this in due course.

Early in the Covid-19 pandemic, the biggest worry was how Africa is going to deal with congestion in urban market spaces. Considering the crowded nature of these markets, poor sanitation and hygiene conditions, and the practical impossibility to social distance, it would seem like a prime area for Covid-19 transmission. So why have the Covid-19 infection rates been low? (Ghosh et al, 2020, Chitungo et al., 2020) The answer may lie in the outdoor nature of these markets. For instance, the 45 markets I have worked with for Freetown City Council looks heavily crowded but much of the traffic around the market happens outdoors. Hence, the transmissibility and infectability rates tend to be lower in these outdoor conditions than if same number of people was to be found indoors. This is likely so because the microdroplets that account for the lingering effects of Covid-19 infections is quickly dissipated in outdoor aerated conditions. Covid-19 transmission occurs via a combination of respiratory droplets; large or macro- (propelled 1-2 meters) and micro-droplets that tend to go further than 2 meters and linger much longer in the air around confined or indoor spaces. Experiments have shown both droplets are quickly dissipated in outdoor aerated conditions, which greatly minimizes infection.

Now, what curfews and lockdowns essentially do in Sierra Leone and many African countries is to force people to the indoor environment, which unlike the more developed, highly individual nations of the west, are tiny and congested with not enough space for social distancing. Prolong lockdowns under this crowded indoor condition increases rather than decreases the

risk of transmission and getting infected with SARS-COV2. Curfews and lockdowns essentially create new networks for spread of the disease by bringing people much closer together in a confined space, and thereby fueling the spread of infections. Lockdowns as a means of slowing down Covid-19 transmission works well in the West and other developed countries, where individualism allows for greater social distancing in households. This is in sharp contrast to the successful use of lockdowns and curfews to stop transmission of Ebola in Sierra Leone during the 2014 outbreak in the country.

As a mechanism for slowing down virus transmission, lockdown in Sierra Leone during Ebola made sense because its transmission is linked to close bodily contact (sweat, saliva, urine, blood, etc) that can be exacerbated in congested outdoor settings. Due to the magnitude of spread and deaths, especially in congested urban settings where greater degree of outdoor interactions were expected with potential to drive more population infections, drastic actions such as lockdowns, quarantines and curfews were needed. This differs from Covid-19, where the mode of transmission is dependent on the circulation of macro and micro droplets in the air, that are more persistent in the indoor than the outdoor environment. Hence, curfews and lockdowns to contain Covid-19 and related respiratory infections may likely be counterproductive.

Based on experience from Sierra Leone Covid-19 response, curfews tend to create an additional rush for transportation and crowded conditions in a confined vehicular environment during the end of the workday.

In Freetown, the capital city of Freetown, majority of the informal and formal sector workers commute to and from the central business district on often limited transportation buses, which are often overcrowded during curfews as people rush to get home. Again, this contrasts with developed nations where various transportation solutions from buses, taxis, trains, personal vehicles allow for greater social distancing. The net effect of these actions in Sierra Leone and other African countries is that it unintentionally drives the spread of the disease, which would not have been the case in no lockdown and no curfew conditions. The effect of the strict lockdowns and curfews resulting in increased spread of the Covid-19 disease is so far consistent with data on the spread of antibodies and immunities seen in South Africa (Tegally et al., 2020; Hatefi et al., 2020; Stiegler and Bouchard, 2020), Sierra Leone (Barrie et al., 2021), and in initial unpublished results of our seroprevalence and epidemiological analysis of the Covid-19 trend in Sierra Leone. South African scientists at University of Witwatersrand have shown in studies conducted in Western Cape and Gauteng province that over 40 percent of the population had developed antibodies, with the majority unaware that they had ever been infected. The researchers believed that South Africa's strict lockdown forced people to remain in close proximity with one another, especially in heavily populated townships that surround the major cities. Citizens were also expected to queue for essentials like food and social security grants during this period, which accounted for the rise in unintended infections reflected in the spread of antibodies. Similarly, in Sierra Leone, we see appreciable rise in cases with lockdowns and

curfews from March 31st through June, and dip in these numbers to zero from July through November as lockdowns and curfews were eased. Interestingly, in South Africa and to initial findings from Sierra Leone, we see a consistent spread of antibodies and immunity within the population, suggesting that the lockdowns and curfews may have had unintentional effect of spreading the infections, leading to some form of herd immunity.

So, it is likely that our outdoor culture lifestyle in Africa maybe one among other factors that account for the low incidence of infections despite the crowded nature of our societies. Lockdowns and curfews in Africa may have also contributed unintentionally towards spreading low level exposures of the virus by bringing people in close proximity, generating asymptomatic conditions, that is linked to herd immunity. Hence, both factors, one of the innate outdoor culture, and adaptive indoor culture from curfews and lockdowns may potentially have worked in Sierra Leone and Africa's favor against Covid-19, despite the latter being accidental.

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