

Examining the Possible Factors Influencing Differences in the Covid 19 Mortality Rates Across Regions: A Case Study of Africa

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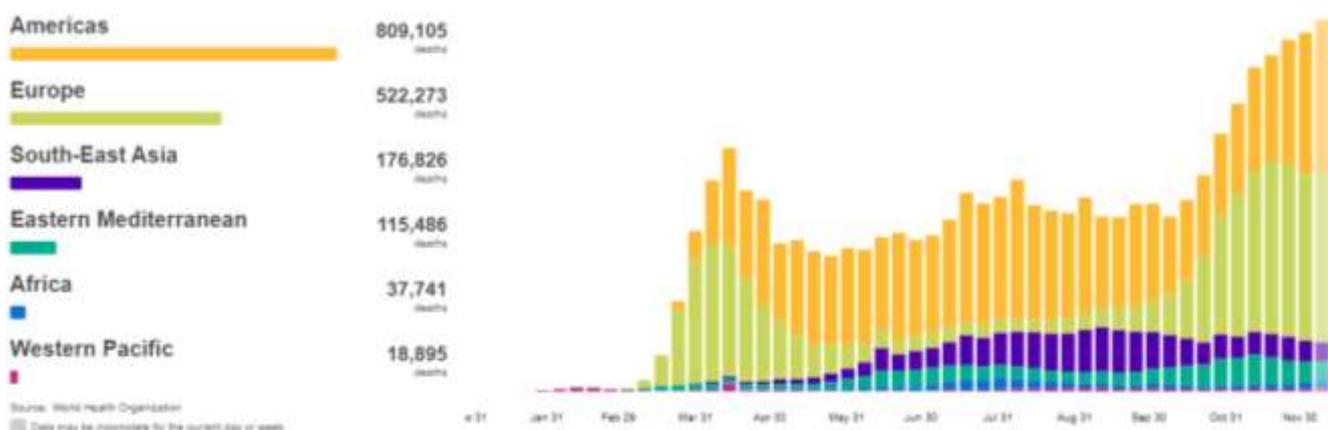
Abstract - The Stay-at-Home rule, lockdowns, regular hand washing, and social distancing have proven challenging to fulfil the African setting due to a lack of basic utilities, water, and sanitation, as well as relatively weak health systems, poor hygiene facilities, and excessive population mobility. Because of Africa's vulnerabilities created by poverty, the preconditions for implementing the Covid 19 standards do not exist. Despite these vulnerabilities Africa has recorded relatively low Covid 19 transmission and mortality rates compared to other regions. Along with Africa, the Western Pacific has also recorded a relatively low transmission rate. Comparatively, a sharp increase in the transmission and mortality rates were observed in the most developed regions ie America, Europe and Asia. The study examined whether low testing levels were the reason behind this observation or there were other regional similarity factors that played a major role in the Covid 19 transmission and mortality rates. The study used a literature based review and concluded that Covid 19 intensified more in regions with low temperatures, high ageing population, increased level of air travel, a high intake of alcohol and tobacco consumption. The study recommended the need to reduce alcohol and tobacco intake across regions, the need to restrict air travel or to impose strict Covid 19 regulations on travel and much care to be offered to the elderly and vulnerable population in pandemic cases. It is also critical for the global environment to retain powerful COVID-19 responses in case the pandemic takes on a new form.

Keywords: Covid-19 Pandemic, Collaborations, Digitization, Survival strategies, Business implications

INTRODUCTION

Despite Africa's vulnerability and challenges to cope with the WHO Guidelines, its Covid 19 transmission and mortality rate has stood relatively low compared to other regions (WHO, 2020). The low transmission rate was attributable to low-to-absent testing capacity and poor reporting systems (Rutayisire E., 2020). Low transmission rates in Africa may not be due solely to a lack of testing capacity and reporting systems; reports of pneumonia clusters at local hospitals may be sufficient evidence that the pandemic's intensity in the region is very low.(Kariuki Njenga, 2020). However we cannot entirely wash away other possible factors that might have contributed to low pandemic severity rate in Africa. Along with Africa, the Western Pacific has also recorded a relatively low mortality rate from January to December 2020 as depicted in Figure 1 below:

Figure 1: Number of Covid 19 global deaths as of 20 December 2020



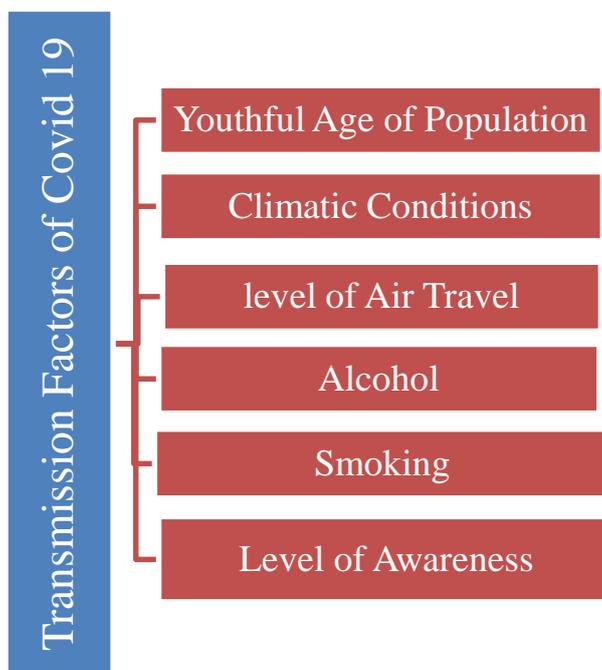
Source: World Health Organisation

These two regions possibly share similarities which have suppressed the spread and the intensity of the virus in these regions. Therefore, the study seeks to examine similarities among the group of regions with low Covid 19 Mortality risk and those with high Covid 19 Mortality risk so as to draw possible region specific factors that might have intensified the virus and proffer solutions to reduce mortality rates in affected regions.

DATA AND RESEARCH METHODOLOGY

The study is a literature-based analysis of the factors influencing Covid 19 transmission and mortality rates across regions. A conceptual model has been developed using the review of literature.

Figure 2: Factors Influencing Covid 19 Transmission and Mortality Rates



Source: Authors Computation

LITERATURE REVIEW

Since COVID-19 became a pandemic, projection models have been developed for Africa, and how the crowded social life and poor personal hygiene would intensify the COVID-19 spread (Debajyoti Ghosh, 2020). However as of 20 December 2020 the number of global death in Africa remained relatively low compared to other regions (Figure 3).

A contributing factor towards Covid 19 mortality rates is the age of the population. Mortality rates tend to increase in people over the age of 65 years compared to younger individuals (N. David Yanez, 2020). The fundamental explanation for this is because comorbidity issues manifest themselves more frequently in the elderly. Comorbidity factors like hypertension, obesity, diabetes, and coronary heart disease grow in the senior population in Asia and Europe, and these people have a higher mortality rate. (Jung, 2020). Eastern and South-Eastern Asia had the biggest number of elderly people (260 million), followed by Europe and Northern America, all of which had high Covid 19 mortality rates till date. (UnitedNations, 2019).

Africa and the Pacific are both defined by a youthful population. In the Pacific Islands region, at least half the region's population is below the age of 23 and the current median age is 22 across the region (Wilson, 2020). In Africa, 60 percent of Africa's 2019 population was under the age of 25, making Africa the world's youngest continent (Ibrahim, 2019). According to the UN's demographic projections, the median age in Africa was projected to be 19.8 in 2020. A large youth population may lead to more infections due to increased activities but most of these infections will be asymptomatic and will go undetected (Binta Zahra Diop, 2020). This explains why Africa and the Pacific has both a very low Covid 19 mortality rate.

Level of Air travel to the Region can also be one of the factors why transmission rate has been relatively low in Africa and the Pacific compared to the other regions. SARS-CoV-2 was brought into Africa in small numbers, according to experts, due to the low volume of air travel to the region. (Kariuki Njenga, 2020). The rapid development of cases in Wuhan, China, and around the world, including other Asian countries, Europe, and the United States of America, was aided by global travel. (Shoi Shi et al, 2020).

According to the World Trade Organization 2020, very low numbers on international tourist Arrivals were observed in the Pacific and Africa compared to Europe, America and Asia. At the time of the outbreak, the prevalence of international tourism helped facilitate the rapid global transmission of the disease (Iaquinto, Benjamin Lucca, 2020). Despite the fact that efforts to prevent transmission by closing borders caused significant economic hardship in the Pacific Islands, these efforts were successful in reducing transmission, and the conclusion was that in a COVID-19 world, fewer international arrivals appear to translate to a lower incidence of infection. (Walter Leal Filho, 2020).

In the Africa Continent, South Africa which has more air travels recorded more mortality rates than any other African countries signifying the importance of air travel in fighting the pandemic. Due to high poverty levels Africans do not afford to embark in luxurious trips henceforth limiting the rate of Covid 19 transmission.

Regional Climatic Conditions also pose as an important determinant on the transmission rate of Covid 19 in various regions. Hot dry weather makes it difficult for the pathogen to survive outside the hosts henceforth reducing the spread of the pandemic (Keerthi Sasikumar, 2020). Cold and dry conditions become potentiating factors on the spread of the virus (Mecenas P, 2020). A study by (Roy, 2020) highlighted that the virus preferred a moderately cool environment and the risk and intensity of the virus reduced in low temperature regions henceforth colder regions affected more (Roy, 2020). The majority of the Pacific Ocean lies between 35° N and 35° S, and so has a tropical or subtropical climate. It absorbs a tremendous amount of solar light and has extremely high temperatures. Similarly, Africa endures high temperatures, with the whole Sub-Saharan Africa region averaging > 20°C and more than 30 of the region's 46 countries average > 25°C. The temperature in Sub-Saharan Africa does not vary much throughout the year, dropping between May and August but remaining above 20°C in most nations. (Njenga, 2020). The risk from the virus reduced significantly in warm environments. Henceforth this could explain why these two regions are less affected.

Alcohol consumption is a potentiating factor in the spread of Covid 19. Alcohol weakens the body's immune system to the virus and increases the risk of contracting pneumonia, acute respiratory distress syndrome (ARDS), and other lung infections. These developments are one of the main complications of COVID-19. Alcohol is consumed in excessive quantities in the European Region and the American Region and is responsible for 3 million deaths a year worldwide, a third of which occur in the WHO European Region (WHO, Global status report on alcohol and health , 2018). According to the figure below, America, Europe and South Asia has the highest drinkers relatively to African and the Middle East. These regions are also the regions with the highest Covid 19 Mortality rates. Comparatively Africa has the Lowest Alcohol Consumption Levels and is coupled with relatively low Covid 19 Mortality Rates.

Table 1: Number of Drinkers by WHO Region 2016

| WHO Region | Lifetime abstainers | Former drinkers | Current drinkers | Total population | Former drinkers/ past 12-month abstainers (%) |
|--------------|---------------------|-----------------|------------------|------------------|-----------------------------------------------------|
| AFR | 332 803 | 59 400 | 186 271 | 578 474 | 15.1 |
| AMR | 129 472 | 222 616 | 415 495 | 767 583 | 63.2 |
| EMR | 415 897 | 9 545 | 12 930 | 438 371 | 2.2 |
| EUR | 176 144 | 124 222 | 449 304 | 749 670 | 41.4 |
| SEAR | 796 697 | 144 914 | 466 323 | 1 407 934 | 15.4 |
| WPR | 578 350 | 122 528 | 814 775 | 1 515 654 | 17.5 |
| World | 2 429 363 | 683 226 | 2 345 098 | 5 457 686 | 22.0 |

Source: World Health Organization

Smoking could be a possible factor towards the Covid 19 transmission rate. Smokers have lower adherence to Covid 19 guidelines and it worsened outcome of COVID-19 after contracting the virus (Del Sole et al., 2020; Kaur et al., 2020). Smoking can thereby influence the pathogenesis and prognosis of COVID-19 in a variety of organs, highlighting the relationship between smoking and COVID-19. Furthermore, countries with a larger number of smokers had higher COVID-19 death rates, which is consistent with existing research that shows smoking history as a predictor of COVID-19 severity in Chinese patients. (W. Liu et al., 2020). Most of the deaths associated with COVID-19 are respiratory related. According to the Global trends in prevalence of tobacco use by WHO region, estimated and projected the African region had the lowest tobacco usage and the (WHO, 2019)

Table 2: Global trends in Tobacco Use by WHO region

| WHO Region | Estimated prevalence (%) | | | | Projected prevalence (%) | | 30% reduction target (%) | Gap* | Expected relative reduction under BAU# |
|-----------------------|--------------------------|------|------|------|--------------------------|------|--------------------------|------|----------------------------------------|
| | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | | | |
| Both sexes | | | | | | | | | |
| Global | 33.3 | 30.1 | 27.3 | 24.9 | 22.8 | 20.9 | 19.1 | -1.8 | 23.4 |
| African | 18.5 | 16.5 | 14.9 | 13.5 | 12.3 | 11.2 | 10.4 | -0.8 | 24.8 |
| Americas | 30.8 | 26.6 | 23.1 | 20.1 | 17.5 | 15.4 | 16.2 | 0.8 | 33.3 |
| Eastern Mediterranean | 29.5 | 25.8 | 22.9 | 20.5 | 18.6 | 17.0 | 16.0 | -1.0 | 25.8 |
| European | 34.2 | 31.8 | 29.4 | 27.4 | 25.6 | 24.1 | 20.6 | -3.5 | 18.0 |
| South-East Asian | 46.6 | 40.4 | 35.2 | 31.2 | 27.9 | 25.1 | 24.6 | -0.5 | 28.7 |
| Western Pacific | 30.9 | 29.4 | 28.1 | 26.9 | 25.7 | 24.8 | 19.7 | -5.1 | 11.7 |

Source: World Health Organisation

Covid 19 was introduced at different time lines in different regions and according to the WHO Situation Reports as at 20 February 2020 Africa had no Covid 19 case . Unlike other regions, Africa was the last to report a covid 19 case. Asia, Europe, East Meditterraen and America had since reported Covid 19 cases. This spearheaded Africas progress in fighting the pandemic as it had ample time to prepare. Africa was knowledgeable enough of what the systmpms were, how to manage them and had placed quarantine areas in order. Other regions were caught off guard and became a referral on how Africa should act so as to manage, contain and prevent the virus from dire effects. Africa drew lessons from other regions on how to manage the pandemic. It became more proactive than reactive therefore minimising the mortality rates.

CONCLUSION AND RECOMMENDATION

The study used a literature based review and concluded that Covid 19 intensified more in regions with low temperatures, high ageing population, increased level of air travel, a high intake of alcohol and tobacco consumption Therefore the study recommended the need to reduce alcohol and tobacco intake across regions, the need to restrict air travel or to impose strict Covid 19 regulations on travel and much care to be offered to the elderly and vulnerable population in pandemic cases. As countries reopen their borders, the recent findings suggest that stringent screening is required to identify persons who have been exposed to COVID-19 and display symptoms, as well as those who do not. Old age and vulnerable people should be restricted from Air Travel. Even though Africa and the Pacific has suffered less effect from the various, the respective governments should remain vigilant in enforcing the recommended WHO Covid 19 Guidelines as recurrence of the pandemic may result in dire economic effects for the struggling regions. It remains imperative for the global environment to maintain robust aggressive approaches against COVID-19, in case the pandemic changes its nature.

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