Covid 19 pandemic contributing factor towards Unemployment, looting, Violence, and riots: Case study South Africa and Ethiopia

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ABSTRACT

The coronavirus disease 2019 (COVID-19) has emerged as a global health and economic security threat with staggering cumulative incidence worldwide. Hospitals across the sphere are creating additional critical care capacity and limiting patient routine access to care for other diseases like HIV / Aids and tuberculosis (TB). The outbreak fuels panic in sub-Saharan Africa where the healthcare system is fragile in withstanding the disease.

The study aimed to assess whether Covid 19 is a contributing factor to unemployment, looting, and Violence in South Africa and Ethiopia. Knowledge and perception about Covid 19 will play a critical role in social change from people. Though there is relative knowledge of Covid 19 among urban and rural residents, there are still several misconceptions and understanding associated with the pandemic. Serious challenges that people are still facing are adherence and compliance to preventative measures and weak law enforcement from the countries. Some communities still leave in crowded areas and that increases the spread of the virus. More than 68 percent are unemployed since Covid was discovered.

For countries in sub-Saharan Africa, the major health system shifts into COVID-19, aggravated by poor health systems and ill-equipped healthcare facilities, is hampering the progress toward health target sets including HIV /Aids and TB. Since its discovery, the virus has spread globally, causing thousands of deaths, and having an enormous impact on our health systems and economies as well as political fights in some of the sub-Saharan countries. Data from the media will be collected and used for the study. Published and unpublished information on how looting and riots affected the two provinces namely Gauteng and KwaZulu Natal. The unrest in South Africa claimed more lives people and businesses have lapsed due to the looting and violence in KwaZulu Natal and Gauteng Province.

For this study the following techniques were used, simple survey, Interviews, Observation, and group focus, Data was collected by fieldwork visiting the business areas affected by Covid 19 and getting information utilizing calling people that I know. Random sampling was done for this study from businesspeople in Mpumalanga, Limpopo, KwaZulu Natal, and Gauteng to collect data from known and unknown businesspeople.

Key Words: COVID-19, Pandemic, globally, World Health Organization, spread

Introduction

There is no clear answer as to where Covid-19 is deriving from. The different researcher has different views or understanding about the Covid 19. Covid-19 was discovered in Wuhan city in China and spread globally. (Martin,2020 & Wu et al.,2020). Currently, there is no effective treatment or vaccine to cure the spread of the pandemic except the vaccine that reduces the spread. While researchers are still busy searching for the proper vaccine to minimize the spread, a pandemic can be minimized by effectively implementing preventive measures as advised by World Health Organization, wearing a mask, personal hygiene, and social distancing. The original mitigation measures for COVID-19 focused on isolating and treating confirmed cases at the treatment center, tracing and quarantining contacts, 14 days of mandatory quarantine of all passengers coming to the country, risk communication, and educating the public about preventive measures to reduce the risk of transmission

The learning aimed to assess the perception and knowledge about Covid -19. Knowledge and perception about Covid 19 will play a critical role in social change from people. Though there is relative knowledge of Covid 19 among urban and rural residents, there are still several misconceptions and understanding associated with the pandemic. Serious challenges that people are still facing are adherence and compliance to preventative measures and weak law enforcement from the countries. Some communities still leave in crowded areas and that increases the spread of the virus.

The novel coronavirus outbreak, coronavirus disease 2019 (COVID-19) has infected over 4 million people and caused nearly 300,000 fatalities in over 188 countries (WHO,2020a). A thorough investigation is ongoing worldwide to launch real treatments and develop a vaccine for the disease, The coronavirus disease 2019 (Zhang et al., 2020) has emerged as a global health and economic security threat with staggering cumulative incidence worldwide. Hospitals across the sphere are creating additional critical care capacity and limiting patient routine access to care for other diseases like tuberculosis (TB). The outbreak fuels panic in sub-Saharan Africa where the healthcare system is fragile in withstanding the disease.

For countries in sub-Saharan Africa, the major health system shifts into COVID-19, aggravated by poor health systems and illequipped healthcare facilities, is hampering the progress toward health target sets including HIV /Aids and TB. (WHO,2020) Since its discovery, the virus has spread globally, causing thousands of deaths, and having an enormous impact on our health systems and economies as well as political fights in some of the sub-Saharan countries. It is therefore important for all stakeholders to work together including the traditional medicine practitioners and people with indigenous knowledge. It is important to involve practitioners these in epidemiological surveillance, information, awareness-raising, prevention, referral, and healthcare activities as part of the national response. A cross-sectional survey will be taken and self-questionnaires and used for data collection. (WHO,2020)

More than 12 million people contracted Covid 19 since 2019 November, at least 1.2 million died worldwide due to Covid. (WHO,2020). The most affected people were people with comorbidities. Sub-Saharan countries were mostly affected by these diseases. South Africa was heated most by the second wave of the corona, where the curve shoots high from November to January 2021. Delay in distribution and dispatching of the vaccine has affected the sub-Saharan countries. The vaccine which was supposed to be used in SA has an April expiry date. This means that the vaccine will not serve a purpose. Research has already found out that ATRAZINE is less effective, and Johnson and Johnson will be used by South Africans. (WHO,2021)

After the first wave of covid 19, the second wave rises at an alarming speed around November to January 2021 in South Africa. The researcher was trying their best to find a solution and the third wave hit the country again where the country recorded 1500 cases of Covid Delta positive. Since its discovery, the virus has spread globally, causing thousands of deaths, and having an enormous impact on our health systems and economies South Africa has rapidly done well in trying to vaccinate people. People are being vaccinated according to ages.

The Minister of Health, on the 5th of March 2020, made an official announcement of a local confirmed COVID-19 case in South Africa. The report shaken majority of South Africa people, due to the challenge of other diseases like HIV /Aid and Tuberculosis that are critical illness to most South Africans. The South African government endorsed a

national lockdown on March 27, 2020. This lockdown includes measures such as the complete closure of religious institution, childcare, institutions of primary and higher education as well as all public leisure activities, severe physical distancing rules, reduction of shopping, of on-site work force and reduction in other activities. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has reached more than 200 countries and territories across all continents (Schroder et al.,2021). More research is needed to explicate the ecology of coronaviruses. (Schroder et al., 2021).

Recent studies indicate that patients ≥ 60 years of age are at higher risk than children who might be less likely to become infected (WHO,2021). Given the fragile health systems in most sub-Saharan African countries, new and re-emerging disease outbreaks such as the current COVID-19 epidemic can potentially paralyze health systems at the expense of primary healthcare requirements. It has been reported that South Africans can have a vaccine after six months hence on the list. The current COVID-19 pandemic is unprecedented, but the global response draws on the lessons learned from other disease outbreaks over the past several decades (WHO,2020)

The pandemic in the South African population represents another threat to a society affected by serial collective trauma (Atwoli *et al.*, 2013). In an economically disparate society, the majority of South Africans and Ethiopia live below the poverty line, in crowded households of intergenerational families. Since Covid 19 has started the rates of depression, anxiety, gender-based violence, and child abuse and neglect are high. Homes affected by poverty, interpersonal violence, and substance abuse are at higher risk. These effects will become clear in the months and years to come (Ahmad, Mueller, & TsamakisSibusiso12, 2020; Moccia et al., 2020; Usher, Bhullar, & Jackson, 2020). Due to lack of funds African public health service, is under stress. The Department of Health has old hospitals, fewer facilities, and less human resource capacity, The department has experience with viral pandemics and tuberculosis (TB), as well as experienced epidemiologists and good public health policies.

The Minister of Health takes responsibility for updating the public about the new cases that have been confirmed. The coronavirus disease has emerged as global health and economic security threat with staggering cumulative incidences worldwide. The outbreak fuelled panic in sub-Saharan Africa where the health system is fragile in withstanding the disease. Africa's secondmost populous nation has become the fifthmost affected country on the continent since Covid 19 started. (National Department of Health,2020)

In this study, we are looking at the containment measures in Ethiopia in context from a reliable source and put forth the recommendation to leverage the health system response to covid 19. In Ethiopia, from 3 January - to 1 July 2021, there have been 276,037 confirmed cases of COVID-19 with 4,320 deaths, reported to WHO. As of 28 June 2021, a total of 1,989,597 vaccine doses have been administered. The vaccine

that is being used to combat covid is the AstraZeneca vaccine. Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people who fall sick with COVID-19 will experience mild to moderate symptoms and recover without special treatment. (WHO, 2020. WHO, 2021). The a**im of the study is** to check the relationship between the covid 19 pandemic and the unemployment rate in society. As there is a need to identify an innovative way to resolve the issue of unemployment, Riots, and Violence in the Sub-Saharan countries.

Methodology

Recent data collected from other researchers will be used for this study. Data from the media will be collected and used for the study. Published and unpublished information on how looting and Riots affected the two provinces namely Gauteng and KwaZulu Natal. At an alarming rate of Delta variant communities are highly infected. The article examines the pandemic, looting, and protest that has recently taken place. The article examines poverty postthird wave and how people were surviving through it all.

Study area

South Africa is a country on the southernmost tip of the African continent, marked by several distinct ecosystems. It is one of the tourist countries. Inland safari destination Kruger National Park is populated by big game. The Western Cape offers beaches, lush Winelands around Stellenbosch and Paarl, craggy cliffs at the Cape of Good Hope, forest and lagoons along the Garden Route, and the City of Cape Town, beneath flattopped Table Mountain. The country of South Africa has nine Provinces and 11 official languages.

Ethiopia is one of the world's oldest countries. During the golden old days, it remained centered on Aksum, an imperial capital located in the northern part of the modern state, about 100 miles (160 km) from the Red Sea coast. Ethiopia became prominent in modern world affairs first in 1896, when it defeated colonial Italy in the Battle of Adwa, and again in 1935–36 when it was invaded and occupied by fascist Italy. Ethiopia was among the first independent nations to sign the Charter of the United Nations, and it gave moral and material support to the decolonization of Africa and the growth of Pan-African cooperation. These efforts culminated in the establishment of the Organization of African Unity (since 2002, the African Union) and the United Nations Economic Commission for Africa, both of which have their headquarters in Addis Ababa. (Marcus, 2021)

The study was conducted in Mkhuhlu Mpumalanga Province. South Africa. Mkhuhlu is situated on the R536 to Kruger National Park. Most people in this community rely on substance Farming and working in shops due to the high unemployment rate in the Province. The population size of this area is estimated to be 15000 people. The rate of HIV /Aids, TB, and other chronic diseases is very high. More than 60 percent of graduates are unemployed. The rate of unemployment is very high in South Africa.

The current population of Ethiopia is 117,978,543 as of Monday, July 26, 2021, based on World meter elaboration of the latest United Nations data, and the current population of South Africa is 60,102,717 as of Monday, July 26, 2021, based on World meter elaboration of the latest United Nations data.((www.Worldometers.info)

Data collection and analysis

For this study the following techniques were used, simple survey, Interviews, Observation and group focus, Data was collected by fieldwork visiting the business areas affected by Covid 19 and getting information utilizing calling people that I know. Random sampling was done for this study from businesspeople in Mpumalanga, Limpopo, KwaZulu Natal and Gauteng to collect data from known and unknown businesspeople.

Simple survey

This study was conducted in December 2020, Sample surveys were conducted with local businesspeople in the database and the sample received the questionnaire by email. The questionnaire is then either completed or the researcher. returned to Some questionnaire was collected by making an appointment with affected people by making calls to collect the information. The information is then captured and analyzed before the releases are developed and published. It, therefore, requires that staff can access both the respondents to collect the information as well as our internal systems for processing. Currently, most respondents are not open for business or are working with limited staff and therefore cannot provide the

necessary information. It is therefore not possible to produce these releases as usual.

Data was collected from the following firms, Spaza shops, Taverns, Hawkers, or street Venders, manufacturers, and Builders The respondents were from the Spaza shops, Hawkers, Manufactures and Taverns and Farmers

Interviews

For this study fieldwork was conducted to interview the business owners around Mpumalanga, KwaZulu Natal, and Gauteng to get information on how they were affected by covid and the unrest. Video calls were recorded during the interviews and information was recorded while interviewees were responding. Interviews were done telephonically

Observation

Farmers were visited to gather first-hand information in the field to get a holistic perspective that will help us to understand how they have been hardly affected. The observation is recorded in field notes and pictures were also taken using a mobile device. The building was also inspected where manufacturing is done.

Focus Group

A focus group is simply a group interview of people who all have something in common. They provide the same type of data as inperson interviews but add a social element and offer a broader understanding of why a group thinks or behaves in a particular way. For this study a group WhatsApp was formed with local spaza shops owner and another one was formed for Tavern Owner. Participants in Gauteng and KwaZulu Natal were interviewed using WhatsApp calls and Group WhatsApp was created to communicate with them to get information.

Literature Review

Our literature review revealed that the term unrest serves as contributing factor to Unemployment, looting, and unrest in South Africa is not frequently used in scientific research.

From a general point of view social unrest can be conceptualized as the risk that causes a threat to society but at the same time an opportunity for positive change or development, for those who pursue social and political goals as a means of reshaping the society, they can use the unrest as an instrument to shape or bring change. Even though social unrest may trigger positive changes in society, it is associated with the risk of experiencing damage to human lives and property and loss of jobs to many and the melting of economic growth.

Looting and riot in Gauteng and KwaZulu -Natal

There is a link between violence, Protest, state of youth unemployment and Poverty. South Africa has more than 60 per cent of the unemployment rate and recently unemployed youth in Gauteng and KwaZulu Natal have taken advantage of Ex-President Jacob Zuma 's arrest to loot the malls in KwaZulu Natal and part of Gauteng shops and Malls in informal settlement areas. All these illegal activities led to more than 500 people in Gauteng losing their lives during the looting

2023

and 50 people died in Gauteng as well. In May 2021 more than R3,3 billion in stock was looted during the unrest in KZN and GP. Properties have been burned down, more than 3407 people were arrested in Gauteng and KZN looting and riots and 350 are dead. President deploys the army to assist police to defuse the ongoing riot and looting. Last decade March and April 2020 when the lockdown was hard such things never happened. (ENC news,). There is no documented answer as to the cause of the unrest in South Africa. The violence that is executed from the political system is different from social unrest but may be a trigger for social unrest as (Sanchezem et al.2006: 179). Frequently unrest may not be directed towards changing collective decisions but could be spontaneous expressions of dissatisfaction, frustration, or experienced inequity. According to (De la Roche 2006:102-105) Unrest and terrorism are collective forms of violence, terrorism is organized, while unrest is not.

Conflicts in Ethiopia

Ethiopia is facing issues of Violence since 2020 and has declared a state of emergency in the southern part of the Amhara region in a bid to stem deadly ethnic violence. More than 300 people were killed in Ethiopia 's Afar in the Somali region. Conflicts have been largely fuelled by groups demanding more land and power, with attempts to drive out people they regard as outsiders. The fight in Ethiopia has forced young children to join the army as soldiers. Land disputes drive out people from their land.

SA Population

The estimated population of South Africa stands at 58,78 million, according to the recently released 2019 mid-year population estimates (MYPE). The MYPE report provides population estimates at national and provincial levels, disaggregated by age and sex. World Population Day, which took place on the 11th of July, focused on enabling the youth with the necessary skills to reach their potential and economic growth. According to the mid-year estimates for 2019, the youth (aged 18-34) constitute almost a third of the population (17,84 million) in South Africa, with 9,04 million males and 8,80 million females. Almost 30% of youth (5,10 million or 28,6%) reside in Gauteng, with 3,47 million in KwaZulu-Natal (19,4%), making up almost half of all youth in South Africa. The Free State (4,7%) and the Northern Cape (2,0%) have the lowest proportions of youth. (Stats SA, 2020).

Death rate caused by Covid19 from 2020 to July 2021 in South Africa and Ethiopia

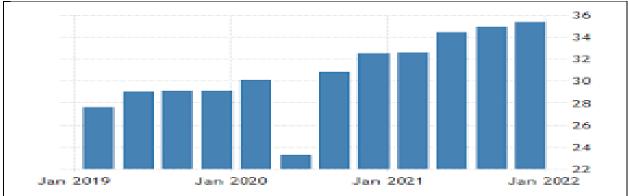
The outbreak of covid 19 was detected in Wuhan city in China. The outbreak has drastically affected the world and turned it upside down, most people were affected, and many lives were lost due to fear and the spread of the virus which looks dangerous and transmissible (Depoux et, al.,2020). Since 2020 when Covid 19 started South Africa has had 69488 death one of the highest new daily totals reported since the pandemic started over a year ago (WHO,2021, Department of Health report, 2021). The high death rate is the study conducted by researchers at the U.S. Centres for Disease Control and Prevention calculates those deaths in the United States could reach

207,000 and the initial cost to the economy could approach \$166 billion, or roughly 1.5 per cent of GDP (Meltzer, Cox, and Fukuda, 1999). In Ethiopia, the death rate is at 4367 (WHO,2021). South Africa was hit hard by the third wave in December 2020.

Unemployment

The level of poverty has increased since Covid 19 started and expose many households. Poverty has led to an increased crime rate, domestic violence, and theft (Siamabele et, al.,2021). The rate of unemployment in South Africa has risen since Covid19 started in December 2019. Jobs in the formal non-agricultural sector increased by 76 000 in the fourth quarter of 2020, bringing the total number of persons

employed in the formal non-agricultural sector in South Africa to approximately 9,64 million. This is according to the Quarterly Employment **Statistics** (OES. Q4:2020) survey released by Statistics South Africa (Stats SA). Year-on-year, formal sector jobs decreased because of firms closing. Total employment decreased by 594 000 or (-5,8%) year-on-year between December 2019 and December 2020. (Stats SA.2020). This statistic shows that the rate of unemployment in Ethiopia is less compared to South Africa from 1999 to 2020. In 2020, the unemployment rate in Ethiopia was at approximately 2.78 per cent. (Neils ,2021, Statista, 2021). South African unemployment has risen to 34,9% by 2021.



Rate of Unemployment in South Africa: Stats SA (2021)

President Zuma 's 15 months of arrest contributed factor of looting and riot in KZN and Gauteng, South Africa

The incarceration of former president Jacob Zuma places South Africa on a nervous trajectory never seen in the country's history, both apartheid-era and post-apartheid peaceful order. In November 2020, Zuma staged a walk-out from the State Capture Commission chaired by Deputy Chief Justice Raymond Zondo, who had earlier refused Zuma's application to have himself recused on allegation of bias. Zondo then shot straight to the highest court to lay charges of contempt against Zuma, whose legal advice appears to have been that he need not cooperate with the Constitutional Court. A visibly enraged bench of the court then slated Zuma in a no-holds-barred judgment by a majority of 9-2.

The scores of Zuma supporters undermined the Covid-19 regulations against mass gatherings when they converged in a show of force outside Zuma's Nkandla compound. They vowed to defend and protect him against any arrest, threatening to form a human shield, and a few gunshots could be heard indicating what many know too well, which is that armed MKMVA members in camouflage uniforms are as armed as others in ANC regalia or plain clothes. Zuma's decision to hand himself over to the authorities has been hailed in many quarters, particularly by the ANC in KZN through its party Chairperson and Premier Sihle Zikalala as having avoided bloodshed. Mpumalanga was also affected by looting and riots this Matsulu: took place in Ehlanzeni Municipality in Mpumalanga province was looted for one day.

Small businesses generate just over onefifth of total turnover

The pandemic has affected business drastically caused economic and an meltdown (Alexander et al., 2020). This was because of strictly level 5 regulations which were worldwide, where all business was closed only essential business-like hospitals, and shops were operational. Most of the businesses were only operational under Level three-under strictly regulations. Industries in the South African formal business sector, generated R10,5 trillion in total turnover in the 2019 financial year. Turnover includes money received from the sales of goods and/or from services rendered, as well as from the leasing or hiring of transport equipment, machinery, equipment, land, and mineral rights. buildings. Most businesses reduced staff employment by 39% (Alexander et al., 2020)

A breakdown of turnover by business size shows that small businesses were responsible for generating R2,3 trillion (or 22%) of the Medium-sized R10.5 trillion. businesses contributed the smallest portion (10%) while large businesses accounted for the biggest chunk, just over two-thirds (68%) of the total. Violent protests could be eaten by food insecurity. Small businesses were affected by the strike in part of Gauteng and KwaZulu Natal. Rural areas flock to urban areas to loot because in rural areas there are no jobs and that Built non-racial unity. Warehouses were burnt down after looting. The riots in South Africa have decreased turnover drastically. According to a study conducted about 5,800 small businesses fall under Alignable, membership which is a network of 4.6 million small businesses collapsed (Alexander et al., 2020). The President 's plans to send 25,000 soldiers on a peacekeeping mission to Kwazulu-Natal and Gauteng have come too late.

Female-owned businesses have been affected by Covid 19

More than 33 countries were affected by lockdowns which stop farmers from supplying food from markets to the rural population (Matsaka, 2020). Most of the Agricultural businesses affected most in South Africa are run by females. More than 70% population of the African continent survive on small scale farming (Mosel, 2020). According to a study conducted by (FAO,2017), pandemic the impacted economic activities security as well as poverty. The outbreak has affected the income level drastically including the GDP. The transport sector has also been affected by

the outbreak of Covid 19. The economic Implications of the Covid 19 did not affect the health sector but it has affected even the travelling and trade. (Siamabele et al., 2020). Approximately 70% of food in Sub-Saharan countries produced is by women (FAO,2011). The rural woman is the primary food crop produced while I am involved in Labour intensive work (Mossel,2020). Although rural woman produces most of the food worldly wide, they are often denied land opportunity and credit for their business (Ibru,2008, Adewumi,2017, Aina,2012). Droughts experienced in African countries have implicated about 45 million people with hunger (Mutsaka, 2020). Africa Gender Innovation Lab (AFR GIL) partnered with Facebook and OECD to conduct a global survey among approximately 25,000 businesses with established Facebook Business Pages in over 50 countries. The survey revealed differences in the rate of closures between female and male owned SMMEs in countries like Nigeria, Ghana, Kenya, and South Africa. In Nigeria, the survey found that by June 2020, 44% of surveyed female-owned and 33% of maleowned businesses had closed due to the COVID-19 pandemic, equivalent to an 11percentage point gender gap in business closures. In Ethiopia, the GIL conducted a real-time survey which revealed that female-owned participating businesses experienced a reduction of about 50% in sales and profits.

Youth and Unemployment

The burden of unemployment is also concentrated amongst the youth as they account for 59,5% of the total number of unemployed persons. (Stats SA,2020) The unemployment rate among the youth is high irrespective of education level. The graduate unemployment rate was 40,3% for those aged 15–24 and 15,5% among those aged 25–34 years, while the rate among adults (aged 35– 64 years) was 5,4%. (Stats SA,2020)

Some of these young people have become discouraged from participating in the labour market and they are also not building on their skills base through education and training – they are not in employment, education, or training (NEET)

Of the 10,2 million persons aged 15–24 years, 32,4% (approximately 3,3 million) were not in employment, education, or training – implying that close to one in three young South Africans between the ages of 15 and 24 years were disengaged with the labour market in the first quarter of 2021. The NEET rate, seen in conjunction with unemployment rates over 60%, suggests that the youth face extreme difficulties engaging with the labour market in South Africa

Education and prior work experience play an important role in the labour market. Employers often prefer to employ those with previous work experience and a higher level of education. Unfortunately for the youth, lack of work experience is a stumbling block that results in them finding it hard to secure employment. Those with jobs are often concentrated in Trade, Agriculture, Finance, and other business services industries. Low and semi-skilled youth employment is concentrated in the Trade industry, while high-skilled youth employment is in the Community and social services as well as Finance and other business services industries. In most cases, these young people have contracts that have unspecified duration, or the contracts are of limited duration, and consequently do not have access to employee benefits such as medical aid, pension fund, paid sick leave and permanent employment

South Africa is ranked as the fourth country with the highest percentage of unemployed youth in the world. Since 2014, 52.6 per cent of the people aged 15–24 actively looking for a job were unemployed (World Bank 2014). Many of the youth in South Africa choose to remain unemployed until they can find a job at a larger firm (Rankin and Roberts, 2011). According to a study conducted by (Kanbur and Svejnar (2009), they believe youth unemployment increased in South Africa

Mlatsheni and Sandrine (2002) also believe that youth unemployment is unequally distributed throughout different segments of the population. While unemployment among young whites amounts to 12%, this number skyrockets to a troubling 70% among young blacks. Kanbur and Svejnar, (2009) suspect it may be that remnant effects of the apartheid era have led to jobs centres being located further away from typical homes of black communities compared to white communities.

Sources of Youth Unemployment

There are multiple and complex causes behind youth unemployment. Among them, the quality and relevance of education, inflexible Labour market and regulations, which in turn create a situation of assistance and dependency, are the main causes discussed today.

'The relevant legacies of the Apartheid upon democratization economy were uncompetitive primary and secondary industries which have consistently shed jobs since 19941 (National Planning Commission, 2011:13), and an unskilled, spatially misaligned Labour force, with the majority of South Africans having been denied quality education (National Planning Commission, 2012:110, 114).

'South African economic growth has occurred largely in skills-intensive sectors, such as the financial and business services sector (Hausmann, 2008). It is generally accepted that the primary cause for South Africa's widespread unemployment today is a structural mismatch between the skills the modern South African economy demands, and the skills it supplies (Hausmann, 2008) (National Planning Commission, 2011:15), with the ratio of skilled to unskilled employment having changed from 35:65 between 1970 and 1975 to 53:46 between 2000 and 2002 (Ligthelm, 2006:42).

'The shortage of suitable jobs has been compounded by significant increases in Labour force growth since 1994 (Hausmann, 2008). The majority of youth have skills that do not attract the Labour market. Companies also require vast experience and that becomes a challenge, especially for youth that comes from the university. Therefore, companies need to give leadership and internships to youth so they can get exposure and experience to be part of the organization

'The principal reason given by employers for their low youth employment is that with schooling not accurately indicating skill levels (National Treasury, 2011:16), unskilled inexperienced workers are seen as risky to employ, thus increasing their real cost (National Treasury, 2011:5-6). The causes of South African youth unemployment then, are a combination of deficient demand for Labour, due to the increasingly skills-intensive orientation of the South African economy, and substandard supply, caused by the emergence of risky low-skilled youth.

Covid spread in Ethiopia

A developing respiratory disease was abridged as coronavirus disease 2019 (COVID 19), after it was first reported in December 2019 in Wuhan city of China. (WHO,2020). The virus causing COVID-19 is a severe acute respiratory syndrome (SARS)-like coronavirus that had previously been reported in bats in China. (Zhou et al.,2020) The pandemic visited Ethiopia unannounced like in other countries. People claim the virus came from people who visited other countries with the virus while others claim that the disease is airborne. Chan et al, (2020) and Li et al., (2020) believe that the virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales and close contact. These droplets are too heavy to hang in the air and quickly fall on floors or surfaces. You can be infected by breathing in the virus if you are within proximity of someone who has COVID-19, or by touching a contaminated surface and then your eyes, nose, or mouth. (WHO,2020)

The efforts to curb the novel coronavirus disease (COVID-19) pandemic were challenged by spiritual beliefs and other misconceptions in Ethiopia; it is after all among the most conservatively religious countries in the world. Different studies have shown that demographic, social, and technological factors affect the level of knowledge, attitude, and practice toward disease and its prevention. (Bedford et al.,2020). The country reports more than 2,000 cases daily since Covid 19 started, this is of the 8,000 tests conducted daily on an average. The country has reported 200,563 total cases and 2,801 deaths as of April 5, 2021. (WHO,2020)

The Ethiopian health service system is federally decentralized along the nine regions and two self-administered cities namely Addis Ababa and Diredawa. Ethiopia has had 143 hospitals since 2007. Since Covid started the Ethiopian Health Minister initiated training for all health workers intending to assist the poor The first confirmed COVID-19 case in Ethiopia was declared on March 13, 2020, and the declaration of a National State of Emergency on April 8. Since November 2020, however, active cases have been on the rise. Ethiopia registered 63 new COVID-19 cases in the past 24 hours, taking the nationwide tally to 276,037 as of Tuesday evening, the country's Ministry of Health said. The ministry said five new deaths and 685 more recoveries were reported on Tuesday, bringing the national death toll to 4,320 and total recoveries to 260,302. Ethiopia, Africa's second-most populous nation, has so far reported the largest number of COVID-19 cases in the East Africa region. (WH0,2020)

According to the ministry, Ethiopia currently has 11,413 active COVID-19 cases, of whom 150 are under severe health conditions. Figures from the Africa Centres for Disease Control and Prevention showed that Ethiopia's COVID-19 cases accounted for about 6 per cent of Africa's total. Ethiopia is among the countries hardest hit by COVID-19 in Africa, following South Africa, Morocco, Tunisia, and Egypt (WHO,2020)

Most cases have been recorded in the capital city Addis Ababa due to higher testing, high transmission of the disease due to the occurrence of super spreading events, decreased adherence to public health and social measures and emergence of high-risk variants. Ethiopia rolled out COVID-19 vaccinations on March 13, 2021, obtaining 2.2 million COVID-19 vaccines from the global initiative COVAX. The vaccination was launched in several major cities, including the capital Addis Ababa, where top government officials and representatives of the United Nations attended a ceremony at the Eka Kotebe General Hospital. Physicians, nurses as well as support staff at the hospital Oxfordgiven jobs with the were AstraZeneca vaccine. (WHO,2020)

Vaccine rolls out in South Africa and Ethiopia

The Pandemic 's third wave hit the Sub-Saharan Countries. Ethiopia and South Africa are one of those countries affected. The situation, however, has worsened due to the prevalence of new variants of the SARS-CoV-2 variants in the country. The government is yet to properly disclose the same. Scientists are working to learn more about these variants. The challenging problem is that people are not protecting themselves from this variant (WHO,2020) The first shipment of the AstraZeneca vaccines produced by the Serum Institute of India arrived in Ethiopia on March 6, 2021, through COVAX, which facilitated their procurement and shipment. Subsequent shipments of 5.4 million doses as part of the current global deployment plan are expected to arrive The Ethiopian government has taken several bold measures to curb the spread of infection. On March 23, 2020, the authorities announced the closure of the country's land borders with immediate effect.

People over 55 years of age receive AstraZeneca/Oxford vaccines, sent by World Health Organization (WHO.2020. WHO,2021) COVAX, against the coronavirus (COVID-19) pandemic at Kazanches Health Centre in Addis Ababa, Ethiopia on April 14, 2021. (WHO, 2020, WHO,2021). It developed standards, guides, and protocols documents in response, by assessing the situations, impacts and risks of the pandemic. No documented literature clearly states that the AstraZeneca vaccine has proven to cure Covid 19 virus hence different vaccines are brought on board. There are complaints from vaccinated people that they experience side effects after being vaccinated with AstraZeneca. All nonessential inbound and outbound traffic and travel were prohibited; however, Ethiopian Airlines never stopped its cargo transportation to transport personal protective vests for doctors as well as lifesaving medical supplies. (WHO,2020)

The Ethiopian government also mobilized the public at large, Millions of volunteers participated in a drive to provide water to those who needed it for sanitization purposes. Ethiopia's health extension workers, most of whom were women, have been on the frontline for more than a year. They formally became a part of the healthcare system after receiving one-year training. Hospitals, however, have started to face a shortage of oxygen therapy equipment, with several parents not being able to access oxygen concentrators.

South African Vaccine rollout started in 2021, more than 6,31 million people receive vaccination in South Africa. The rollout plan started with emergency workers and the next phase of rollout was done for the senior citizens now targeted people to be vaccinated are 35-50 years of age. Vaccine rolls have been disturbed due to unrest in KwaZulu Natal and Gauteng province. Most people vaccinating are women as compared to men. Vaccination is not mandatory in south Africa but those who are not vaccinated when they contract Covid19 with critical illness mostly they don't survive.

The economy Destroyed due to unrest in South Africa

Due to looting and riots, the economy of South Africa has been hit hard. Big companies like the Tiger brand have lost 16 million products. South Africa is an uppermiddle-income economy, one of only eight such countries in Africa. Since 1996, at the end of over twelve years of international sanctions. The economy is projected to rebound by 3.8% in 2021 and 2.5% in 2022. The strong rebound at the end of 2020 has slowed in the first half of 2021 due to a protracted second wave of the virus that has held back economic activity. However, growth is projected to pick up in the second

half of the year, driven by domestic demand commodity and exports. Household consumption will contribute significantly to the economy growth as opens and exceptional savings last year are spent at least partially. Private investment will progressively strengthen. The COVID-19 pandemic has caused millions of workers to lose their jobs, while the number of discouraged workers increased. Investment has been on a downward path already before the crisis, marred by policy uncertainty, and lack of essential infrastructure. Regulatory restrictions in many areas are a threat to recovery. Stronger growth is needed to place the government debt trajectory on a sustainable path and to finance large unmet needs in education, health, and social spending. (Enc news, 2021)

Political participation

Within the semantic area of activities that underlie social unrest protests. demonstrations and political violence are most frequently mentioned. These manifestations are also part of another social science tradition, i.e., the theory and concepts of political participation. That concept includes actions that are operated by citizens aiming at influencing collective decisions on several levels of the political system (Barnes et al 1979:160). Not only the active mobilization of citizens but also the political goals of influencing collective decisions constitute key elements of this tradition. Excluded here are economic or social goals for which people could get engaged. Also, political violence is not mentioned as a means of political participation. In newer studies, both aspects are sometimes (nowadays more

frequently) mentioned as components of participation (van Deth 2009: 145)

South Africa's political transition is known as one of the most remarkable political feats of the past century. The ruling African National Congress (ANC) has driven the policy agenda from 1994 until August 2016, when the country held the most competitive local government election since 1994, in which the ANC-lost majority support in four of the metropolitan cities. Political parties negotiated coalition deals that have left the ANC unseated in Pretoria and Nelson Mandela Bay. The latest general elections were held in May 2019 and the next local government elections are expected by November 2021.

COVID-19 (coronavirus) is having a major impact on South Africa's economy. The World Bank estimates that the economy contracted by 7% in 2020, as the pandemic weighed heavily on both external demand and domestic activity as the government implemented containment measures. This severe contraction is estimated to increase poverty by 2 million people (living below the poverty line for upper-middle-income countries.

Result

A total of 450 unemployed people was interviewed in this research, which yields a response rate of 94%. More than half of 226 (51.1%) participants were between 26 and 34 years old, with a mean age of 29.28 \pm 5.44. The majority, 225 (56.7%) of the participants were males. Most respondents (35.5%) were youth and 16% older

(Percentage)

35 years to 55 years. Seventy-six (19.1%) participants had a history of job seeking.

		(I ci centage)
Variable of study	Frequency	
Family size	3 or fewer: 23	(5.48%)
	4 to 6: 342	(81.43%)
	7 or more: 55	(13.10%)
	50 years or above: 38	(20.99%)

Socio-Demographic

		-
Age category of respondents	18 to 30 years: 78	(18.57%)
	31 to 40 years: 157	(37.38%)
	41 to 50 years: 143	(34.05%)
	51 to 60 years: 40	(9.52%)
	61 years or more: 2	(0.48%)
	Female: 101	(55.80%)
Gender of respondents	Male: 325	(77.38%)
	Female: 95	(22.62%)
Perception about Vaccine Variable of study		Frequency (Percentage)
Perception about taking the vaccine		Positive: 279 (66.43%)
		1 OSHIVE. 277 (00.+570)
		Negative: 26 (6.19%)
		Not sure: 115 (27.38%)
Knowledge about Vaccine		Always: 287 (68.33%)
		Sometimes: 127 (30.24%)
		No: $6(1/3\%)$
Attitude towards Vaccine		Always: 225 (53.57%)
		Sometimes: 97 (23.10%)
		No. 08 (23 33%)

Covid 19 pandemic contributing factor towards Unemployment, looting, Violence, and riots: Case study South Africa and Ethiopia

A total of 300 participants were interviewed about the vaccine, 279 are positive and ready to take the vaccine,26 % are negative about the vaccine and 115 participants are not sure about whether to take the vaccine or not .287 people have knowledge about the vaccine,127 participant claims not to know much about the vaccine and 6 say they have never heard about the vaccine

Covid 19 contributing factors to unemployment and poverty

A total of 300 people were interviewed and out of the 300 participants, 280 responded that Covid affected their employment and increase poverty in their lives. A total of 20 people say they don't know since they are unemployed and never employed.

Covid affected the small businesses

A total of 50 small business owners were interviewed and 47 of 50 of the owners reported that covid had drastically affected their businesses and 3 owners of spaza shops said their company still function well .75 % of people interviewed were a woman and 25% were male owners .55% were youth people and 45% were female above 45 years old.

Politics triggers Looting and Violence affected unemployment and small business

This interview was done telephonically with people in Gauteng and KwaZulu Natal affected by the riot. The questionnaire was emailed to them while others were interviewed telephonically. A total of 100 people were interviewed unemployed and business owners. Out of 100 people interviewed 70% reported that unemployment and poverty caused them to loot,25\$ clam that the imprisonment of President Zuma triggered the Violence and Riots in KwaZulu Natal and part of the Gauteng areas.

Knowledge and attitudes

Total of 50 people aged 21-35 years and 40 people gained 35 -60 years were randomly selected and asked whether they know Covid 99% of the people responded positively and only a few 3% were not sure. The interviewed people mentioned that they listen to the radio and Watch Television get updates about Covid 19.

Findings

Regarding the combating of Covid 19, each country was supposed to develop a legal framework and tighten the regulations. South Africa is a free country majority of people do as they please. More than 76 000 people confirmed death due to covid and negligence. The legal framework should include the engagement with Community leaders, Church ministries, business owners, Non-Profit organizations and Employers and Unions.

We found that shortage of food for people who are not working affected them to loot the shops in Gauteng and KwaZulu Natal. We also found that unemployment and poverty especially in the informal settlement were other contributing factors to the looting and violence in South Africa. We also found out that long queues for shopping increase the spread of Covid 19 and people are not afraid of infection anymore, some people are not wearing masks even though it's mandatory to wear them. The Imprisonment of Jacob Zuma has contributed to the looting and the strikes.

We found that the lockdowns to curb the spread of the new coronavirus had various effects on food as it went from farms to plates. We also found that Covid 19 has affected all small businesses in the urban areas and rural places, most people lost their jobs. We also found that vaccination in South Africa is a choice while in other countries is compulsory.

Curfews and other measures, meant to limit public exposure to the disease, closed markets, and popular outdoor eateries. These measures, on top of travel restrictions and a sharp reduction in purchasing power due to job and income loss, resulted in a demand reduction.

The priority of preventing the spread of COVID-19 meant that few government resources were left to undertake food safety work inspections. And in any case, most livestock products and fresh produce are sold in traditional markets, which even before the pandemic received little attention from food safety inspectors.

An increase in the time it takes to transport food and livestock feed, and delays at border points invariably increased the risks of produce getting contaminated. Delays were due to requirements that drivers take COVID-19 tests and the long time it took for results to be returned. Fresh produce, including animal-source foods, can spoil quickly when they're not stored at the right temperatures, raising the risk of serious foodborne diseases.

Our respondents repeatedly mentioned that everyone feared being exposed to the virus. This meant that all workers in the supply chain, save those providing essential services, working from home. Some food businesses worked in shifts, with limited staff. This meant that they were less able to perform routine inspection work (process checks, final product quality, market quality), leaving consumers exposed to risk.

On a positive note, restricted entry to food processing places (such as slaughterhouses) and the installation of numerous handwashing stations led to modest improvements in food safety. Food security has been a major concern during the pandemic, but food safety has been largely neglected. Yet food safety is a major health and economic problem and if we are to build back better, food safety must be addressed. We also found that government has no plan to assist the issue of unemployment in South Africa. Our findings demonstrate that there is a need to sensitize all value chain actors about food safety, from production to consumption, even during periods of emergency such as this one.

Conclusion and Recommendation

Based on these findings, the Government in South Africa reserves funds to assist the loss of business in South Africa. The education sector has appointed people for a few months to assist Teachers and with the sanitization of kids, such initiative must continue as it reduces the problem of unemployment in the country. The government has also given out stipend for a few months to all unemployed people we recommend that this must be permanent like what the government provide to the child grant. African National Congress must sort out their internal conflict as they affect the growth of the economy and increase riots. Government must have a relationship with private sector and international countries to find ways to increase more job opportunities in South Country Africa. must expand in manufacturing and tourism industry. In Ethiopia, AFR GIL recommends measures to help buffer female-owned businesses against the effects of COVID-19, such as enabling women's access to lines of credit. More firms must be built so that more jobs can be created.

Limitation of study

This study has various limitations. The survey was conducted in three provinces in South Africa. This social and geographic location of the area can influence opportunities, education, and exposure to employment, and these may also be informal small businesses and semi-skilled businesses run by women and youth. Other restrictions for this were the business experience and educational background to undertake their business even in hard times.

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Conflicts of Interest

No conflict of interest for this study

Reference

Alexander, G.C., Stoller, K.B., Haffajee, R.L. and Saloner, B., 2020. An epidemic in the midst of a pandemic: opioid use disorder and COVID-19. *Annals of internal medicine*, *173*(1), pp.57-58.

Atwoli, L., Stein, D.J., Williams, D.R., Mclaughlin, K.A., Petukhova, M., Kessler, R.C. and Koenen, K.C., 2013. Trauma and posttraumatic stress disorder in South Africa: analysis from the South African Stress and Health Study. *BMC psychiatry*, *13*(1), pp.1-12.

Aguas, R., King, J.G., Gonçalves, G., Ferreira, M.U. and Gomes, M.G.M., 2021. Herd immunity thresholds for SARS-CoV-2 estimated from unfolding epidemics. *MedRxiv*, pp.2020-07.

Bedford, J., Enria, D., Giesecke, J., Heymann, D.L., Ihekweazu, C., Kobinger, G., Lane, H.C., Memish, Z., Oh, M.D., Sall, A.A. and Schuchat, A., 2020. WHO Strategic and Technical Advisory Group for Infectious Hazards. COVID-19: towards controlling of a pandemic. *Lancet*, *395*(10229), pp.1015-1018

Callaway, E., Cyranoski, D., Mallapaty, S., Stoye, E. and Tollefson, J., 2020. The coronavirus pandemic in five powerful charts.

Chan, M., Han, S.C., Kelly, S., Tamimi, M., Giglio, B. and Lewis, A., 2020. A case series of Guillain-Barré Syndrome following Covid-19 infection in New York. *Neurology: Clinical Practice*.

Chan, J.F.W., Yuan, S., Kok, K.H., To, K.K.W., Chu, H., Yang, J., Xing, F., Liu, J., Yip, C.C.Y., Poon, R.W.S. and Tsoi, H.W., 2020. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *The lancet*, *395*(10223), pp.514-523.

Coroiu, A., Moran, C., Campbell, T. and Geller, A.C., 2020. Barriers and facilitators of adherence to social distancing recommendations during COVID-19 among a large international sample of adults. *PloS one*, *15*(10), p.e0239795

DE LA ROCHE, R.S., 2006. Review of Carrigan, The Making of a Lynching Culture: Violence and Vigilantism in Central Texas, 1836-1916. *Pacific Historical Review*, 75(2), pp.343-344.

Depoux, A., Martin, S., Karafillakis, E., Preet, R., Wilder-Smith, A. and Larson, H., 2020. The pandemic of social media panic travels faster than the COVID-19 outbreak. *Journal of travel medicine*, *27*(3), p. taaa031.

Fehr, A.R. and Perlman, S., 2015. Coronaviruses: an overview of their replication and pathogenesis. *Coronaviruses*, pp.1-23.

Ferretti, L., Wymant, C., Kendall, M., Zhao, L., Nurtay, A., Abeler-Dörner, L., Parker, M., Bonsall, D. and Fraser, C., 2020. Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing. *Science*, *368*(6491), p.eabb6936

Kanbur, SM Ravi, and Jan Svejnar, eds. *Labour markets and economic development*. Routledge, 2009.

Kanbur, R. and Svejnar, J., 2009. Wage determination and wage inequality inside a Russian firm in late transition: evidence from personnel data, 1997–2002. In *Labor Markets and Economic Development* (pp. 92-119). Routledge.

Kutter, J.S., Spronken, M.I., Fraaij, P.L., Fouchier, R.A. and Herfst, S., 2018. Transmission routes of respiratory viruses among humans. *Current opinion in virology*, 28, pp.142-151.

Ligthelm, A., 2006. An evaluation of the role and potential of the informal economy for employment creation in South Africa. *South African Journal of Labour Relations*, *30*(1), pp.30-50. Lewis, D., 2020. Is the coronavirus airborne? Experts can't agree. *Nature*, *580*(7802), p.175.

Liu, Y., Ning, Z., Chen, Y., Guo, M., Liu, Y., Gali, N.K., Sun, L., Duan, Y., Cai, J., Westerdahl, D. and Liu, X., 2020. Aerodynamic analysis of SARS-CoV-2 in two Wuhan hospitals. Nature. *Online ahead of print*). *DOI*, 10.

Mbunge, E., 2020. Effects of COVID-19 in South African health system and society: An explanatory study. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 14(6), pp.1809-1814.

Meltzer, M.I., Cox, N.J. and Fukuda, K., 1999. The economic impact of pandemic influenza in the United States: priorities for intervention. *Emerging* infectious diseases, 5(5), p.659.

Moccia, L., Janiri, D., Pepe, M., Dattoli, L., Molinaro, M., De Martin, V., Chieffo, D., Janiri, L., Fiorillo, A., Sani, G. and Di Nicola, М., 2020. Affective temperament, attachment style, and the psychological impact of the COVID-19 outbreak: an early report on the Italian general population. Brain, behaviour. and immunity, 87, pp.75-79.

Nkengasong, J.N. and Mankoula, W., 2020. Looming threat of COVID-19 infection in Africa: act collectively, and fast. *The Lancet*, *395*(10227), pp.841-842.

OECD (2020). Coronavirus.the world economy at risk. https://www.oecd.org/berlin/publikationen/i nterim-Econoomic. Pyankov, O.V., Bodnev, S.A., Pyankova, O.G. and Agranovski, I.E., 2018. Survival of aerosolized coronavirus in the ambient air. Journal of aerosol science, 115, pp.158-163.

Rankin, N.A. and Roberts, G., 2011. Youth unemployment, firm size and reservation wages in South Africa. *South African Journal of Economics*, 79(2), pp.128-145.

Richard, M. and Fouchier, R.A., 2016. Influenza A virus transmission via respiratory aerosols or droplets as it relates to pandemic potential. FEMS microbiology reviews, 40(1), pp.68-85

Sanchez, J., Callarisa, L., Rodriguez, R.M. and Moliner, M.A., 2006. Perceived value of the purchase of a tourism product. *Tourism management*, *27*(3), pp.394-409.

Siamabele, B., 2021. Pandemics and Cross-Border Trade. *About The Afsol Journal*, p.7.

Stadnytskyi, V., Bax, C.E., Bax, A. and Anfinrud, P., 2020. The airborne lifetime of small speech droplets and their potential importance in SARS-CoV-2 transmission. *Proceedings of the National Academy of Sciences*, *117*(22), pp.11875-11877.

Schroder, Malte, Andreas Bossert, Moritz Kersting, Sebastian Aeffner, Justin Coetzee, Marc Timme, and Jan Schlüter. "COVID-19 in South Africa: Outbreak despite interventions." *Scientific Reports* 11, no. 1 (2021): 1-9.

Spiteri, G., Fielding, J., Diercke, M., Campese, C., Enouf, V., Gaymard, A., Bella, A., Sognamiglio, P., Moros, M.J.S., Riutort, A.N. and Demina, Y.V., 2020. First cases of coronavirus disease 2019 (COVID-19) in the WHO European Region, 24 January to 21 February 2020. *Eurosurveillance*, 25(9), p.2000178.

Usher, K., Bradbury Jones, C., Bhullar, N., Durkin, D.J., Gyamfi, N., Fatema, S.R. and Jackson, D., 2021. COVID-19 and family violence: Is this a perfect storm. *International journal of mental health nursing*, *30*(4), pp.1022-1032.

Van Deth, J.W., 2009. The 'Good European Citizen 'congruence and consequences of different points of view. *European Political Science*, 8(2), pp.175-189.

Wallace, L.A., Emmerich, S.J. and Howard-Reed, C., 2002. Continuous measurements of air change rates in an occupied house for 1 year: the effect of temperature, wind, fans, and windows. *Journal of Exposure Science* & *Environmental Epidemiology*, *12*(4), pp.296-306.

Weber, T.P. and Stilianakis, N.I., 2008. Inactivation of influenza A viruses in the environment and modes of transmission: a critical review. *Journal of infection*, 57(5), pp.361-373.

WHO, C.O., 2020? World health organization. *Responding to Community* Spread of COVID-19. Reference WHO/COVID-19/Community Transmission/2020.1.

World Health Organization, 2020. *Global* surveillance for COVID-19 disease caused by human infection with novel coronavirus (COVID-19): interim guidance, 27 February 2020 (No. WHO/2019-nCoV/Surveillance Guidance/2020.4). World Health Organization.

WHO, C.O., 2020. World health organization. *Responding to Community* Spread of COVID-19. Reference WHO/COVID-19/Community Transmission/2020.1.

Wu, X., Nethery, R.C., Sabath, M.B., Braun, D. and Dominici, F., 2020. Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study.

Ye, Q., Fu, J.F., Mao, J.H. and Shang, S.Q., 2016. Haze is a risk factor contributing to the rapid spread of respiratory syncytial virus in children. *Environmental Science and Pollution Research*, 23(20), pp.20178-20185

Zhang, F., Wang, Y., Peng, J., Chen, L., Sun, Y., Duan, L., Ge, X., Li, Y., Zhao, J., Liu, C. and Zhang, X., 2020. An unexpected catalyst dominates formation and radiative forcing of regional haze. *Proceedings of the National Academy of Sciences*, *117*(8), pp.3960-3966.

Zhang, R., Li, Y., Zhang, A.L., Wang, Y. and Molina, M.J., 2020. Identifying airborne transmission as the dominant route for the spread of COVID-19. *Proceedings of the National Academy of Sciences*, *117*(26), pp.14857-14863.

Zhang, R., Wang, G., Guo, S., Zamora, M.L., Ying, Q., Lin, Y., Wang, W., Hu, M. and Wang, Y., 2015. Formation of urban fine particulate matter. *Chemical reviews*, *115*(10), pp.3803-3855.

Zhou, P., Yang, X.L., Wang, X.G., Hu, B., Zhang, L., Zhang, W., Si, H.R., Zhu, Y., Li, B., Huang, C.L. and Chen, H.D., 2020. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *nature*, *579*(7798), pp.270-273.