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COVID-19 and Rural Food Security: A Case Study of Sheshegu in Eastern Cape Province, South Africa

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This study is an attempt to determine COVID-19's impact on household food safety. The study adopted a case study approach, and Sheshegu location was chosen as the research area for the Amathole District of the South African Eastern Cape Province. Data collection was done in multiple households with the help of a semi-structured questionnaire, as well as collecting information from secondary sources. The study focused on the notion of food security as a theoretical basis for the analysis, which was primarily a cross-case analysis. This study does not address the analysis of individual cases; however, individual cases are provided as examples and as backup for the synthesis. In addition, the food safety analysis focused only on the availability of calories and not on nutritional quality. The findings of this study show the need for household empowerment in a more sustainable way through income-generating skills training and small-scale home gardening practice. It was also revealed the need for nutrition education, so that conventional and healthy choices can be included in the patterns of household food consumption and not only seen as an alternative when preferred foods such as meat are not present. The research further showed that COVID-19's effect correlated with the position in which the household was prior to the onset of the disease or subsequent death. Coping methods often differed, depending on the position of the household and the amount of contribution that the sick family member made to the food budget. During the time of care for the sick family member, inter-household effects and gender differentials were noted. During times of food shortages inter-household effects were also observed. There was also a high degree of dependence on government safety nets among these households, which contributed to some extent to the lack of diversification of livelihoods.

Keywords: *Civil Society, COVID-19, Food Security, Households*

COVID-19 has become a major global concern as it affects different aspects of a country's economy as well as household economies. This research aimed to determine the effect of the disease on food security in households, regarding subsistence purposes, agricultural production, and patterns of household consumption. Human coronaviruses are prevalent all over the world. There are several different known coronaviruses in animals but only a limited number of these can cause disease in humans. According to Mkhize (Department of Health, 2020), severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was confirmed on 7 January 2020 to be the causative agent of Coronavirus Disease 2019 or COVID-19. The majority of the initially identified cases were dealers and vendors in China at a market for seafood, poultry, and live wildlife (WHO, accessed on the 23 April 2020). The virus has spread to over 100 countries since then including South Africa. While the first cases possibly involved exposure to an animal source, the virus is now spreading from person to person.

It is assumed that the spread of the disease occurs primarily through respiratory droplets produced when an infected individual coughs or sneezes, similar to how influenza and other

respiratory pathogens spread (Hamid et al., 2020). So far, most cases have occurred in people with close physical contact to cases and healthcare workers who care for COVID-19 patients. Current common symptoms reported for COVID-19 patients include mild to severe respiratory disease involving coughing, sore throat, shortness of breath, and fever among others. The entire clinical picture regarding COVID-19 is still not completely clear. Reported illnesses range from sick individuals with little or no symptoms to those who become severely ill and die. Treatment is supportive (for example, providing oxygen to patients with shortness of breath or treating a fever). No specific antiviral treatment is available currently. Viral infections are not treated by antibiotics but can however be needed if a secondary bacterial infection develops.

The South African government has stated in accordance with the World Health Organization that COVID-19's first reported case in the country was in March 2020. The country has since experienced a wide spread of this pandemic that has affected a significant amount of the population to date. The epidemic has progressed from being just a health issue into being an economic concern in its short existence.

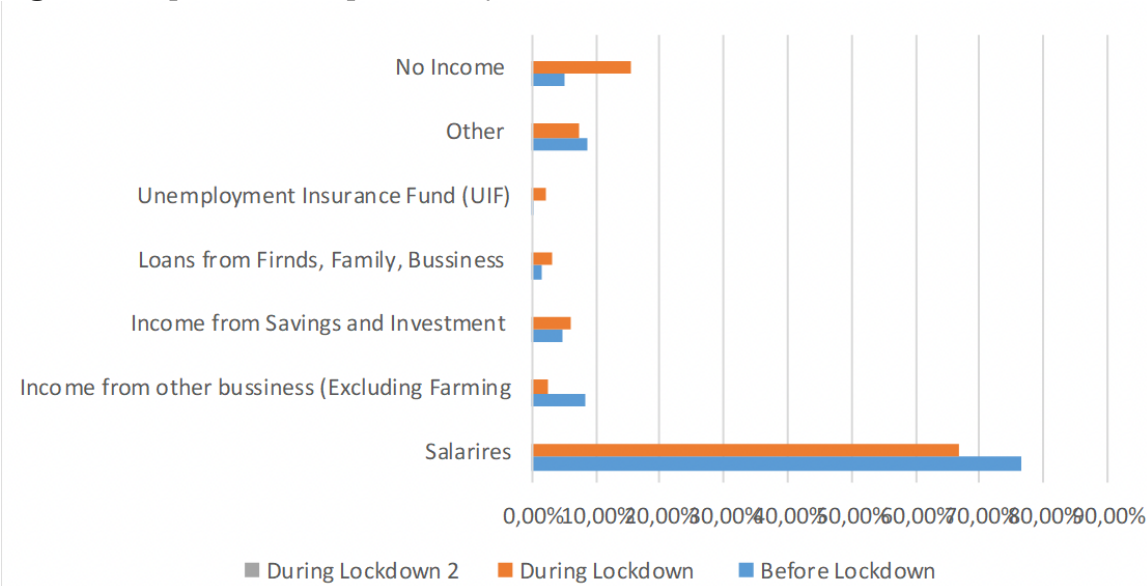
As members of a household are affected and get ill, the household income may decline. As shown in Figure 1, these decreased income levels will affect food security. In the worst cases, it may affect the sole breadwinner in such a way that they cannot generate any income at all. In other scenarios, reduced income and caring for the sick may lead to the removal of children from school, thus prematurely terminating their educational careers. It may also reduce the time allocated to the care of younger children, leading to lower nutritional input in their diets.

The underlying assumption of this study is that COVID-19 is likely to have a severe impact on food security in the home. According to the Ministry of Finance and Social Development (SABC News; March 2020), government funds invested in COVID-19 reached the equivalent of US\$ 69 million, with more than US\$ 40 million from international partners being mobilized. From the way it has impacted the government budget to date, and from the death figures in the economically active age group(s), it can be deduced that COVID-19 is a serious issue that needs to be investigated for its effects on household food security. A breadwinner who contracts COVID-19 and finds it difficult to work could mean a loss of income or reduced labor productivity, thus reducing purchasing power for the entire household, resulting in a lack of food security for the household.

As household members are affected and become ill, household income is expected to decrease. Food insecurity will therefore rise, including in rural areas and households. Even in cases where food is available at national levels, food insecurity may remain a problem for specific households due to their low income and/or skewed income distribution.

By the sixth week of the national lockdown, the percentage of respondents reporting no income had risen from 5,2% before the lockdown to 15,4%. Before and after the national lockdown, most respondents stated that salaries/wages were their primary source of income. However, by the sixth week of the national lockdown, this figure had dropped from 76.6% before the lockdown to 66.7%.

Figure 1 Proportion of Respondents by Income Source before Lockdown and after Lockdown



Source: STATS SA

The percentage of respondents who reported receiving no income increased from 5, 2% before the lockdown to 15, 4% by the sixth week of the national lockdown. Most respondents reported salaries/wages as the primary source of income before and during the national lockdown.

According to Statistics South Africa’s (2020) hunger study, the proportion of respondents who said they had gone hungry since the lockdown began increased from 4, 3% to 7,0%. We know that hunger in the country is significantly higher than measured in the Wave 2 survey results, which represents potential selection bias in Wave 2 respondents, based on data from the General Household Survey (GHS). When we look at the subset of respondents who said their income had decreased since the start of the national lockdown, we find that they were more likely to be hungry, with approximately 11, 4% (roughly one out of every 10) saying they had gone hungry during the lockdown.

Theoretical considerations

The theoretical framework serves as the structure and support for the study justification, the description of the issue, intention, significance, and research questions. The theoretical structure provides a basis (or anchor) for evaluating literature and methods of a study (Grant & Azadeh, 2014). The theory of human needs serves well to build upon this analysis. It provides a clear theoretical explanation of how to conceptualize and contextualize human needs. In addition, the use of the hypothesis of human needs lets the researcher foresee possible events and possibilities.

Study Area

The research was performed at Sheshegu village – a remote site in Amathole District, in South Africa’s Eastern Cape Province. Sheshegu is about 33 km from the town of Alice. Statistics South Africa (2020) describes a village as defined by the tribal government, district government, and district council as such; as distinguished by the presence of tribal authority, such as a chief or headman, and having other facilities, such as schools, clinics, or health centres, tribal administration offices, police offices, and water reticulation facilities. For the purposes of this analysis, a rural area is considered a locality where some of the livelihoods are derived from

activities related to agriculture. Sheshegu is a village whose city is Alice. According to South African History Online (n.d.) Alice is a small town in South Africa, named after the British Queen Victoria's daughter, Princess Alice by the Governor, Sir Peregrine Maitland in 1847. British colonists settled next to the Tyhume River in 1824. Alice was the administrative and magisterial capital of the old Victoria East district.

In 1852 municipal status was gained. Sheshegu village is one of the oldest settlements in this region. No relocations are taking place in this area. Nevertheless, new houses are being constructed on an ongoing basis, but most of these houses are either designed as extensions of existing houses (mostly in the case of extended families) or by family members who have chosen to move out of their homes to establish their own families. Water is collected in this settlement from a water tank which also serves as a groundwater reservoir. According to Statistics South Africa's (2020) 2019 mid-year estimates, the village is home to 2004 inhabitants composed of 987 females and 1017 males. There are no location-specific studies of COVID-19's effect on Eastern Cape households' food security. Hence, this research can be repeated in other parts of the country to improve awareness about the impact of the disease on food health in South Africa.

Ethical Considerations

Ethical issues include understanding what is relevant to the study process and what unacceptable (Neumann, 2014) is. The permission of the gatekeeper for this research was received from the Sheshegu Development Committee and the families themselves involved in the research, as they were told that the research was purely for academic purposes and could assist in policy decision making. In this research, the respected ethical criteria included informed consent, privacy, confidentiality, and voluntary participation.

Selection of Participants

For this research, the concept of a household was adopted from Statistics South Africa (2020), whereby a household consists of one or more persons, related or unrelated, living together "under the same roof" in the same home, eating together "from the same pot" and/or making common provisions for food and other living arrangements. For the purposes of this research, affected households were known to be those who have/had one of their family members suffering from chronic illness and/or adult death associated with conditions associated with HIV/AIDS, although in many cases families obscured the cause of death. Accordingly, the study respondents/interviewees were drawn from households that had at least one of their members enrolled under the CHBC system to obtain a nutritional voucher for HIV/AIDS-related ailments. The aim was to interview household heads if they were not sick, or if they were able to be interviewed even though they were sick.

The head of the household was considered to be any person (male or female) 18 years of age and above that include child-headed households due to the migrant labor system and/or HIV/AIDS deaths, considered as the head by other members of their household. Aside from the head of the household, interviews were conducted with any responsible or senior person who was considered fit (sober) to participate in the study and would do so. Because of the severity of issues relevant to the COVID-19 pandemic, a random sampling of village households would not have yielded a desirable sample, because this would have included households not affected by COVID-19. Therefore, a purposeful sampling was performed, which is a non-probability sampling technique.

The village CHBC team at the health department's Sheshegu clinic in Eastern Cape helped classify prospective participants and locate the respective households. This included making available the list of people who were enrolled under the home-based care system, i.e., those who received the food parcels or received the food parcels before death and recognizing those who were identified as having HIV/AIDS-related illnesses. In addition, the CHBC team helped the researcher classify the dwellings of the patients picked. On the first visit of the researcher to the dwelling, a member of the CHBC team introduced the researcher to the members of the household, after which the researcher briefly provided the context of the study to the family and eventually asked for the family's consent to participate in the research study.

What We are Doing in South Africa?

President Cyril Ramaphosa declared a new initiative on 23 March 2020 to counter the spread of the Coronavirus in South Africa – a three-week nationwide lockdown with extreme travel and movement restrictions, assisted by the South African National Defence Force – from midnight on Thursday, March 26, to midnight on Thursday, April 16. The President said that more needed to be done to prevent “a massive disaster” among the population. Essentially, this meant that people would only be able to leave their homes to buy food, receive medical care, or in other certain serious situations. The shutdown followed governmental laws banning public meetings, movement from high-risk countries, and alcohol sales. Furthermore, borders were closed to reduce infection rates from those traveling from other countries to South Africa. A quarantine on inbound travelers and returning citizens was also enforced.

Latest Measures

The Health Minister at that time, Dr. Zweli Mkhize, took steps to launch 60 new mobile laboratories to improve the country's capacity for testing for COVID-19. The sampling and testing units, procured by the National Health Laboratory Service (NHLS), were deployed to all priority districts and metros nationwide. Ten thousand community health care staff around the country were assigned to screen households by going door-to-door. All nine provinces were asked to begin work on this strategy by deploying provincial community healthcare staff with enough Personal Protective Equipment, conducting a house-to-house “no-touch” screening system for COVID-19 symptoms and referring symptomatic people to clinics for testing. Furthermore, District Support Partners supported by PEPFAR were directed to assist provinces in this initiative. Before the introduction of the mobile testing units, South Africa could conduct 5,000 COVID-19 tests per day. However, this number would increase six-fold with the addition of mobile testing units, combined with 180 testing sites and 320 testing units across the country.

The current figures show that the Coronavirus has become the leading cause of death in adults. The effects of the disease go beyond the health sector and are also a question of trade and growth (WHO, 2020). The disease increases morbidity (illness) and mortality (death) at the most basic level especially among young adults, infants, and children. The life expectancy has declined accordingly (Ngom & Clark, 2003).

COVID-19 is of special concern for rural development. According to the World Health Organization (2020) reports, studies in Africa indicated a differential between urban and rural prevalence rates, in that the urban areas appeared to have more cases of infection. However, prevalence rates in the rural sector are expected to increase (WHO, 2020) due to movement and interchange between the two kinds of areas, facilitated by, amongst other things, successful rural development. Rural areas are therefore expected to experience the impact of the Coronavirus. In

support of the above statement, Kürschner (2001) averred that the movement of people with HIV/AIDS in Uganda then was predominantly from urban centers to rural and remote areas. In addition, a report by Whiteside et al. (2003) reflected a narrow difference between urban and rural HIV/AIDS prevalence rates in Swaziland. The following aspects are of special concern in the rural areas:

- A decline in remittances, as members of the community who are employed in the urban areas fall ill and die;
- An increased demand for resources, if people who lived away from the household return home for care as they fall ill;
- The reduction of labor availability for farming, either due to illness and/or death of productive household members or because these productive members must divide their time between farming and taking care of the sick (especially women);
- Changes in the family structure, as orphans come to the extended family home, needing care (and causing expenditure to increase); and
- Greater demands on government budgets, especially for social expenditure.

As rural areas are usually already disadvantaged, having less access to facilities and having more illiterate people (both of which may hinder Coronavirus education) COVID-19 may increase the already existing urban bias. Skilled laborers, such as nurses and teachers, may be in short supply and less willing to accept unpopular rural postings (World Health Organization, 2020). At the end of this line are the subsistence farmers, who generally cannot build up resources for contingencies such as those mentioned in (i) to (iv) above and are struck the hardest by the effects of the disease. Figure 1 illustrates some of the possible ways in which COVID-19 can affect subsistence-farm households as it had done in the Eastern Cape Province (Panos, 1992). The death of a household member may, for example, reduce the food available for consumption by the surviving household members. As household food security is defined as the ability of the household to secure adequate food to meet the dietary needs of its members for a healthy and active life, either through production or through purchases (FAO, 1999b), household food security may also be reduced by an increase in the number of people that need to be fed in a household as sick relatives and orphans arrive. In addition, money for food purchases may need to be diverted to medical expenses and, in cases where farming families were producing both subsistence and cash crops, reduced family labor may also lead to the neglect of the cash crop and, as a result, a decline in the nutritional quality of the diet (FAO, 1999a).

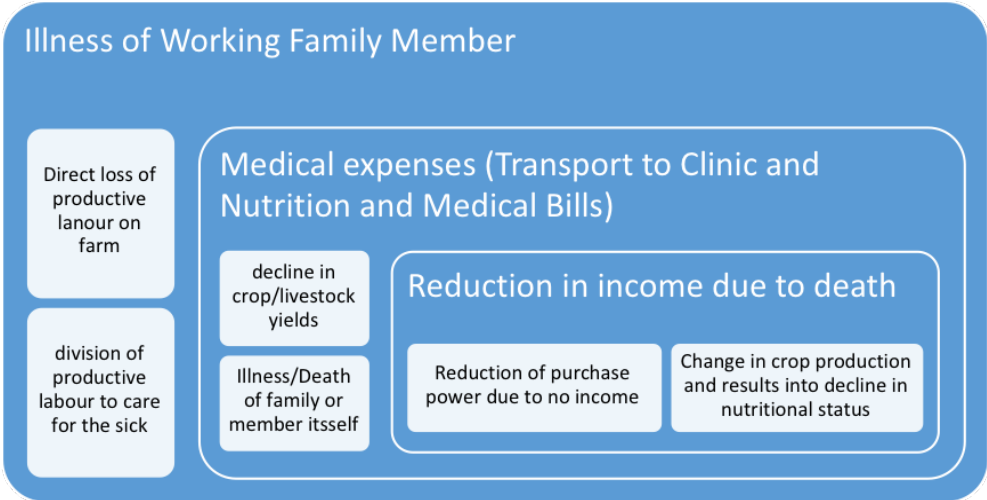
As agricultural productivity has already decreased in most of the highly infected countries, leading to decreased food security, HIV/AIDS is expected to bring a decline in the quality and quantity of food (AgriSA, 2020).

World Health Organization's Response to COVID-19 Pandemic in Africa

According to the World Health Organization's Coronavirus Dashboard (2020), more than 90% of the million infections estimated at the end of 2020 will be in developed countries of which 70% (29.4 million) will be in sub-Saharan Africa. Evidence of mutual immunodominance between *Plasmodium falciparum* and SARS-CoV-2, according to Parsons (2021), could explain low COVID-19 incidence in the malaria-endemic belt of Africa and could illustrate SARS-CoV-2's potential to infect red blood cells. Further to Parsons' (2021, para. 3) assertion, 'as the

pandemic unfolded, many explanations for the low incidence of COVID-19 infections in the malaria-endemic belt of Sub-Saharan Africa were suggested.’ According to some experts like Parsons, the lower transmission was due to a warmer atmosphere and a lower amount of international air travel compared to other continents, which helped to restrict case importation. Other theories claim that low mortality is due to demographic factors and the early introduction of lockdown measures in sub-Saharan Africa.

Figure 2 COVID-19 Impact on Households



Source: Adapted from Panos Institute (1992)

Long-term use of antimalarial medication could provide defense against infection, according to one intriguing theory. As observed by the United Nations Secretary-General (SABC NEWS: 21 May 2020), the most affected regions, if people are not acting fast enough to stop the pandemic, will be in sub-Saharan Africa in Southern and Eastern Africa. In this geographic region, a gender differential is also evident in the prevalence rate, with the prevalence among women peaking at age 25, 10-15 years earlier than men. The region is also faced with a decline in population growth rates due to HIV/AIDS, and labor shortages have become a major concern in some countries (World Bank, 2001). Bollinger and Stover (1999) therefore warned that the disease has the potential to create a severe economic crisis in many African countries.

The lessons learned in Italy and China are highly important according to the World Health Organization (2020). Nevertheless, because of these variations in the populations and health system limitations, they cannot be extrapolated directly to Africa. The WHO characterized COVID-19 as a pandemic. Initially, Africa was spared but that changed rapidly. The number of African countries affected rose from nine to 41 within two weeks (WHO, 2020) as it was only a matter of time before COVID-19 spread to the majority of the continent’s 54 nations. According to Kaseje (2020), Monrovia, Liberia is a nation whose health system has suffered tremendous difficulties due to civil wars and the 2014 Ebola outbreak and persuasively pointed out that one size does not fit all and that special factors need to be considered as the COVID-19 response is shaped for Africa.

The population and health structures of the continent make it distinct from those of other regions which have undergone COVID-19 to date. There are three factors at the population level which are significant. Firstly, the demographic composition of the continent is distinct from that of other regions of the world. In Africa, the median age of 1.3 billion people is 19.7 years.

Conversely, China's median age is 38.4 years, and the European Union's median age is 43.1 years. Experiences in Asia and Europe have shown that the most vulnerable to serious cases of COVID-19 are people over 60, including those with major health issues. While young Africans may be considered a significant protective factor in the pandemic, it remains unclear how the virus will develop and manifest on the continent. The second factor is the high prevalence of malnutrition, anemia, malaria, HIV/AIDs, and tuberculosis in the population. Liberia, for example, has one of the highest stunting rates in the world: one in three children under the age of five are stunted and lately, there has been an unprecedented rise in the incidence of malnutrition. In addition, the rainy season has arrived early this year, meaning malaria cases will increase rapidly and peak malaria cases may correlate with the ongoing COVID-19 pandemic. We might also expect to see a higher occurrence of extreme types of COVID-19 in younger patients in Africa due to the demographics and related endemic conditions affecting their immune systems. The severity of COVID-19 is likely to increase with malnutrition, anemia, malaria, HIV/AIDS and tuberculosis. Africa's story might not play out as other continents have.

Third, there is great emphasis on the importance of social cohesion and social gatherings in Africa. For example, weekly religious service attendances are highest in Africa, with rates in South Africa, Uganda, and Ethiopia as high as 82%. As a result, measures to impose social and physical distancing may prove more challenging, as evidenced by the protests that broke out in Senegal on the 20th March of 2020 following the banning of public gatherings, including gatherings at mosques as cases of COVID-19 rose. In March 2020, the Tanzanian government according to Kaseje (2020), came under pressure when it was reported that despite presenting an obstacle, the country would not close places of worship.

There are two major factors in the health system that could make the answer to COVID-19 more difficult in Africa. First, the continent is experiencing a double burden of disease. In addition to dealing with endemic infectious diseases, African health systems face providing treatment for non-communicable diseases including injury and cancer. As a result, the health systems are stretched thin to begin with, and there is very little room for absorbing the effects of the COVID-19 pandemic. Secondly, Africa has the world's lowest capacity to deliver health care. Extreme COVID-19 infections result in respiratory failure that needs assistance for ventilation. The ability to manage extreme COVID-19 types would rely on ventilator supply, energy, and oxygen. There is no country from Africa included in a recent study of countries with the largest number of intensive care beds per capita. There are no Intensive Care Units (ICUs) with ventilators in Liberia for example. Uganda has a population of 0.1 ICU beds/100,000. By contrast, it has been reported that the United States has a population of 34.7 beds/100,000. Lessons learned in Italy and China are highly useful. However, because of the variations in the populations and health system limitations, they cannot be extrapolated directly to Africa. Since Africa's health systems are stressed to start with and have very little capacity to handle the pandemic, the overall strategic response should concentrate on containment and effective preventive measures. Early and aggressive physical distancing and frequent handwashing, with parallel testing, contact tracing, and case isolation, will prevail as the most efficient and affordable interventions for the continent. We will need the full cooperation of communities for ambitious prevention measures to function. Maximum population participation can only be accomplished through active community involvement and health leadership. In addition, youth leadership and involvement will be key to prevention and containment programs. And lastly, given the importance given to religious services, religious leaders would need to take an active part in the response to COVID-19.

In Africa, there are disparities in demographic composition, high prevalence of infectious diseases, the double burden of illness, and thinly strained health systems and limited critical care capability. A comprehensive response to COVID-19 for the continent would need to take these factors into account and include civic participation, health leadership, and youth and religious leadership involvement in driving containment. Temporary repurposing and reorganizing of the surgical infrastructure at the health system level would be essential to improving critical care capacity during the response, building on what is there moving forward.

The World Economic Forum Response to COVID-19

A new strain of Coronavirus, COVID-19, is spreading across the world, causing death and significant damage to the global economy, according to Klaus Schwab (2020). Klaus Schwab further argued that COVID-19 is causing health emergencies and economic disruptions that no single stakeholder can single-handedly address. Responding to this crisis requires global collaboration between governments, international organizations, and the business community, which is at the heart of the role of the World Economic Forum as the International Public-Private Partnership Organization. The Forum has created the COVID Action Platform, a global platform for convening the business community for collective action, protecting livelihoods for individuals, facilitating business continuity, and mobilizing support for the COVID-19 response. The platform is developed with World Health Organization support and is open to all business and industry organizations, as well as other stakeholders, to incorporate and educate joint actions. As an entity, the Forum has a record of accomplishment in promoting disease prevention efforts. In 2017, according to Schwab (2020), the Coalition for Epidemic Preparedness Innovations (CEPI) was launched at the annual meeting of the World Economic Forum, bringing together government, business, health, academia, and civil society experts to accelerate vaccine development. CEPI has assisted in the race for developing a vaccine against this Coronavirus strand that has bedeviled the world in an alarming manner.

In South Africa, COVID-19 has become the preoccupation of the country. According to Mkhize (2020), the South African government has reacted rapidly to the epidemic and is committed to supporting research initiatives and programs to stop its spread. On the side of reducing food insecurity, the government has two major initiatives in place – one targeting unemployed youth and those orphaned by HIV/AIDS-related deaths under 18 years of age, and one offering monthly food packages for terminally ill home-based patients, including those with HIV/AIDS-related diseases. It should be noted, however, that these food parcels are provided only for the unemployed and not for the entire household that might have adults who were employed but are now unemployed because of businesses that have been closed and/or being retrenched due to the COVID-19 pandemic. The disease has fast developed into an economic problem in its short history. According to the National Treasury (2020), government revenue initially earmarked for poverty alleviation and rural development has already been redirected to the health care system. At the same time, people are getting poorer because of funeral expenses (National Treasury, 2020). This diversion of personal investments and savings will affect both farming, food protection, and nutritional levels. Consequently, the effect of the pandemic on agriculture presents a major challenge for the planners in government and rural development alike. This effect involves a decline in food production and employment, a decline in dietary intake and increased food insecurity, for which mitigation strategies must be pursued.

Non-Governmental Initiatives

There are vast numbers of non-governmental organizations interested in the various problems affecting South Africa's food security, including NGOs, multinational NGOs, CBOs, and labor unions. Hundreds of organizations are involved in running valuable development projects and initiatives, including support in policy and planning, strengthening partnerships between organizations, and a range of projects aimed at enhancing livelihood capacity in a variety of ways; these include nutrition intervention programs and 'grass roots' agricultural activities that are initiated at the community level. Some organizations run provincially, nationally, or regionally. For example, Save the Children (SCF) operates in six southern African countries. In South Africa, SCF works mainly to improve the government's and NGO's efforts to benefit children living with and impacted by HIV/AIDS and to help establish a national policy to protect them against malnutrition and food insecurity. FEWSNET, a regionally operating early warning system for food security, is a USAID-funded activity that networks with global, regional, and national partners to provide early warning system information on food security issues across South Africa, both in the short-term (crisis) and medium- and long-term (vulnerability focus).

Although it is not possible to review all food safety organizations or their programs and activities in South Africa, the socio-economic and bio-physical information that these organizations need for effective interventions is likely to be close to what government organizations need. The size of project activity in this regard is likely to be a crucial factor in deciding the information needs. This poses food insecurity as a dynamic problem, due to several factors that differ in significance across regions, nations, and social classes, as well as over time. These factors can be grouped into four clusters that reflect potential vulnerability in the socio-economic and political environment areas: food economy performance, care practices, health, and sanitation. Above all, it shows a shared understanding of potential causes of low food intake and poor nutritional status. Another conceptual framework discussed at IAWG meetings incorporated the Sustainable Livelihoods (SLA) approach as shown in Figure 2.

Data Collection and Analysis

The data collection method used in this analysis was individual semi-structured interviews. The discussion questions schedule helped in collecting qualitative data that was used to assess the impact of COVID-19 on the income, agricultural production, and consumption patterns of households. The livelihood method was adopted for evaluating household income. A tape recorder was used to document all the interviews. The information was transcribed from the tapes and manually analyzed. COVID-19's influence was not studied specifically, because this was not necessary since certain household members did not attribute their family members' illness to COVID-19.

Discussion and Analysis

Yin (1984) pointed out that it is not appropriate to present individual cases in the final report in a multi-case analysis. The specific cases are used as examples in this report. In addition, as Yin (1984) suggested, this review of the case study follows theoretical propositions on which the study is based. Following Yin's idea (1984), this study used the principle of food security as a theoretical basis for research and thus positioned the study in the category of the deductive method according to Struwig and Stead (2001). This food safety study focused on the availability of calories and not the nutritional value per se; the availability of calories does not automatically mean nutritional quality, since the two are not associated (Maxwell et al., 1999). COVID-19's

negative impact on the food security status of households was considered in this analysis and was evaluated as to whether or not the households remain food-safe as they were before. Also studied were the steps put in place by the households to soften the effect, although the latter is not the study's focus.

Due to the various manifestations of COVID-19's impact on households, these coping measures as the actual ability to cope differed amongst these households under investigation. This effect variability occurred mainly because the occurrence of COVID-19 associated disease found households at various levels of food (in) health. On the other hand, some of the concerns predicted after reading the literature did not arise during field research, such as children being taken out of school to care for sick family members or because of financial constraints, as schools had already been suspended due to the COVID-19 pandemic lockdown.

General Composition of Households

Many of these households were either widows or single mothers, with three generations of female members. Of the 13 households that were interviewed, six were led by single women (who were never married) and four widows. Two were managed by widows, and two by married men. The household members averaged seven, ranging from four to 13 members per household. In general, the larger households were those of three generations, while the smaller households comprised two generations. Some of the two-generation households had been three-generational but had lost the middle generation due to death. Such households' age range was broad, ranging from grandmothers to children under 10 years of age, with some households having teenage children and/or older children either not employed, dependent on irregular piecemeal jobs and pension pay-outs from the South African Social Security Agency.

While the government has put in place programs to cater for the food needs of the unemployed in general, however, the monthly rations are not intended for the entire household, such as those terminally ill home-based patients (including those with HIV/AIDS-related diseases), and thus may not solve the food insecurity problems of the household. With the rise of COVID-19 in the Eastern Cape, some people have become food insecure when they used to be food safe. Therefore, it is expected that the spread of the pandemic in rural areas, with the subsequent changes in labor supply and productivity, would have a detrimental impact on food production and consumption. Hence, the degree to which household food shortage issues are related to the pandemic must be investigated. While many efforts have been made at the community level, especially regarding medical assistance and treatment for those affected, there has been limited research to determine the effects of the pandemic on food insecurity in the home. Much of the work performed in the Eastern Cape Province has also been biased towards assessing the number of people affected, for medical assistance purposes. Rural areas are of special interest as their populations have the following peculiar characteristics:

- Most of their subsistence is derived from agricultural activities (FAO, 1997; FAO, 1995; WFS Botswana, 2001);
- Their main concern (especially for the rural poor) is to have a sustainable amount of food among other needs (Piot and Pinstруп-Andersen, 2002);
- Also, in the absence of COVID-19, rural communities faced malnutrition problems that contributed to weakened immune systems, leading to vulnerability to tuberculosis, malaria and other infectious diseases;

- COVID-19 education in rural areas may become more difficult, given that poor people generally have a low level of literacy and limited access to information. There could also be poor access to public service information, and therefore poor access to COVID-19 information; and
- Rural societies also bear COVID-19 's burden and costs as urban workers and migrants return to rural areas for treatment when they are sick

Rural people combine a range of activities into a livelihood strategy that enables them to provide for themselves and their households. Some individuals may not be direct producers but may benefit from the household's output as consumers and would have social roles within the household and the community. COVID-19 is expected to affect these interactions. The effects of the infection would initially be felt by the persons who fall ill and by their family or the household to which they belong, then by the community, and finally by the nation. Subsistence farming is generally characterized by a very close relationship between the activities of the household (for example, child care and child-rearing, recreation, support relations between adult members, home maintenance, and food processing) and the production of crops and care of animals for household consumption. Subsistence farming relies heavily on labor; therefore, the impact of the pandemic may lead to pressures on domestic or family labor. Rural households and communities interact within and with the wider economy and society (through the marketing of produce, purchasing inputs and consumer goods, and entering the labor market for various periods). They rely on labor for production; good health is, therefore, crucial, given that the nature of the work is to a large extent manual.

There was a general lack of diversification of livelihoods among the households participating in this research. Agriculture appeared to be the main livelihood source for some households with no other sources of livelihood. This was expressed in the inactivity of household members and the high reliance on government transfers where agricultural production failed: members did little to generate income but waited for government benefits in the form of old-age pensions and, in some cases, food baskets for orphans. In those households, practices such as small trading and tailoring, represented by literature from other African countries, were rare. Reardon et al. (1994) concluded, in analyzing the consequences of equity and food security and identifying the factors pushing households to diversify outside of agriculture, that non-farm activities in African households have the potential to increase farm productivity if their income could be used to fund farm inputs as well as long-term capital investments. He also pointed out that non-farm income may be useful for improving food security by allowing the household to buy food during times of food production shortfall. In this analysis, these behaviors were not found in the households.

Moreover, home gardens were also a rare sight in these households, which could complement food consumed and contribute to the nutritional quality of the diet. For vegetables, these households have opted to buy instead of producing their own (the former depends on the markets, prices, and availability of cash from the producers), resulting in variations in the vegetables consumed by these households. The debate on the patterns of food production and consumption, which follows later in this article, returns to this topic. The effect of HIV/AIDS on livelihoods has also altered the contribution of livelihoods to food procurement.

Many of the families in this sample shared the impact their family members' disease had on their livelihoods (or earnings); however, other families were uncomfortable discussing their family members' COVID-19 status. For cases where the respondent was the CHBC client, their

COVID-19 status was often disclosed when they provided their health history and information about their recovery. The researcher followed this information with a question as to what it was that had led to their healthy development. The answers were mainly that they regularly checked their COVID-19 status and self-quarantined to protect themselves and others.

The discussion on agricultural production was driven by questions that specifically sought to ascertain whether the family had any agricultural land, and if so, who farmed the land and what, if any, changes have been observed in the level of crop and livestock production. Further guiding questions related to improvements, if any, in input purchases and, lastly, whether COVID-19 had been a contributing factor to the improvements (if any). Several themes emerged on that subject from the discussions. These included the effect of drought on agricultural production, the occurrence of family illness, the death of an adult male (not generally associated with COVID-19), as well as the distance between the home and farm. Of the 13 households interviewed in this report, only four supplemented their own-production food purchases. Many of the households that owned land cited drought as the key reason they no longer participated in crop farming. There was a general tendency among households in the years when there was not enough rainfall to withdraw from farming; some left their farms fallow for more than five years. The following excerpts are from conversations that gave drought at least one of the factors that led to the decision by the families not to engage in farming.

The fields are less than 10 km from their dwelling places for most Sheshegu village residents, meaning the farmers in the area face the same climatic conditions as the village residents. Within these circumstances, however, some naturally tend to farm while others look for non-farming alternatives. For those who have chosen to withdraw from farming, it appears that fundamental factors have contributed to the decision to discontinue farming other than those linked to drought. The death of an adult male, especially a husband, is one such reason.

Most households reported having no livestock, particularly cattle, and animal care is done hand in hand with crop farming for those with livestock. Therefore, labor is shared in these tasks, and in the case of sickness, labor is shared even more as the ill family member must be looked after – decisions, that are made by the household. This has also led to low harvests in cases where the cattle have gone into the fields and damaged the crops, as cattle are generally taken care of in areas near the fields. COVID-19's effect on livestock production among these households appeared to be minimal; in fact, cattle thrived because they could feed on crops whenever the fields were left alone while the responsible family members went to care for the sick.

The questions used to lead the discussion and source the knowledge related to food production and consumption focused primarily on how households received their food, whether there were periods when they had to buy food, whether they were ever hungry due to lack of food or money to buy food or both, and how they coped under these circumstances. Furthermore, the respondents were asked to differentiate between how they used to get food before their family member's illness or death, and after the illness or status quo. Another factor discussed was the principal food consumed by the household. This question primarily sought to ascertain whether a variation existed in the diet of the household, whether the diet was nutritionally balanced, and if there were any age or gender differentials in food distribution at mealtimes. Additionally, the questions tried to determine how the form of food eaten had changed and whether COVID-19 might be the cause of those changes. It was unanimously confirmed by the respondents that the type of food had not changed after the COVID-19 death of the breadwinner. According to Ngumbela (2019), the key sources of food security for households in the Amathole

District of the Eastern Cape are salaries and remittances, with a minor role for agricultural output. This has been verified by the information from the interviews in Sheshegu village, with most households citing purchases as a significant strategy for food procurement.

Limitations of the Study

It is expected that the contribution this study brings to the literature on COVID-19's effect on agriculture and household food security in South Africa will be important but limited due to a set of limitations that manifest themselves in various ways. The study was not done with the country but with one small village. That limits the generalizability of this study's findings. Moreover, the complexity of the case study is such that it is difficult to generalize the case to the entire country or even to the other villages in the same area. COVID-19-related social stigma might have made it difficult for respondents/interviewees to provide information about the affected members of the family, while the need for health workers to retain confidentiality could have made it difficult for them to provide information. Interviewees were drawn from the Community Health Workers of the Department of Health who were doing door to door work in the researched village. Researched families can act differently or restrict the information they provide, realizing they are being monitored. The study centered on COVID-19's impact on subsistence purposes, food procurement, and agricultural production on household livelihoods. Furthermore, the study focused solely on household food security, with emphasis on access to food determined by livelihoods (income/purchasing power) and agricultural production. Equally relevant for the study of food security is access and use. Nevertheless, this analysis did not examine the nutritional content or the use of the acquired food.

Conclusion

Beyond any shred of doubt, the COVID-19 crisis has affected worldwide societies and economies and has permanently reshaped our world as it continues. Although the crisis effect amplifies familiar risks as well as introduces new ones, change at this scale often provides new opportunities for addressing structural problems and strategies to develop a better backup system in a crisis.

Recommendations

Infections and illness have a social impact on some people, although others are unaffected. Some households have the financial resources to cope with the loss of employment and revenue, while others do not. Farming systems, the types of crops and livestock generated, their reliance on labor and purchased inputs, and the supply chains that connect them to markets will all have different impacts. Food insecurity is likely to rise as incomes fall and agricultural prices rise because of disrupted supply chains, according to the Sheshegu location report. As markets close, some households lose access to food and must purchase it from more distant locations at a higher price. Low-income families may be forced to eat less healthy foods. Rural household incomes have reportedly dropped, particularly for those who depend on high-value perishables and air-freighted export crops, rural non-farm business and jobs, or remittances from migrants, as shown in Figure 1. What it all means then is that on top of their already heavy household workloads, women are likely to face extra work in caring for the sick. It is also possible that their daughters could be taken out of school to assist them.

Further research on the impact of COVID-19 on food security in South Africa's Eastern Cape Province are greatly needed. These may include a more quantitative aspect to supplement

qualitative studies. It is important to examine the degree to which households are conscious of the nutritional quality of their food and therefore the importance of conventional food. It was clear from the interviews that some members of the household were unaware of the nutritional value of some of the typical foods they consume, and as a result, these foods were regarded as preventive measures in the absence of preferred foods, such as meat. The linkages between government funding and potential sources of household livelihoods should be examined to assess whether there is a crowding-out impact on other livelihood sources.

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Author's contribution

The investigation on which the article reports was carried out by Xolisile Gideon Ngumbela as the main writer. He performed data analysis, did the field survey and prepared and reviewed the article for publication.

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