AN ANALYSIS OF THE EFFECTS OF ZIMBABWE'S COVID-19 NATIONAL LOCKDOWN ON HOUSEHOLD FOOD SECURITY AND LIVELIHOODS: THE CASE OF WARD 2, BEITBRIDGE DISTRICT

A dissertation submitted in partial fulfilment of the requirements for the Master of Science Degree in Food Security and Sustainable Agriculture (PRODUCTION)

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DECLARATION

I hereby declare that the research project entitled "**AN ANALYSIS OF THE EFFECTS OF ZIMBABWE'S COVID 19 NATIONAL LOCKDOWN ON HOUSEHOLD FOOD SECURITYAND LIVELIHOODS: THE CASE OF WARD 2, BEITBRIDGE DISTRICT**" submitted to Bindura University of Science Education, Department of Agricultural Economics, Education and Extension is a record of an original work done by me under the guidance and supervision of **NAME/S OF SUPERVISOR/S** and this work is submitted in partial fulfilment of the requirements for the award of a Master of Science Degree in Food Security and Sustainable Agriculture. The results embodied in this thesis have not been submitted to any University or Institute for the award of any degree of diploma.

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DEDICATION

- I dedicate this piece of work to my family and friends who have supported me through the whole process.
- I dedicate it to my brothers Abdony, Patson, Clever who kept on encouraging me to remain firm when I nearly quitted
- I also dedicate it to my lovely wife Tanya and kids (Abiel, Levi & Michaela).
- Lastly, I dedicate it to the Almighty

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ABSTRACT

The effects of the COVID-19 crisis on food systems are being felt around the world. Many governments have enforced country-wide lockdowns to reduce the spread of this virus. However, there are huge concerns on the impact of lockdowns on livelihoods including food and nutrition security for many countries including Zimbabwe. A study was carried out whose main objective was to investigate the effects of the COVID-19 national lockdown on household food security and livelihoods in Ward 2 of Beitbridge district.

A cross-sectional survey design was used in this study and both primary data and secondary data were used and these were collected through household questionnaires, key informant interviews, focus group discussions as well as from published literature such as journals, text books and newspaper extracts. Data were analyzed using SPSS version 24 and Microsoft Excel package. Qualitative data were analyzed using descriptive statistics whereas quantitative data were analyzed using t-tests, frequencies and multinomial regression modelling. Food accessibility constraints imposed by the lockdown and household incomes were analysed using independent samples t-tests, descriptive statistics and percentages. A 5-point Likert scale was used to rank the means of the constraints affecting food accessibility in the study.

From the findings of the study, only 18% of the respondents were food secure while, on the other extreme end, about 69% were severely food insecure during the Covid-19 lockdown period. A paired t-test comparison of the HFIES and FCS across the pre-lockdown and lockdown periods shows that there was a statistically significant decrease in the accessibility of food during the lockdown period (HFIES: p value = 0.00021 < 0.05 and FCS: p value = 0.000212 < 0.05). Movement restrictions (rank mean =4.3) were ranked as the major food access constraint amongst respondents with high food prices, income decrease, food scarcity, floods and drought as the other significant constraints in that order. Household income was also greatly affected by the COVID-19 lockdown imposition. The survey results indicate a decrease in income between the pre-COVID and the COVID period. At ZAR1525.00, the average household income decrease was significant (p = 0.00001 < 0.05). Multinomial logistic regression was used to model the factors that affect household food access under the lockdown period. Household head education level (p=0.018), household income (p=0.03), movement restrictions (p=0.008) and household size (p=0.04) had statistically significant effects on the food security status of the respondents.

It was recommended that the strict enforcement of lockdowns by governments should simultaneously be accompanied by food assistance and cash transfer social safety programs especially targeted at the poor and marginalised households in order to safeguard their income and food security. A Covid-19 prevention strategy that completely relies on movement control hinders the efficiency of the food system. Therefore, there is great need to come up with alternative measures that allow some movement while maintaining the safety of the people.

Keywords: (Covid-19, food security, nutrition, lockdown, livelihoods)

LIST OF ACRONYMS AND ABBREVIATIONS

BUSE	Bindura University of Science Education
DA	District Administrator
FAO	Food and Agriculture Organisation
FCS	Food Consumption Score
HFIES	Household Food Insecurity Experience Scale
MOB	Municipality of Beitbridge
PHEIC	Public Health Emergency of International Concern
SLA	Sustainable Livelihoods Approach
SLF	Sustainable Livelihoods Framework
WHO	World Health Organisation
ZIMVAC	Zimbabwe Vulnerability Assessment Committee

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CHAPTER 1
INTRODUCTION

1.1 Background of the study

Majority of the countries in the world lives on a normal functioning economy where goods move freely as well as people. When the movements are halted there is a crunch in every sphere of life since food, medicines, and the general basics to livelihoods are accessed in this free movement motion. Corona virus (COVID-19) pandemic brought a huge halt to the free movement of essentials as well as people after it was declared a very dangerous and contagious disease by World Health Organisation early 2020. Many countries due to the ferocity of this pandemic and its complex efficacy decided to limit movement by putting in place bans to public gatherings, closing down airports as well as lockdowns (Clapp & Mosely, 2020)

This virus which according to World Health Organisation originated from a city called Wuhan in China under unclear circumstances (Tesfaye et al., 2020). This global pandemic has had a huge impact on the normalcy of livelihoods in the whole world with a far much more intense impact in the Sub- Saharan Africa. The pandemic was declared by WHO as a Public Health Emergency of International Concern (PHEIC) on the 31st of January 2020 and in response to this the government declared a national lockdown on March 30 2020 in order to curb the spread of this pandemic (WHO, 2020). Covid-19 spreads fast and affects the respiratory system of its victim causing them to have breathing issues as well as headaches, fever, diarrhoea, weak joints among other key symptoms. The most unique and dangerous feature about this pandemic is its highly contagious and spread through air droplets as well as through contact spreading even in its incubation period.

The effects of the interventions by the policy makers are without counter negatives since this disrupted and is still disrupting the normal flow of goods and services crippling the economy (FAO, 2020b). It also affects livelihoods and causing a huge threat to the food security of many households in Africa where movements of agriculture goods to and from to agriculture market plays an integral role in fostering food security. The Zimbabwean government totally shut down the country on the 30th of March restricting intercity movement as well as closing down its international borders. This measure was to prevent the spread of this pandemic which was already wreaking havoc in the neighbouring South Africa and in other European and American countries.

The COVID-19 pandemic arrived in Zimbabwe at a time when 7.7 million people were already in urgent need of humanitarian assistance due to economic challenges and climatic shocks (ZimVAC, 2020). With a poverty rate of over 70 per cent, the second largest informal sector in the world (85 per cent of economic activity), and no access to international capital, Zimbabwe is expected to face severe consequences due to the global economic slowdown. Food and nutrition security are already being jeopardized. Prior to COVID- 19, more than 4.3 million people were severely food insecure in rural areas in Zimbabwe and a further 2.2 million people in urban areas were "cereal food insecure". Pending the results of new assessments, food security partners estimate that an additional 200,000 people will require assistance due to the COVID-19 situation (ZimVAC, 2020).

With the majority of the people employed in the formal sector, the lockdown enforcement meant that the population which relied on the informal sector was left stranded since their business could not operate (Tesfaye et al., 2020). This affected their income stream as well as their source of livelihood. Furthermore, the other population which had access to food brought into the economy by the informal sector, was greatly affected since the informal actors in the economy were stopped from operating (Matsungo & Chopera, 2020). This also caused a major production drop as well as accumulated losses that occurred due to the abrupt declaration of the lockdown as well as reduction of consumption. A great number of people also lost their jobs through laying off since the companies were halted from operating taking away their source of livelihood, this also have a spiralling effect on the consumption patterns of many which were also reduced.

As a result of the lockdown, the movement of people and goods were restricted. Security forces enforced lockdown measures to ensure people stay at home and most businesses and markets were closed across the country (Ayanlade, 2020). In Kenya, concerns over safety and requirements for COVID-19 tests for the long-distance truckers crossing borders in Eastern Africa resulted in a shortage of food truck drivers and delays in the delivery services (Ghimire, 2020).

Suffice to say, the enforcement of these stringent measures has inadvertently disrupted peoples' way of life with significant ramifications on food security, businesses, urban and rural livelihoods, further limiting household incomes (Cooperazione Internazionale, 2020). This has led to a higher than previously anticipated food insecure population, especially in urban centres. Due to movement restrictions during the lockdown national boarders were closed except for

formal imports of essential goods such as food and medical supplies (FAO & WFP, 2020). Only the major supermarkets were the ones that remained functioning. The supply of the perishable goods coming from the rural areas to urban was disrupted and thus impacting the livelihoods of informal traders such as vendors. Zimbabwe has the largest informal economy in Africa as a percentage to its economy, which, according to the International Monetary Fund (IMF) is 60.6 percent, making us largest informal economy in the world after Bolivia.

In Beitbridge majority of the population are not formally employed and they rely on cross border trading and vending for a living. These restricted movements made a huge impact on abilities of families' in Beitbridge Ward 2 to earn money for food. Shortages of some basic commodities on the markets such as maize meal were noticed. Desperate households, regardless of age and sex would spend hours in long queues, jostling to purchase scarce subsidised mealie meal which was sold at $70 ZWL/kg at supermarkets and some retail shops during the first lockdown period in March 2020. On the parallel market maize meal prices were up to 4 to 5 times higher and are unaffordable to many poor households.

1.2 Problem statement

The COVID-19 pandemic has worsened the food insecurity situation globally, regionally, national, locally and individually through impacting on food systems. Prior to the COVID-19 pandemic, food insecurity in the Southern African region was already alarmingly high, with a record 45 million food insecure people across the SADC countries (ZimVAC, 2020). Restriction of movement of people leads to restricted movement of essential goods which are critical for the sustenance of life. The restrictions imposed are a great blow to farmers who relied on open markets for their survival and income. With the restrictions of movement, the open market is regarded a high risk and this leads to a decrease in numbers of customers leading to drop in income (Livelihood Center, 2019).

The lockdown also meant non-essential companies were forced to halt production, meaning majority of the workers in these industries were laid off. This meant that their source of income was taken away, implying that even their buying power was reduced. This also has a negative effect on their access to food (Mhlanga, 2020). The prices of basic commodities also sky rocketed as the majority of the operators were trying to maintain their revenue in the wake of reduced consumption as well as surges of panic buying which was triggered in the first early

days of the announcement of the lockdown. This also has a huge effect on the communities which already had their means of production and source of livelihood taken away. All this is also accompanied by drop in remittances as the whole world was affected by the pandemic. This affects those vulnerable households who relied on remittances during disasters.

An efficient, sustainable and widely accessible financial system remains a stumbling block in achieving food security. There is need to ensure that income is stable so that households can be able to purchase food. The corrosive dependency on donors has been a setback to the district. The people have to embark on projects that last for a long time and that contribute to them being food secure.

1.3 Objectives

1.3.1 Main objective

The main objective of the study was to investigate the effects of the COVID-19 national lockdown on household food security and livelihoods in Ward 2 of Beitbridge in Zimbabwe.

1.3.2 Specific objectives

The specific study objectives were to:

1. to characterise food access constraints faced by households during the COVID-19 pandemic
2. to determine the effect of the COVID-19 national lockdown on household food access before and during the COVID-19 pandemic,
3. to investigate how the COVID-19 national lockdown has affected household incomes, and
4. to investigate the socio-economic factors (age, availability of remittances, gender of household head, family size, education level of the household head, employment status of the head and household income) affecting household food security status.

1.4 Research questions

1. What were the major constraints faced in accessing food during the lockdown period?
2. What were the food consumption scores before and during the lockdown?
3. What were the average monthly household incomes before and during the lockdown?

4. What are the socio-economic characteristics affecting household food security?

1.5 Hypotheses

1. Hypothesis: Lockdown is the greatest constraint to food accessibility during the COVID-19 pandemic.
2. Hypothesis: The household food consumption score during the COVID-19 period is less than the food consumption score before the COVID-19 lockdown period.
3. Hypothesis: The average monthly household income before the lockdown period is greater than the monthly income during the lockdown period.

1.6 Justification

The study findings may provide a roadmap or guideline for evidence-based planning in dealing with COVID 19 pandemic and other disasters such as cyclones, HIV/AIDS, droughts. Most researches currently being done are not area specific such that generalised conclusions may be drawn which may not be helpful to address food insecurity issues of the target groups. This research will help private and public partners in the identification and prioritization of food security intervention programmes. The project is being conducted at household level so that we can be able to interact with the local people and receive first-hand information that is accurate. There is need for food security programmes and projects that need to be set up to help curb food insecurity hence need for this baseline survey. This will ensure that the households are able to meet their food consumption needs. Informal employment marks the majority of Beitbridge industry. Therefore, further COVID-19 induced lockdown extensions have a ripple effect in the disruption of livelihoods. For this reason, alternative livelihoods options can be only found out after thorough researches such as this one.

Food insecurity is greatly affecting most households due to the reduction in wages and closure of some businesses that have led to increased levels of unemployment. This piece of work will assist in the identification of livelihood options that can be made sustainable. This research will add weight to the body of knowledge in COVID-19, food security and livelihoods particularly in Beitbridge.

1.7 Scope and limitations of the study

The study was only done in Beitbridge ward 2 only due to logistical and time related constraints. There are many aspects on the COVID-19 related issues ranging from its effects on gender dynamics, social dynamics as well as the economic development. All these issues are critical in the construction of this research, but will only be included in support with the main focus of the study on how the COVID-19 pandemic affects livelihoods and household food security of the communities owing to the imposed lock down restrictive measures.

1.8 Outline of Thesis

The thesis is divided into six chapters.
Chapter one is the introductory chapter which explains the background of the study, the problem, the objectives, and the significance as well as the delimitation of the study.

Chapter two focuses on the review of literature. It contains the explanation of key concepts as well as the theoretical and conceptual framework of the study.

Chapter three focuses on the methodology, beginning with the description of the study area, the research design, sampling, data collection and data analysis framework of the study.

Chapter four and chapter five details and explains the results of the study

The final chapter of the thesis is chapter six which explains in detail the thesis conclusion and the recommendations from the study.

1.9 References

A. (2020). COVID-19 and food security in Sub-Saharan Africa : implications of lockdown during agricultural planting seasons. *Npj Science of Food*, 1–6. https://doi.org/10.1038/s41538-020-00073-0

Clapp, J., & Mosely, W. G. (2020). *Impacts of COVID-19 on food security and nutrition : developing effective policy responses to address the hunger and malnutrition pandemic*. *September*. https://doi.org/10.4060/cb1000en

Cooperazione Internazionale. (2020). *COVID-19 : FOOD SECURITY AND LIVELIHOOD IMPACT*. *July*.

FAO. (2020). *Impact of COVID-19 on agriculture , food systems and rural livelihoods in Eastern Africa : Policy and programmatic options*. *July*, 1–9.

FAO, & WFP. (2020). *Rapid Assessment – Possible Impact of the Novel Coronavirus Pandemic (COVID-19) on Livelihoods , Food Security , Nutrition and Agricultural Supply*. 1–47.

Ghimire, D. R. (2020). *The Effect of COVID-19 on Livelihood and Food Security : A Rapid Study in Nepal*. *2352*(September), 39–51.

Livelihood Center. (2019). *COVID-19 and IMPACT on Food Security and Livelihoods Quick overview on current situation, and anticipated impact for: Livelihoods, Food Security and Nutrition*. 1–9.

Matsungo, T. M., & Chopera, P. (2020). *The effects of COVID-19 induced lockdown on nutrition, health and lifestyle patterns among adults in Zimbabwe*. https://doi.org/10.1101/2020.06.16.20130278

Mhlanga, D. (2020). *Socio-economic Implications of the COVID-19 for Smallholder Livelihoods in Zimbabwe*. *April*. https://doi.org/10.20944/preprints202004.0219.v1

CHAPTER 2
LITERATURE REVIEW

1.10 Introduction

The COVID-19 pandemic has been a global catastrophe affecting all facets of lives especially of the most vulnerable groups in the developing world. The pandemic has induced lockdown restrictions which impedes fluid movement of goods and services and the most basic for life which is food. This Chapter therefore reviews the wide range of literature on the effects of COVID-19 on livelihoods as well as on food nutrition security.

Livelihoods are an important means of making a living and include people, their capabilities and their way of living. Means of making a living includes food, income and assets and livelihoods includes all the resources together with their capacities and their ability to sustain basic needs, food, shelter, clothing, cultural values and social relationships. Sustainable livelihoods involve the maintenance and enhancement of assets on which people depend. This also encompasses the ability of the resources and the various assets to sustain the livelihoods and a decent way of living with equal access to basic needs. In the wake of the COVID-19 lockdown the potential of the assets and the various resources together with their capacities is dwindled making it difficult for individuals to access the basic needs of life such as food, shelter, clothing, cultural value maintenance as well as social relationships.

1.10.1 Food Security

Food security is the situation in which all people have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life all the time (Clapp & Mosely, 2020). The pillars of food security include availability, accessibility, stability and utilisation. There is need for all pillars to be present for food security to be existent. With, over half of the rural population already food insecure requiring food aid in the country, further crippling of food access, availability as well as utilisation and stability renders the food security situation in the country worse (Mhlanga, 2020).

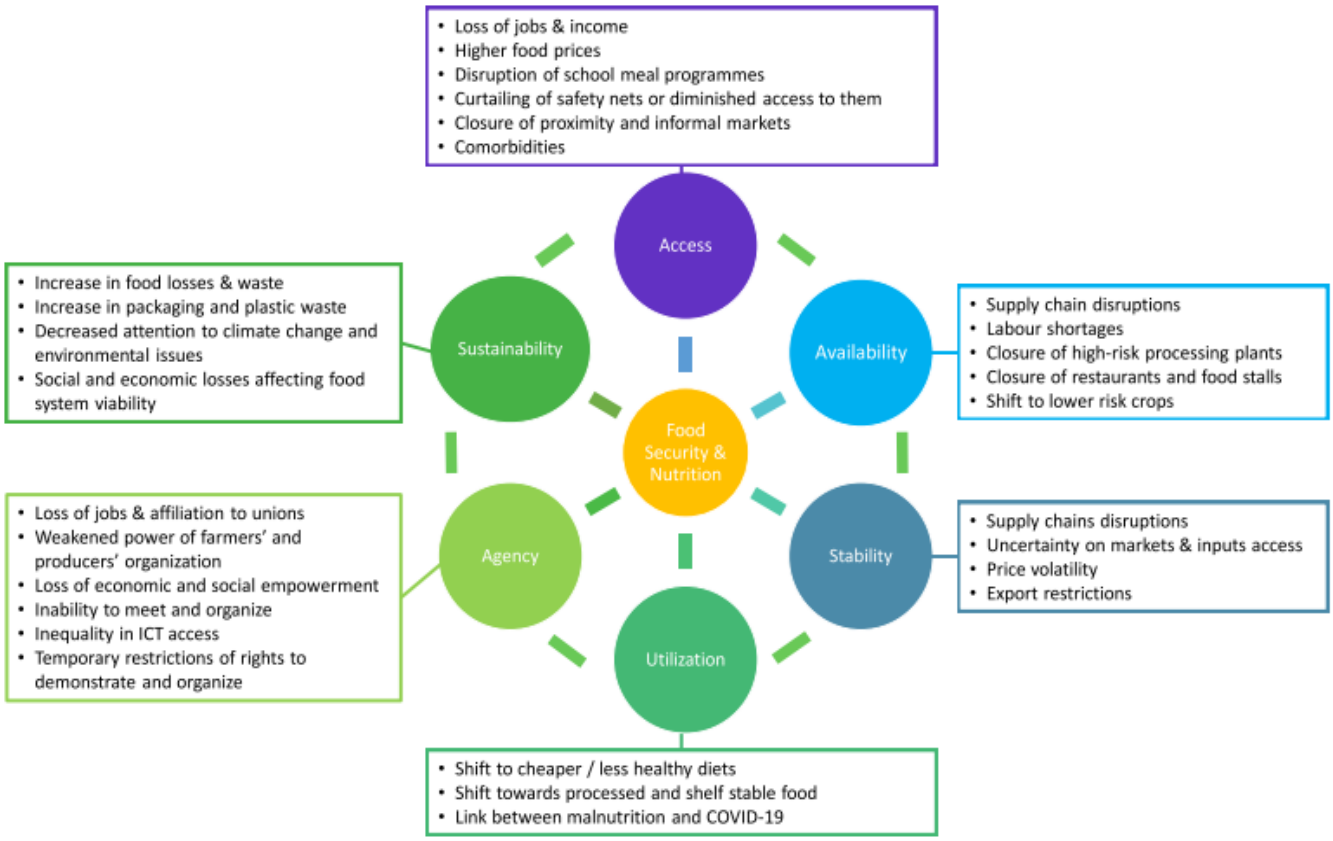
1.10.2 COVID-19 Pandemic in the Global and Zimbabwean Context

The Corona virus disease (COVID-19) was declared as a national disaster by the president of Zimbabwe on 17 Mach 2020, after it was declared by the WHO as a public health emergency of international concern (PHEIC) on 31 January 2020. In response to the covid-19 pandemic the government of Zimbabwe declared the national lockdown, which started on March 30 2020. This pandemic has spread rapidly around the world since late 2019, leaving serious negative consequences for food security.

The Statutory Instrument 83 of 2020, Public Health COVID-19, Prevention, Containment and Treatment, National Lockdown Order was gazetted by the Government of Zimbabwe and measures were put in place to slow the rates of local transmissions. One of the measures was a 21-day national lock down, which started on Monday 30th March 2020. In the wake of lockdowns triggered by this global health crisis, there was a major disruption to food supply chains and also global economic slowdown. The president of Zimbabwe on the 29th of June 2021 announced level 4 lockdown, with measures to curb the spread of COVID-19 in the wake of rising new infections (Herald,2021)

1.11 Effects of COVID-19 on Food and Nutrition Security

The 2020 context was already a bad year, with droughts encountered in the country as well as damaging heat waves. The country was already in a bad economic spot and the emergency of this deadly virus further propelled food insecurity. COVID-19 affects all the facets of food nutrition security which includes availability, access, utilisation and stability. The fig below shows the various ways in which COVID-19 affects the food and nutrition nexus.



Source: (Clapp & Mosely, 2020)

Figure 2.1: Effects of COVID-19 on the pillars of food and nutrition security

a) Availability

The announcement of a total lockdown in Zimbabwe, induced panic buying from the households in the country since majority thought they would never get the chance and opportunity to buy food again. This led to shortages of key basic commodities such as sugar and cooking oil since the majority of the people were hoarding. Many were affected by shortages also emanating from restrictions on movement, which affected suppliers. Clapp & Mosely (2020) postulated that in developed countries, production was not badly affected by the pandemic since it is highly mechanised and requires less labour. However, in contrast, cereals production on smaller farms in lower income countries tends to be more labour intensive and female dominated (Mhlanga, 2020). In comparison to grains, supply chains for horticulture, dairy and meatpacking are more vulnerable to the impacts of COVID-19 in higher income countries because of their more labour-intensive nature, susceptibility to food worker illnesses, and corporate concentration leading to larger farms and processing facilities where

disease outbreaks may spread rapidly. Disruptions in supply chains for agricultural inputs could also affect food production going forward.

b) Access

According to (Herald, 2020) a total lockdown was announced in March which led to restriction of movement of people without proper documentation as well as without a tangible reason. The armed forces were placed in the majority of populated areas such as shops to enforce the restriction movement. This move by the government restricted physical access of both the consumers and the producers to the market. Access was the most affected pillar of food security by the COVID-19 lockdown. Majority of smallholder farmers were greatly affected since they could not transport their produce to the market and this led to the reduction of the key access pillar of food security.

Furthermore, reduced purchasing power due to reduced income emanating from laying off of workers led to reduced access and reduced purchasing power amongst the majority of the households (Cooperazione Internazionale, 2020). Due to the imposition of lockdown restrictions, there is usually increase in prices of basic commodities as well as cereals. In Zimbabwe the lockdown was imposed and due to the panic buying and the shortages of some key commodities in the market, some of the people took advantage and imposed price hikes, a move which affected a lot of vulnerable households.

Clapp & Mosely (2020) indicated that global cereal stocks are at near record levels and world food commodity prices overall fell in the initial months of the pandemic. However, the overall food price index trends mask wide variability in food commodity prices in the wake of the lockdowns. Initially, prices for meat, dairy, sugar and vegetable oil fell sharply, while prices for cereal grains remained steady. As the pandemic deepened, price trends have shifted, with meat prices rising, for example, as meatpacking workers experienced high rates of illness in some countries and meat-processing plants closed temporarily in order to halt transmission of the disease in worker communities

Another huge blow especially in developing countries in comparison to developed country was the absence of social nets. Moseley & Battersby, (2020) postulated that this means that, in the absence of social safety nets, spending on food declined as incomes declined during the COVID-19 pandemic. These losses have affected low wageworkers, some farmers, and

informal traders and hawkers. Food price rises, where they occurred, have directly affected households' ability to purchase enough food. Comorbidities have also deeply impacted some populations, particularly marginalized groups, making them more vulnerable to COVID-19, resulting in higher mortality and morbidity rates, with implications for labour, income and access to food for lower income groups

c) Utilisation

Nutrition was greatly affected due to the lockdown imposition. Because of the reduction in purchasing power of the majority of the households due to income cuts and the closedown of the economy, many opted for cheap alternatives which in terms of nutrition were sub-standard. This impact is felt especially in low and middle-income countries, where people typically spend a higher proportion of their income on food compared to people in high-income countries, with the poorest households typically spending around 50-80 percent of their income on food (FAO, 2011).

Households were faced to change their normal healthy dietary patterns due to shortages of supplies. In addition, some under such circumstances can be forced to reduce meals and quantities as adaptation measures to the shortages of goods and services as well as purchasing power reduction witnessed in the lockdown period. There was also a sharp urban to rural migration causing a surge in pressure since the returnees were coming back for survival and reliance was put by the youth also on the elderly. Although in rural areas people produce part of the food they consume, the reality is that in poorer countries, even the rural areas depend on incomes for food security as the food staple is many times not locally produced but purchased.

d) Stability

The imposition of the lockdown movement restriction has a long-term impact on the food and nutrition security of the household especially in the vulnerable developing countries like Zimbabwe. It affects both the short term and also the long-term aspects of food security. COVID-19 lock down restriction came at a time when the country had witnessed a bad season and the pandemic and its various regulations further weakened the food security system which already had huge crevices.

Furthermore, the export restrictions placed on staples like wheat and rice led to higher world prices for those crops, compared to prices for other foods, which generally fell (FAO, 2020a). Although most of the COVID-19 food export restrictions were temporary, the risk remains that

countries may impose new export restrictions (Tesfaye et al., 2020). The upward pressure on food prices in some local contexts also affects food system stability, and ongoing economic uncertainty, which has contributed to these trends by affecting currency values and presents an ongoing risk to stability in global food markets. Uncertainty over the evolution of the pandemic and of restrictive measures also influences the ability and willingness of people and firms to invest in the agriculture food sector (UNCTAD, 2020).

1.11.1 Effects of COVID-19 on Livelihoods

COVID-19 has impacted economic livelihoods across the African continent. According to the World Bank, it is estimated that agricultural production in Africa could contract by 7%, directly impacting family incomes and their investment in education, health, and other necessities. Many poor and marginalized communities across the developing world may now fear hunger as a greater or more immediate threat than the coronavirus. COVID-19 pandemic affected also the livelihoods of the communities with those vulnerable and exposed to risk getting the bitter end of the negative effects. The pandemic affected the various source of lives of households such as agriculture production, livestock rearing, fishing as well as employment and income generation as well as remittances

a) Effects on agriculture production

Agriculture was greatly affected by lockdown restrictions due to its seasonality characteristic. There was a great impediment in terms of access to key inputs and resources by farmers during this period where movement was restricted. Closure of borders meant that key inputs which usually required importation where greatly affected by the closure of borders. Seasonal workers lost their jobs since production scaled down and also their income earning capacities. In addition, the pandemic posed a great risk also to the health of the workers as well as their households. If an outbreak occurred at a farm, it implied a break in operations as well as extensive testing of the workers and quarantine all of which disrupted the normal production function of the farm. The overall impact of the lockdown was lower sales, lower incomes and increase in prices, might put at risk farming as it become more difficult for farmers to buy seeds and cultivate their crops for the next harvest season.

Animal production was greatly affected as well in particular in rural areas. Livestock markets were also closed with butchery outlets also facing the same predicament. Reduced gatherings

and the banning of ceremonies and weddings and parties also implied reduced meat business leading to reduced income for the farmers and those who are involved in cattle rearing (Livelihood Center, 2019). The uneventful lockdown implied that there was increase pressure on natural resources (water and pasture) in the areas where they are blocked that impact grazing areas capacity to regenerate and leading to animal food shortage, risk of exacerbation of conflict with settled farmers and risk of new conflict while looking for new routes for migration.

b) Loss of employment

The majority of the people living in urban areas rely on employment and labour service for their income and this is the major source of livelihoods unlike in rural areas where the main source is production. Another worrying issue in the context of a disaster such as COVID-19 is that the cost of living is very high in urban areas unlike in rural areas. The lockdown restriction put in place meant that movement was restricted and the majority of the formal business as well as the informal (which constitute the majority in Zimbabwe) were put on halt. Many people lost their jobs, many job posts were frozen due to the pandemic. This meant that the source of income for most people in the urban areas dwindled making life a menace in terms of access to food and basic services such as health.

Small businesses suffered the most as the government required clearance from the ministry of health as well as registration papers for the companies to open against the strict regulated conditions. The loss of employment also meant a loss of business to the good and service suppliers in the market. There was a huge slump in the demand for luxuries whilst the majority focused on the necessities and needs. A surge in the number of informal business is anticipated with the loss of formal jobs and the suspension of industry. There are less job opportunities in the environment and this leads the majority of people venturing into informal and illegal dealings to put food on the table (Mhlanga, 2020).

c) Widening social inequalities

The global economic slowdown triggered by the pandemic, as well as the spread of the disease itself, has exacerbated existing societal inequities in most countries (Ashford et al., 2020). These inequities are affecting rights as well as access to basic needs such as food, water, and health care, and access to jobs and livelihoods, all of which have implications for food security and nutrition. Food insecurity already disproportionately affects those people experiencing

poverty and who face societal discrimination, and it is these very people who are at higher risk of contracting COVID-19 and who have less access to health care services (Klassen & Murphy, 2020)

Gender inequities have also been exacerbated by the crisis, as women face additional burdens during COVID-19 as frontline health and food system workers, unpaid care work, community work, which has increased during lockdowns (Ayanlade, 2020; Clapp & Mosely, 2020; FAO, 2020b; Matsungo & Chopera, 2020; Mhlanga, 2020)**.** Women are also at risk of an increase in domestic violence due to the recession and confinement at home when lockdown measures are in place (FAO, 2020b; WHO, 2020a). These inequities affect women and their prominent roles in food systems, including as primary actors ensuring household food security and nutrition, as well as being food producers, managers of farms, food traders, and wageworkers. According to FAO, the agricultural activities of rural women have been affected more than those of men (FAO, 2020b). This gender dimension is important because women, in their caregiving roles for the sick, children, and the elderly, are likely at greater risk of exposure to COVID-19, with knock-on implications for food production, processing and trade (Moseley, 2020).

1.12 Empirical Review

Many authors have already attempted to study the effects of the COVID_19 pandemic on various aspects of livelihoods. (Matsungo & Chopera, 2020) investigated the effects of COVID-19 induced lockdown on nutrition, health and the lifestyle among adults in Zimbabwe. The main objective of the study was investigating the impacts of the COVID-19 induced lockdown in Zimbabwe on nutrition, physical activity, alcohol consumption and smoking among Zimbabwean population aged ≥18years. The study was a cross sectional survey which employed the use of questionnaires as the primary data collection tool. The study however employs the use of Body Mass Index to investigate the nutritional diet and health aspect of the respondents. Paired T-test was used to ascertain the statistical significance in the study which is similar to what was employed also in this study on income and food security scores.

Yamarak (2020) also investigated the impact of COVID-19 on incomes, livelihoods and food security in Guinea. The research does not employ the cross-sectional survey approach, but employs the review of literature and secondary data in its methodology. The weakness of this approach is that, secondary data does not reflect the true nature of the subject under research

from the actual respondents affected by the phenomena. Secondary data generalises and is super subjective; it is not strong in giving the reality of events in the study area of interest. Statistical analysis is also important which was however omitted in this study in bringing out the significance of the data collected and the various differences between collected data or subgroups.

Ghimire (2020) also conducted a research on the effect of COVID-19 lockdown on livelihood and food security in Napel region. The study employed a cross-sectional survey approach which is advantageous in that it brings out the reality of what is happening on the ground at that particular given time through questionnaires and interviews which were the primary source of data collection. Data from 839 households was employed in the study and the analysis reviewed that there was reduction in income by 68% and increased food insecurity by 11.6%. It also investigated the various coping strategies used by households. Ordinal logistic regression was used to identify the factors affecting option of coping strategy. This study however will employ a multinomial logistic regression approach where the dependant variable will be *"food secure, moderately food insecure or severely food insecure"*

This study however employs a cross sectional survey approach and uses questionnaires as the primary data collection source. The study uses paired t-test to determine statistical mean differences of the data collected. The study also uses multinomial logistic regression to ascertain the factors affecting food security amongst the respondents. Multinomial logistic is the best statistical method to use where the dependent variable is categorical and has more than two categories, for this research the dependent variable has 3 categories namely "severe food insecure, moderate food insecure and food secure".

1.13 Conceptual Framework

The concept of Sustainable Livelihood Framework was first postulated by DFID, (2000) and has been widely used in the development context. The framework aims to help in the understanding and analysis of the livelihoods of poor people and to assist in the identification of appropriate entry points and sequencing of more effective development policy and interventions. The framework identifies, facilitates the practical priorities for actions that are based on the views and interests to those concerned. Inquest for solutions to development problems besetting the African continent, the donor community and NGOs are using the sustainable livelihood framework as their analytical tool to achieve their intended goals. This

concept of ‘Sustainable Livelihood” constitutes different sustainable livelihood approaches. The SLF lies upon a number of key principles which include according to (Alinovi et al., 2010), People-centred: People rather than the resources they use are the priority concern in the livelihoods approach, since problems associated to development often root in adverse institutional structures impossible to be overcome through simple asset creation.

Holistic: A holistic view is aspired in understanding the stakeholders’ livelihoods as a whole, with all its facets, by a manageable model that helps to identify the most pressing constraints people have to face.

Dynamic: Just as people's livelihoods and the institutions that shape their life are highly dynamic, so is the approach in order to learn from changes and help mitigating negative impacts, whilst supporting positive effects.

Building on strengths: A central issue of the approach is the recognition of everyone's inherent potential for his/her removal of constraints and realisation of potentials. Identifying these strengths rather than the needs and problems is the starting point of this approach, in order to contribute to the stakeholders’ robustness and ability to achieve their own objectives.

Macro-micro links: Development activity tends to focus at either the macro or the micro level, whereas the SLA tries to bridge this gap in stressing the links between the two levels. As people are often affected from decisions at the macro policy level and vice-versa, this relation needs to be considered in order to achieve sustainable development.

Sustainability: A livelihood can be classified as sustainable, if it is resilient in the face of external shocks and stresses, if it is independent from external support, if it is able to maintain the long-term productivity of natural resources and if it does not undermine the livelihood options of others.

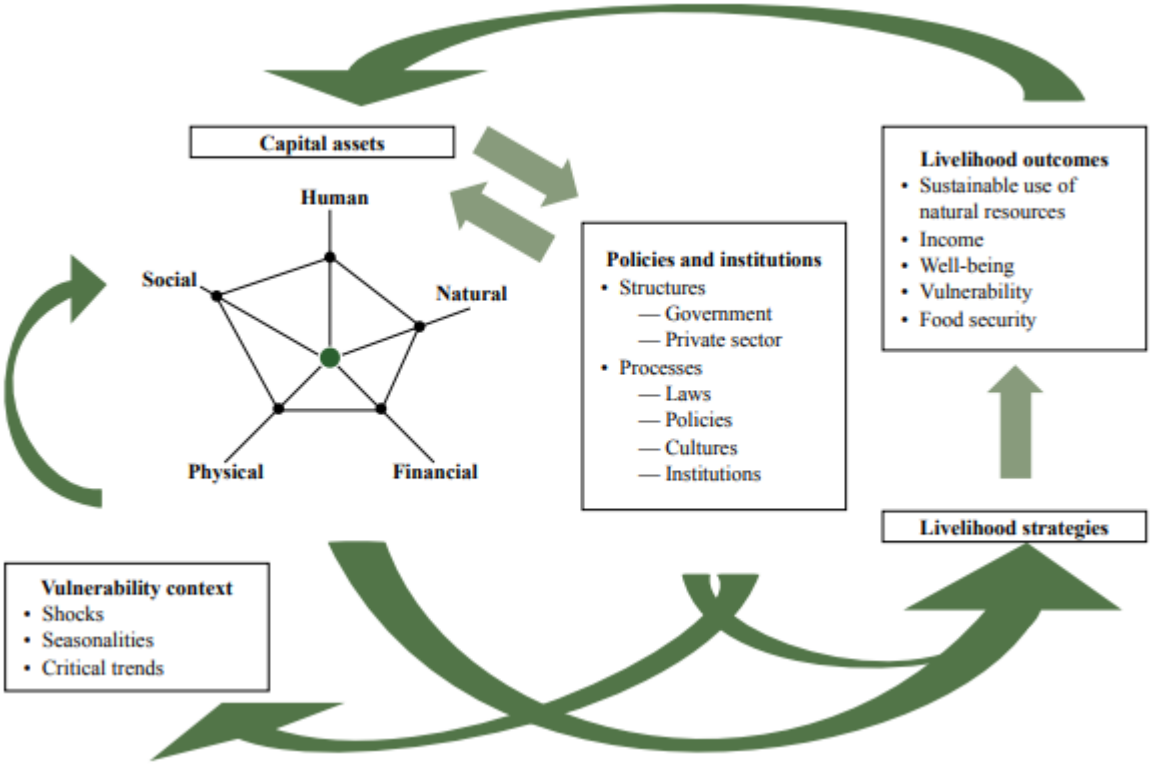


Figure 2.2:Sustainable Livelihood Framework

The SLF shows the interconnectedness of number of pillars and resources and according to Chitongo & Magaya, (2013) consist of:

Human capital: this entails the human knowledge, skills and labour that are needed under this case to facilitate the maximum food and nutritional benefits from the household gardens

Social capital: this represents the social resources (networks, membership of groups, relationships of trust and access to wider institutions of society) upon which people draw in pursuit of livelihoods.

Natural capital: these are the natural resource stocks from which resources flow useless for livelihoods are derived (e.g., land, water, wildlife, biodiversity and environmental resources).

Financial: the financial resources' which are available to people (whether savings, supplies of credit or regular remittances or pension) and which provide them different livelihood options.

Physical: the basic infrastructure (transport, shelter, water, sustainable energy and, communication) and the production equipment and means that use of enable people to pursue livelihoods

1.14 Summary of literature Review

The literature review encompasses all the literature demands of the study. It explains other authors perspectives on COVID-19 restriction lockdown and how it affects both food and nutrition status and the livelihood of communities. The chapter also has an empirical review section where similar studies are reviewed as well as the conceptual framework section which concludes the literature review.

1.15 References

Alinovi, L., D'Errico, M., Mane, E., & Romano, D. (2010). Livelihoods strategies and household resilience to food insecurity: An empirical analysis to Kenya. *Promoting Resilience through Social Protection in Sub-Saharan Africa*, 28–30.

Ashford, N., Hall, R., Arango-Quiroga, J., Metaxas, K., & Showalter, A. (2020). Addressing Inequality: The First Step Beyond COVID-19 and Towards Sustainability. *Sustainability (Switzerland)*, *12*(13), 5404.

Ayanlade, A. (2020). COVID-19 and food security in Sub-Saharan Africa : implications of lockdown during agricultural planting seasons. *Npj Science of Food*, 1–6. https://doi.org/10.1038/s41538-020-00073-0

Chitongo, L., & Magaya, E. V. (2013). Cooperative Gardens and Rural Development the Case of Help German in Gutu Ward 25 Zimbabwe. *Journal of Agriculture and Sustainability*, *4*(2), 191–217.

Clapp, J., & Mosely, W. G. (2020). *Impacts of COVID-19 on food security and nutrition : developing effective policy responses to address the hunger and malnutrition pandemic*. *September*. https://doi.org/10.4060/cb1000en

Cooperazione Internazionale. (2020). *COVID-19 : FOOD SECURITY AND LIVELIHOOD IMPACT*. *July*.

FAO. (2011). *The State of Food Insecurity in the World 2011: How does international price volatility affect domestic economies and food security?* http://www.fao.org/3/a-i2330e.pdf).

FAO. (2020a). *Food Outlook*. http://www.fao.org/3/ca9509en/ca9509en.pdf

FAO. (2020b). *Impact of COVID-19 on agriculture , food systems and rural livelihoods in Eastern Africa : Policy and programmatic options*. *July*, 1–9.

Herald. (2020). *BREAKING: 21 days lockdown to start Monday*. https://www.herald.co.zw/breaking-21-days-lockdown-to-start-monday/ (2020).%0A

Klassen, S., & Murphy, S. (2020). Equity as Both a Means and an End: Lessons for Resilient Food Systems from COVID-19. *World Development*, *136*.

Livelihood Center. (2019). *COVID-19 and IMPACT on Food Security and Livelihoods Quick overview on current situation, and anticipated impact for: Livelihoods, Food Security and Nutrition*. 1–9.

Matsungo, T. M., & Chopera, P. (2020). *The effects of COVID-19 induced lockdown on nutrition, health and lifestyle patterns among adults in Zimbabwe*. https://doi.org/10.1101/2020.06.16.20130278

Mhlanga, D. (2020). *Socio-economic Implications of the COVID-19 for Smallholder Livelihoods in Zimbabwe*. *April*. https://doi.org/10.20944/preprints202004.0219.v1

Moseley, W. ., & Battersby, J. (2020). The Vulnerability and Resilience of African Food Systems, Food Security and Nutrition in the Context of the COVID-19 Pandemic. *African Studies Review*, *63*(3).

Tesfaye, A., Habte, Y., & Minten, B. (2020). *COVID-19 is shifting consumption and disrupting dairy value chains in Ethiopia*. https://www.ifpri.org/blog/covid-19- shifting-consumption-and-disrupting-dairy-value-chains-ethiopia.

UNCTAD. (2020). *The Covid-19 Shock to Developing Countries: Towards a 'whatever it takes' programme for two-thirds of the world's population being left behind. March 2020*.

CHAPTER 3
RESEARCH METHODOLOGY

1.1 Introduction

This chapter looks at the various methods used in the research. It begins with the brief description of the population and the socio-economic and other key characteristics of the study area. The research design which is a cross-sectional design is explained after that as well as the sampling procedure. The data collection and analysis procedures are well dissected thereafter as well as the ethical considerations of the study. The chapter summary concludes the chapter on methodology indicating the key inclusions in the study.

1.2 Description of study site

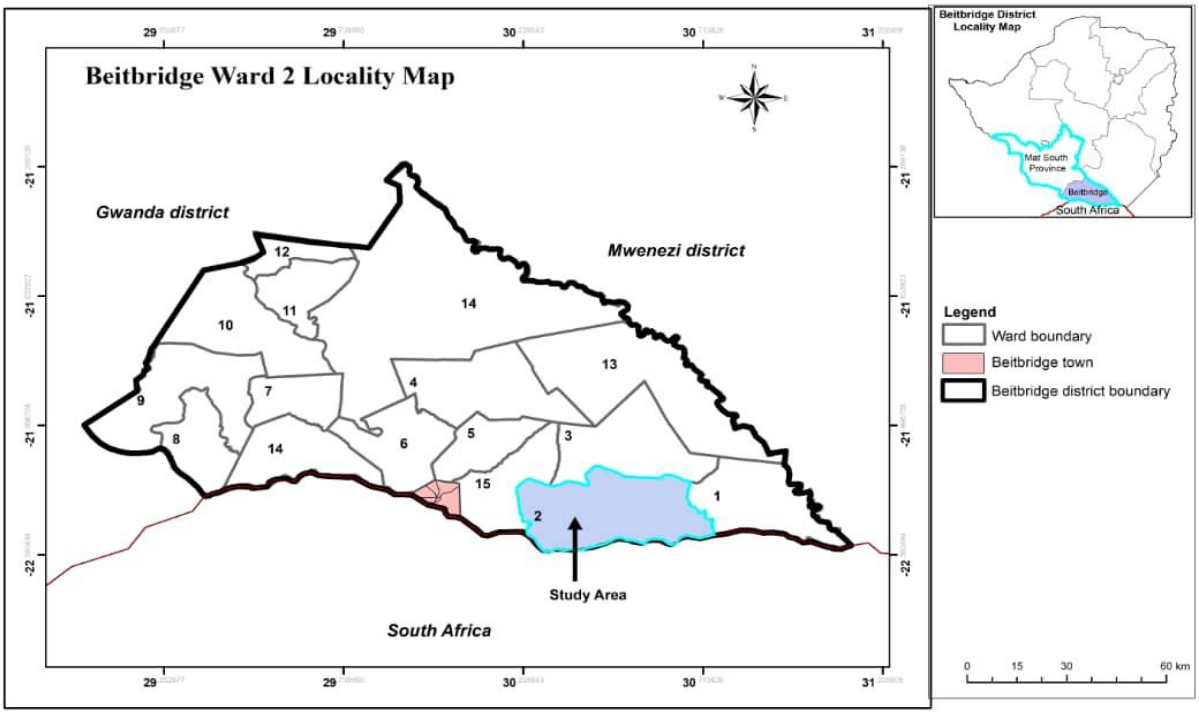


Figure 3.1: Beitbridge Map

Beitbridge is a border town located in the southern part of Zimbabwe in the Matabeleland South province. It forms the political border between Zimbabwe and South Africa. The town has a population of approximately 43000 (ZimStat, 2012), dominated by the Venda and Ndebele

people. The Beitbridge border post is the busiest road border post in Southern Africa, with a transit population of around 16000 people per day. Beitbridge is one of the driest areas in Zimbabwe falling under agro-ecological region V. The town receives very high daily temperatures which can soar up to 44.4^{o}C and sometimes very low temperatures of around -1.1 ^{o}C. The area receives very low rainfall around 332mm. This climate only supports extensive livestock production and limited crop production under irrigation. The area favours production of drought resistant crops such as sorghum, millet and rapoko. The major source of local employment in the area is freight, retail, construction, customs and about 1400 people employed in the informal sector. Most of those in the informal sector are employed either in vending, touting with a lot of women venturing into sex work and cross-border trading for their livelihoods.

1.3 Research design

A cross-sectional survey design was used in this study. This is because the study is non-experimental design that seeks to describe reality. The cross-sectional survey involves research in real time dealing with subjects that might not remain the same over some period of time. The research involved the use of both primary data and secondary data sources. Primary data was collected from the field using questionnaires and interviews whereas secondary data was collected from journals, text books and newspaper extracts. The primary data collection tool for the study was the survey questionnaire which contained open and closed ended questions. Key informant interviews were also carried out to get the technical information relating to the areas and the key issues such as COVID-19 in the study area.

1.4 Sampling procedure

Multistage sampling was used to determine the sample used in the study. The first stage involved the purposive sampling of Beitbridge ward 2 which was selected based on the availability of data relevant information for the study at hand. The advantage of purposive sampling is that, data is collected from the available subjects who are also willing to give information. Information from the Town Council showed that ward 2 had a total population of 286 known households. This present study used this as a total study population. The required sample size was calculated using Slovin's formula (equation 1 below). A total of 74 respondents were selected. The margin of error chosen for the study is 10%

Equation 1: Slovin's Formula for sample size determination

$$n = \frac{N}{(1 + Ne^{2)}}$$

n= sample size

N= population size

e= margin of error

$$n = \frac{286}{1 + 286 * 0.1^2}$$

N= 74.09 which is equal to **74** respondents

1.5 Data collection procedure

The survey used the questionnaire as the main data collection method and key informant interviews were also used to get critical technical information on the area and on the research issues.

1.5.1 Household Survey Questionnaires

Structured and semi-structured questionnaires were used to conduct the surveys. In response to low literacy levels and language barrier, three (3) enumerators (Venda speaking) were trained and used in the administration of the questionnaires. So as to attain an increased response rate, the questionnaire was administered in the form of an interview. They contained both close-ended and open-ended questions in order to collect as much information about the effects of COVID-19 on livelihoods and income as possible. A pilot survey was done a month before on 15 non-sampled participants to ensure the validity of the research instrument and its feasibility in the area of study.

1.5.2 Key Informant Interviews

Key informant interviews were conducted on five key stakeholders that include agricultural extension officer, a registry officer, the District Administrator, one councilor and the town clerk. The questionnaires had questions in relation to food security. These key informant

interviews were done to provide an expect view and a technical pivot to the research as well as the dynamics in the area of study.

1.5.3 Observations

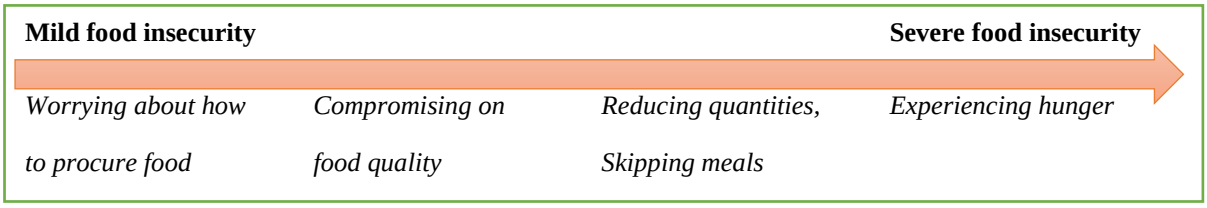
To cement the other data collection methods used in the study, observation was also used to validate the information provided by the respondents and the key informant interviews. Observation of the area and the ward was also done.

1.6 Data analysis procedure

Data from the research survey was analysed using SPSS version 24 and Microsoft Excel package. Qualitative data was analysed using descriptive statistics whereas quantitative data was analysed using t-test, frequencies and multinomial regression. The following indicates how each objective was analysed

Objective 1: To identify the effect of COVID-19 national lockdown on household food accessibility before and during the COVID-19 pandemic.

For the research, the Food Insecurity Experience Scale (FIES) was used to measure household's access to adequate food. The Food Insecurity Experience Scale (FIES) measures food insecurity through the lens of a survey respondent's "lived experience" of food access (Cafiero, 2016). FIES is a food insecurity experience matrix that relies on immediate responses of the respondents to questions about their access to adequate food in order to see their ability to obtain their food. This FIES questionnaire survey module consists of a set of 8 questions, with responses are YES/NO, regarding to people's access to adequate food at individual or household level. Food insecurity is normally experienced as a continuum, where mild food insecurity is first felt as a worry about how to procure food because of a lack of resources, progressing to compromise on the quality and variety of food, then reduction in the quantity of food, before skipping meals and experiencing hunger associated with severe food insecurity (Coates et al. 2006). Respondents gave responses about their experiences in accessing food at household level and how food secure were they during the two periods i.e., prior to covid-19 epidemic and during the covid-19 pandemic.



Through asking series of related questions (8) that compose the FIES, the researcher managed to classify respondents at different levels of severity: "*food secure or mildly food insecure*" (those who answer "no" to all the questions about food insecurity-related experiences) or "*food insecure*" along a continuum of food insecurity severity. To be specific, if the respondents answer yes to the first 3 questions and then no to the rest of the questions, he/she is classified as *food secure or mildly food insecure*. If the respondent answers yes to question 4 and 5 and then answers no to questions 6 and 7, then the respondent is classified as *moderately food insecure*. Lastly if the respondent answers yes to any of the question 7 and 8 then the respondent is classified as *severely food insecure*.

The effects of how various factors affect household food security were also explored using dietary quality measurements using food consumption score (FCS). The FCS is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups. The respondents were asked about frequency of consumption (in days) over a recall period of the past 7 days prior to the COVID-19 epidemic and during the COVID-19 pandemic. This was done by asking respondents how often the household has consumed eight (8) different food groups a month before COVID-19 epidemic and during the COVID-19 pandemic. Food items are grouped into 8 standard food groups with a maximum value of 7 days/week. The consumption frequency of each food group is multiplied by an assigned weight that is based on its nutrient content.

$$FCS = a_{staple}x_{staple} + a_{pulse}x_{pulse} + a_{veg}x_{veg} + a_{fruit}x_{fruit} + a_{animal}x_{animal} + a_{sugar}x_{sugar} + a_{dairy}x_{dairy} + a_{oil}x_{oil}$$

Where:

FCS Food consumption score

x_i Frequencies of food consumption = number of days for which each food group was consumed during the past 7 days (7 days was designated as the maximum value of the sum of the frequencies of the different food items belonging to the same food group)

a_i Weight of each food group

Objective 2: To characterise food accessibility constraints faced by households during the COVID-19 lockdown period.

This objective was measured using a Likert scale where respondents were asked on whether a constraint had a *very high, high, medium, low and very low* effect on food accessibility. Descriptive statistics were used to analyse the data collected on constraints and to identify which of the constraints had a great effect on the respondent's access to food.

Objective 3: To investigate how the COVID-19 national lockdown has affected the average monthly household incomes.

This objective was measured using means and sums of income between the period before and during the COVID-19 pandemic. Mean comparisons and independent t-tests were used to ascertain if there is any statistical significance between the two periods (pre-covid and during covid) in terms of household income of the respondents.

Objective 4: To investigate the socio-economic factors affecting household food access during the lockdown period.

Multinomial logistic regression was used to analyze the factors that affect household food access under the lockdown period. The various scores attained in the first objectives were used as the dependent variable under this objective whereas age, gender, household head, family size, education, employment status, income will be used in the study as independent variables. The dependent variable will be **2** *for "food secure"*, **1** *for "moderately food insecure"* and **0** *for "severely food insecure"*

1.6.1 Description of Variables

The table below shows the preparation of the variables in the study

Variable	Description	Expected sign on Food security
Dependent variable		
Food security	**2** *for "food secure",* **1** *for "moderately food insecure"* and **0** *for "severely food insecure"*	
Independent Variables		
Age	Number of years	-
Household size	Number of members in household	-
Income	Monthly household disposable income	+
Years of Education	Number of years of formal education	+
Employment status	Formal employment =1 informal employment= 0	+/-
Gender	Male=1 Female=0	+/-
Movement	Movement restriction=0 No movement restriction=1	+

Age: Age in the research was made a continuous variable which depicts the number of years from birth. Age was depicted to have a negative effect on food security. Karea, (2014) identified that an increase in age leads to a decrease in food security and further explains that those who are younger are more productive compared to the elderly.

Household size: In the study household size is the number of members in a household (those who live and eat the food prepared in the household). Bigger household sizes tend to be less food secure because of the number of people who require food, this also has an impact with the quality of food in terms of nutrients due to the number of people hence household size is hypothesised to have a negative effect on household food security.

Income: Income in this study is a continuous variable which is the monthly disposable income for the household. Income is given in rands (ZAR) which is the most common currency in the border town of Beitbridge. Income is hypothesised to have a positive effect to food security. Esturk & Oren, (2014) highlighted that those with more income have the ability to purchase food they require as well as travel to buy food and produce their own food as well unlike those with little disposable income.

Years of education: The number of years in formal education were used as a continuous variable in the study to stand in for education. Education in this study is hypothesised to have a positive effect on food security of the respondent. The more the years of education, the more probability of one being food secure. Abdullah et al., (2019) identified education to positively influence food security.

Employment Status: Employment status was coded as a categorical variable with formal employment and informal employment. Informal employment was the reference variable in the study since it was a dummy. Employment status was hypothesised to have either negative or positive effect to food security. In the country being in the formal employment sector guaranteed one to have job security, though because of the economy the spending is eroded and not enough to cater for the food security needs of the household. The informal sector is thriving in the country, but during COVID-19 lockdown the informal sector was closed down and this was also a contribution to food insecurity.

Sex: Sex was coded as dummy with males being the reference category. 0 was for females and 1 for males. In this study it is hypothesised that gender of the household head has both a negative and positive effect on food security. Females are the ones responsible in food production as well as the majority in the informal sector, hence they have more chances of being food secure. Also man are also involved in food production hence that can contribute to them being also food secure. Ibnouf, (2011) showed that women as com- pared to men are more likely to play a positive role in household food security; the latter group migrates seasonally and sometimes permanently. But (Felker-Kantor & Wood, 2012) found that female-headed household is more insecure as compared to male- headed household.

Movement: Movement in the research was coded as restriction to movement during the lockdown and it is a categorical variable and a dummy with movement restriction being at the

reference variable and no movement restriction being the dummy. During the lockdown movement restrictions limited access of food hence affected food security, therefore in the study unrestricted movement was hypothesised to have a positive influence on food security.

1.7 Ethical considerations

The researcher observed research ethics when the study was conducted. Permission was sought from the institution as well as local authority and community leadership to legitimise the study. The respondents were clearly put abreast on confidentiality issues and also on the purpose of the study and were asked to acknowledge as a sign of consent by signing a confidentiality indemnity form. Research assistants read and signed informed consent and confidentiality forms. Use of local language was considered during the course of the research and Venda speaking enumerators were employed to assist with data collection.

1.8 Summary

The chapter looks at the methodology of the study and adopted a cross-sectional survey design. The primary method for data collection was the survey questionnaire which had both open-ended and closed ended questions. Data was mainly analysed using multinomial logistic regression as well as paired t-tests to ascertain significance difference between precovid and covid HFIES and income.

1.9 References

Abdullah, Zhou, D., Shah, T., Ali, S., Ahmad, W., Din, I. U., & Ilyas, A. (2019). Factors affecting household food security in rural northern hinterland of Pakistan. *Journal of the Saudi Society of Agricultural Sciences*, *18*(2), 201–210. https://doi.org/10.1016/j.jssas.2017.05.003

Esturk, O., & Oren, N. M. (2014). Impact of Household Socio-Economic Factors on Food Security: Case of Adana. *Pakistan Journal of Nutrition*, *13*(1), 1–6.

Felker-Kantor, E., & Wood, C. H. (2012). Female-headed households and food insecurity in Brazil. *Food Security*, *4*(4), 607–617. https://doi.org/10.1007/s12571-012-0215-y

Ibnouf, F. O. (2011). Challenges and possibilities for achieving household food security in the Western Sudan region: The role of female farmers. *Food Security*, *3*(2), 215–231. https://doi.org/10.1007/s12571-011-0118-3

Karea, S. N. (2014). Socio-Economic Factors Affecting Food Security in Households of Elderly Persons in Imenti Central Sub-county, Meru County, Kenya. *Eductaion and Psychology*, *23*(12), 754–769.

CHAPTER FOUR
RESULTS
CONSTRAINTS IMPOSED BY THE COVID-19 LOCKDOWN AND THEIR EFFECTS ON HOUSEHOLD FOOD ACCESS AND INCOMES

Abstract

Constraints imposed by the lockdown and their implication on household food accessibility and incomes was analysed using independent-t tests as well as means and percentages. Th data used in the analysis was collected using a survey questionnaire. A 5 point Likert scale was used to rank the means of the constraints affecting food accessibility in the study. From the findings of the study, 68.9% of the respondents were severely food insecure and 17.6% were food secure. HFIES has a p value of less than 0.05 which is 0.00021 and the FCS pair has a p value (0.000212) which is less than 0.05. This shows that there was a statistically significant decrease in accessibility of food due to covid-19 lockdown period. Movement restrictions (mean =4.3) was ranked as the major constraint causing food insecurity amongst respondent with high food prices, income decrease, food scarcity, floods and drought coming in that order of ranking. Income was also greatly affected by the covid-19 lockdown imposition. The average income is ZAR1525.00 and the p value is 0.00001 which is less than 0.05. Survey results indicate a decrease in income between the pre-COVID and the COVID period. Movement should not be restricted since it hinders the efficiency in the food system. There is great need to come up with way for the government and the necessary health stakeholders to allow movement whist maintaining safety of the people.

Keywords: Covid-19 restrictions food security income HFIES FCS

1.10 Introduction

The previous chapter contained a clear research design as well as the methodology used in the research. This chapter focuses on the results and their discussion as well as recommendations for the study.

1.11 Challenges encountered during data collection

The greatest challenge the researcher encountered was that of respondents who did not want to give responses pertaining what they deemed sensitive information like their age and their household size.

1.12 Results

1.12.1 Characterisation of Respondents

The table 4.1 below indicates that the majority of the respondents in the study (60.8%) were male. This contradicts with the study by Matsungo & Chopera, (2020) who had the majority of the respondents as females. Most of the respondents attained primary/secondary education in the study (45.9%) whereas the least of the respondents (20.3%) had non-formal education. 50% of the respondents were married where as 25.7% where single. Both the respondents who were single and divorced each constituted 12.2% of the respondents in the study. Majority of the respondents in the study were involved in cross boarder trading (54.1%) followed by 44.6% of the respondents who were self-employed. 27% where employed formally in salaried jobs and only 12.2% and 4.1% of the respondents were involved in farming and remittances respectively. Some of the respondents indicated that they depended on other wares for their survival which include sex worker and rentals as well as some of the respondents who were still students

Table 4.1: Categorical Demographic characteristics of respondents

Variable	Category	Frequency N=74	Percentage
Sex	Male	45	60.8
	Female	29	39.2
Education	Non-formal	15	20.3
	Primary/secondary	34	45.9
	Tertiary	25	33.8
Marital Status	Single	19	25.7
	Married	37	50.0
	Widowed	9	12.2
	Divorced	9	12.2
Source of Income	Salary	21	28.4
	Self employed	33	44.6
	Cross border	40	54.1
	Farming	9	12.2
	Remittances	3	4.1
Other	Sex worker	2	2.8
	Students	2	2.8
	Rentals	1	1.4
Employment type	Formal	21	28.4
	Informal	53	71.6

From the table 4.1 above the majority of the respondents (70.3%) were employed in the informal sector where as only 29.7% where formally employed in government and in the private sector. The implications of the employment status on food security are that those employed have a stable job and a stable income stream which enables them to buy food. In the case of Zimbabwe, there are more people employed in the informal sector as a result of the collapsing economy and these earn more than those formally employed. This concurs with Matsungo & Chopera, (2020) who established that over 60% of the people in the country are employed in the informal sector.

1.12.2 Descriptive characteristics of respondents

The table 4.2 below shows the descriptive socio-economic characteristics of the respondents in the study. The respondents' ages ranged from 18 to 66 years whereas the average age was 37.64. The highest household size in the study is 12 whereas the minimum is 1 member, the average household size is 4.86 in the study. The average salary income is ZAR4495.24, the average self-employed income is ZAR4108.44, whereas the cross-border trading average income is ZAR5209.38. In addition, the average income for farming and remittances is ZAR2325.00 and ZAR3333 respectively.

Table 4.2: Descriptive characteristics of respondents

VARIABLE	n=74	MIN	MAX	MEAN	Std. Deviation
Age	74	18	66	37.64	10.749
Household size	74	1	12	4.86	2.451
Salary income	21	1200	19000	4495.24	3736.004
Self-employment income	32	1000	23000	4108.44	4667.798
Cross border income	32	1000	25000.	5209.38	5161.543
Farming income	8	1000	4000	2325.00	949.812
Remittances	3	2000	5000	3333.33	1527.525

1.13 Effects of COVID-19 national lockdown on food accessibility

The table 4.3 below shows the food security status of respondents in the study according to the FIES analysis done by the researcher. 68.9% of the respondents were severely food insecure,

13.5% where moderately food insecure where as 17.6 % where mildly food insecure/ food secure.

Table 4.3:Food security status of respondents

FOOD SECURITY STATUS	N	Percentage
Food insecure	51	68.9
Moderately food insecure	10	13.5
Food secure	13	17.6

The table 4.4 below shows the t-test and comparison of means used to establish the effects of the COVID-19 lockdown on food access. The first pair has a p value of less than 0.05 which is 0.00021 and the second pair has a p value (0.000212) which is less than 0.05.

Table 4.4: Comparison of food access in pre-covid and covid period

Paired Sample T-test

Pair	Mean	Std. Deviation	T	Df	Sig. (2-tailed)
Precovid HFIES – Covid HFIES	-3.527	3.328	-9.117	73	.000
Precovid FCS – Covid FCS	13.534	26.549	4.385	73	.000

The results in table 4.4 above indicates that there was a statistically significant difference between food access during the two periods that is before covid and during covid period. This assertion concurs with Clapp & Mosely (2020) who postulated that lockdowns cause global economic recessions which cripples the people ability to access food. He also highlights that in developing countries, the government's capacity to provide safety nets is also dwindled due to the pandemic lockdowns. FAO & WFP,(2020) also supports the reduction in food access when they established that, movement restriction leads to less supply and production owing to reduction and shortages of labour, inputs such as fertiliser, seeds and veterinary wares. Mhlanga, (2020) supports the reduction of food access to reduced spending power owing to close of business in the country. He highlighted that since most of the people operate informally, the government's announcement to allow formal business only to operate meant that some who had informal sources of livelihood were affected which also affected their access

to food. Increase in food prices was also another issues which led to reduction in food access. Matsungo & Chopera, (2020) concurs with the assertion when they established that food prices had increased as postulated by (94%) of their respondents.

1.14 Effects of various constraints to food access during COVID-19 pandemic

The table 4.5 below shows the rankings of constraints faced during the COVID-19 lockdown by the respondents. Majority of the respondents (50%, 51.4%) indicated that drought and floods respectively had very low effects to food access during the COVID-19 lockdown period. 66.3% of the respondents indicated that movement restrictions had a very high effect on food access. This according to the table is follows by high food prices which 33.8% indicated has a very effect on food access. 28.4% of the respondents also indicated that food unavailability had a very high impact on food access.

Table 4.5:Constraints affecting food access

Constraint	Very low		Low		Medium		High		Very high	
	N	%	N	%	N	%	N	%	N	%
Movement restriction	2	2.7	7	9.5	9	12.2	7	9.5	49	66.3
High food prices	0	0	10	13.5	17	23	21	28.4	25	33.8
Income decrease	4	5.4	9	12.2	24	32.4	15	20.3	21	28.4
Drought	37	50	22	29.7	6	8.1	5	6.8	4	5.4
Floods	38	51.4	16	21.6	9	12.2	5	6.7	6	8.1
Food scarcity	9	12.2	15	20.3	13	17.6	19	25.7	16	21.6

NB. The percentage totals surpass 100% because they are multiple responses.

Table 4.6a: Constraints faced by respondents during lockdown

Constraint	Very low		Low		Medium		High		Very high		Mean Score
	N	Weight code	N	Weight code	N	Weight code	N	Weight code	N	Weight code	
Movement restriction	2	1	7	2	9	3	7	4	49	5	4.30
High food prices	0	1	10	2	17	3	21	4	25	5	3.80
Income decrease	4	1	9	2	24	3	15	4	21	5	3.50
Drought	37	1	22	2	6	3	5	4	4	5	3.20
Floods	38	1	16	2	9	3	5	4	6	5	2.0
Food scarcity	9	1	15	2	13	3	19	4	16	5	1.90

Table 4.7b: Constraints faced by respondents during lockdown

Constraint	Mean score	Rank
Movement restriction	4.3	1
High food prices	3.8	2
Income decrease	3.5	3
Food scarcity	3.2	4
Floods	2.0	5
Drought	1.9	6

The survey results review that the respondents had multiple challenges in accessing food. The majority of the respondents indicated that they had movement restriction as the greatest challenge to them in accessing food. The other constraints in their order of severity were high food prices, income decrease, food scarcity, floods and drought. This concurs with Cooperazione Internazionale (2020) et al, who established that movement restrictions were one of the major strategies employed by many countries to stop the spread of COVID-19 and also that this had a huge negative bearing of food movement from the supplier to the market as well as the consumer from their homes to the market. Price rises of food were also cited by respondents as a huge challenge in their access to food. This concurs with Yamarak, (2020) who highlighted that food access was hindered by high food prices some which were justified and some which were not justified. He argued that, food movement globally was very expensive and very slow since food had to go through numerous tests and in some instance food movement was also restricted creating a huge shortage which some took advantage of.

1.15 Effects of COVID-19 national lockdown on average household monthly income

The table below shows the paired t-test for income during COVID-19 lockdown and the pre-COVID period.

Table 4.7: Effects of covid-19 lockdown on household income

Paired T-test for Income

		Mean	Std. Deviation	T	df	Sig. (2-tailed)
Pair 1	Pre-COVID & COVID income	1525.000	3241.229	3.992	71	.000

The average income is ZAR1525.00 and the p value is 0.00001 which is less than 0.05. Survey results indicate a decrease in income between the pre-COVID and the COVID period. Table 4.6 shows that there was a statistically significant difference between the two periods in terms of income. COVID-19 led to a decrease in trade and closure of industry leading to loss of jobs which were a source of income to many this ultimately led to reduction of income. This concurs with World Bank, (2020) who through a survey indicated that nearly 64% had jobs before the imposition of mobility restrictions; this was reduced to 51% in July 2020. Urban areas were most affected by job loss as 18 percent of respondents in urban areas were working before Covid-19 but no longer were in July 2020. The decrease in income was also due to closure of business especially in the informal sector where the majority of the people in the country find their source of livelihood. Ayanlade, (2020) established that the government in developing countries crippled the income of many informal traders during the lockdown.

1.16 Recommendations

- Provide unconditional cash assistance to vulnerable people in urban and rural areas to avoid hunger and poverty, and to sustain consumption and markets, including to those who suddenly became unemployed, those who have returned back to home provinces and villages and are without employment, those running their own farms in absence of labour and women- headed households in rural areas. Ensure payments are gender inclusive, as women's burden under lockdown increases, including unpaid work in fields or as livestock caretakers. Carefully monitor social protection system to ensure the identification of possible blind spots.

- Provide unconditional food assistance to the most vulnerable households impacted by the lockdown, affecting their access to food; Support in the form of in-kind transfers should be accompanied by nutrition and COVID-19 communication information.
- It is also important for the government to allow operation of both formal and informal traders but under strict COVID-19 prevention guidelines since the majority of the communities do depend on that industry for their livelihoods.
- It is also important for the government and the other stakeholders to facilitate safe movement of agriculture good as well as people to and from the food markets to enable fluidity and efficiency in the food system which is critical for food security and access. The production and distribution of agriculture inputs, movement of agriculture labour and the movement, storage, processing and sale of agricultural outputs are an essential service and are required to avoid further deterioration of food and nutrition security

Conclusion

This section looked in to the first three objectives of the study into the effects of the government imposed COVID-19 lockdown on food accessibility and income. The lockdown was associated with significant drop in income levels amongst the respondents as well as significant decrease in food access. Many people were faced with many challenges in accessing food which includes movement restrictive, food shortages, high food prices and movement restrictions had the highest effect.

1.17 References

Ayanlade, A. (2020). COVID-19 and food security in Sub-Saharan Africa : implications of lockdown during agricultural planting seasons. *Npj Science of Food*, 1–6. https://doi.org/10.1038/s41538-020-00073-0

Clapp, J., & Mosely, W. G. (2020). *Impacts of COVID-19 on food security and nutrition : developing effective policy responses to address the hunger and malnutrition pandemic*. *September*. https://doi.org/10.4060/cb1000en

FAO, & WFP. (2020). *Rapid Assessment – Possible Impact of the Novel Coronavirus Pandemic (COVID-19) on Livelihoods , Food Security , Nutrition and Agricultural Supply*. 1–47.

Matsungo, T. M., & Chopera, P. (2020). *The effects of COVID-19 induced lockdown on*

nutrition, health and lifestyle patterns among adults in Zimbabwe. https://doi.org/10.1101/2020.06.16.20130278

Mhlanga, D. (2020). *Socio-economic Implications of the COVID-19 for Smallholder Livelihoods in Zimbabwe*. *April*. https://doi.org/10.20944/preprints202004.0219.v1

World Bank. (2020). *Monitoring COVID-19 impact on Zimbabwean households*. https://www.worldbank.org/en/country/zimbabwe/brief/monitoring-covid-19-impact-on-households-in-zimbabwe

Yamarak, L. (2020). *Impact of COVID-19 on Incomes , Livelihoods and Food Security : A Papua New Impact of COVID-19 on Incomes , Livelihoods and Food Security : A Papua New Guinea Perspective*. *September*.

CHAPTER 5
RESULTS
FACTORS AFFECTING FOOD SECUIRTY

Abstract

The COVID-19 pandemic has had a huge negative bearing on the food security status of most households in the country. This has been worsened by the movement restrictions imposed by the government to curb the spread of the pandemic. The objective on the factors affecting food security of the respondents was analysed using multinomial logistic regression. Four out of seven variables were found to be statistically significant. The analysis found out that years of education($p=0.18$), income ($p=0.03<0.05$), movement restrictions ($p=0.018<0.05$ and $p=0.008<0.05$ for moderate food insecure and food secure respectively) and household size ($p=0.04<0.05$) had statistically significant effect on the food security status of the respondents. It was recommended that the government prioritise food assistance and cash transfer programs to assist the poor and marginal boost their income and their food security. Movement should not be restricted since it hinders the efficiency in the food system. There is great need to come up with ways for the government and the necessary health stakeholders to allow movement whist maintaining safety of the people.

Keywords: multinomial food security COVID-19 lockdown

1.18 Introduction

This chapter is a continuation on the results and their discussion as well as recommendations for the study. It contains the presentation, analysis and the discussion of the factors affecting food security of the respondents during the lockdown period.

1.19 Factors affecting Food Access during COVID-19 lockdown period

The table below shows the results from the multinomial regression analysis carried out to analyse the factors affecting food access during the lockdown period. Income, years of education, movement, household size all have p values less than 0.05 showing that they are statistically significant. Household size and movement have negative B values whereas the other variables all have positive values showing a negative probability and positive probability respectively.

Income was found to be statistically significant p=0.03<0.05. Income was associated with being both moderate food insecure and being food secure. Holding all the other variables in the model constant, an increase in income of one unit would increase the multinomial log odds of the respondent to be moderately food insecure than from being food insecure by 0.65 chances. The odds ratio for being moderate food insecure than being food insecure with one increase in income is 1.001. This implies that an increase in income increases the chances of one being food secure. Income was also found to be statistically significant in the food secure- insecure reference section with a p value of 0.02 which makes us reject the null hypothesis making income statistically significant. Holding all the other factors constant, an increase of one unit of income will increase the multinomial log odds of the respondent to be food secure that to be food insecure, and the odds ratio for that increase is 1.001

Years of education were found to be statistically significant at 5% level of significance according to table 5.1. According to the survey results, an increase in one year of education holding all other variables in the model constant will increase the multinomial log odds of being moderately food insecure that being food insecure by -1.11 and will increase the chances of being food secure from being food insecure by 0.857. The probability or the odds ratios for the increase in one year of education are 1.33 and 2.335 respectively for being moderately insecure and food secure than being food insecure.

Table 5.1 indicates that household size is statistically significant p=0.04<0.05 as a factor affecting food security. According to the results, holding al other factors constant, an increase in one household member will reduce the likelihood of being food secure than being food insecure by 0.938 multinomial log odds. This will also reduce the probability of being food secure than being food insecure by 0.157 chances.

The table 5.1 below also indicates that movement restrictions were also found to be statistically significant p=0.018<0.05 and p=0.008<0.05 for moderate food insecure and food secure respectively. This indicates that for one unit increase of movement restriction, there was a decrease of one being moderately food insecure and food insecure by multinomial log odds of 2.127 and 4.587 respectively.

Table 4.8: Multinomial Regression Results

Food security[a]		B	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Moderate Food insecurity	Intercept	-1.395	.506			
	Age	-.001	.985	.999	.915	1.091
	Hhsize	-.101	.513	.904	.668	1.223
	Educationyears	.285	**.018**	1.330	1.051	1.683
	Income	.650	**.033**	1.755	1.052	1.001
	[employmentstatus=0]	.009	.992	1.009	.196	5.194
	[employmentstatus=1]	0[b]				
	[sex=0]	.346	.639	1.414	.333	6.006
	[sex=1]	0[b]				
	[Movement=0]	-2.127	**.018**	.119	.020	.693
	[Movement=1]	0[b]				
Food secure	Intercept	-8.645	.033			
	Age	.094	.136	1.098	.971	1.242
	Hhsize	-.938	**.044**	.392	.157	.975
	Educationyears	.857	**.003**	2.355	1.346	4.122
	Income	.562	**.020**	1.619	1.342	1.001
	[employmentstatus=0]	.002	.999	1.002	.079	12.725
	[employmentstatus=1]	0[b]				
	[sex=0]	.860	.509	2.362	.184	30.314
	[sex=1]	0[b]				
	[Movement=0]	-4.587	**.008**	.010	.000	.305
	[Movement=1]	0[b]				
a. The reference category is: Food insecure.						
b. This parameter is set to zero because it is redundant.						

Table 5.1: Multinomial Logistic Regression results

a) Income

The results concurs with Esturk & Oren, (2014) who established that income had a bearing on food access since people could be able produce and also travel to buy food. The higher the income the higher the ability to produce one's own food as well as purchase food for household consumption. Low income earning groups spend all their money on food which leave them more vulnerable to shocks such as COVID-19 compared to those with high income which have diversified options in the face of risk and disaster. Committee on World Food Security, (2020) supported the assertion of income-food security nexus when they established that food access

was badly affected during the COVID-19 pandemic due to job losses and economic recessions experienced worldwide and this affected the overall household earning capacity leading to less spending on food whilst people focused on heath emergencies.

b) Years of education

Education is key in understanding spending and is a massive contributor to financial literacy. It is also key in household food and nutrition planning and budgeting as well as reading and preparing for food affecting disasters and risks. Education is also key in efficient food production and also in reducing food wastages hence an increase in years of education is likely to increase food security. This concurs with De Muro & Burchi, (2007) who established that education provides chances for employment hence a source of livelihood which leads to improvement of the quality of life and in the effect food security. Mutisya et al., (2016) also supports the assertion by highlighting that the likelihood of being food insecure decreased by 0.019 with an average increase of one year of education per each household. The results are also consistent with (FAO & WFP, 2020; Matsungo & Chopera, 2020; Mhlanga, 2020) who also found a correlation between education and food security.

c) Household size

The survey results in table 5.1 indicates that an increase in household size is a contributing factor to the increase of food insecurity. This is consistent with the findings by (Olayemi, 2012) and (Abdullah et al., 2019) who established that household size had an effect on the dependency ration and also on the quantity and the quality of the food consumed. This however contradicts with Esturk & Oren, (2014) who indicated that larger families had more earning hands and also labour which led to increase in production therefore more food on the table. Larger families are at risk and more vulnerable especially with children which increase the dependency burden on the household heads. There is also the tendency to prepare starchy food and avoid expensive nutritious items such as fruits and meat when the family is bigger. More so, in the light of COVID-19 most of the families with a larger dependency burden were more food insecure compared to smaller families as postulated by Mhlanga, (2020) who suggested that food and cash assistance be directed to such families since they were more vulnerable to food insecurity.

d) Movement restrictions

The results from table 5.1 shows that the tighter the movement restrictions the more the respondents became food insecure. Movement restriction increased the likelihood of being

food insecure than being food secure. This concurs with Mhlanga, (2020) who indicated that during pandemics like COVID-19, movement restrictions hider free movement of labour, capital, people as well as food which leads to chaos in the food system network. FAO & WFP, (2020) also established in their survey that movement restrictions were a huge factor since food production was hampered with producers failing to access raw materials and input such as seeds fertilisers, leading to shortages of affordable food. Majority of the people in Zimbabwe (around 75%) are employed in the informal sector or supplement their salaries by informal wares. These require movement with the majority also cross borders. The inter-regional lockdowns imposed affected the source of livelihood of many since they couldn't travel to trade and get income which they would use to buy food for their families and this explains how movement causes food insecurity (Tesfaye et al., 2020)

1.20 Recommendations

From the results from the study, it is recommended that the government focus on education and training of both urban and rural to enhance their literacy rates as well as have a deep understanding into food risk related forecasts as well as understanding the importance of a healthy lifestyle.

It is also recommended that the government have in place solutions to the movement of people and also that of good and services with much of a hustle, this makes food accessible as well as allowing people to freely move and get food when they need it. This also speaks into instances where the government has tight curfews.

Food assistance is also needed to facilitate food access especially in urban areas were people who had they informal business running were barred from trading and had their incomes greatly reduced.

There is also need for encouragement of small business to formalise as well as to create safe spaces where they can trade without the risk of contracting the virus, which also speaks into business growth stimulus packages, which can be able to assist those business which were cutdown to the root by the pandemic.

1.21 Conclusion

During the COVID-19 lockdown period food security was greatly affected by income, movement restrictions, education years and household size. Income was generally affected by

the suspension of business and trade which affected most people's sources of livelihoods. This in turn reduced most households' disposable income making it difficult to purchase their usual family budget. Movement restrictions were also another key factor affecting food security. The movement imposed made it difficult for the supplies of key food production inputs and food itself to deliver to the market whereas it also affected the consumers to access the market. Household size increases the dependency burden of the household hence there is great reduction in the quality and the quantities of the food in larger families compared to smaller ones.

1.22 References

Abdullah, Zhou, D., Shah, T., Ali, S., Ahmad, W., Din, I. U., & Ilyas, A. (2019). Factors affecting household food security in rural northern hinterland of Pakistan. *Journal of the Saudi Society of Agricultural Sciences*, *18*(2), 201–210. https://doi.org/10.1016/j.jssas.2017.05.003

Committee on World Food Security. (2020). *Impacts of COVID-19 on food security and nutrition : developing effective policy responses to address the hunger and malnutrition pandemic* (Issue September).

De Muro, P., & Burchi, F. (2007). Education for rural people and food security. A cross country analysis. *Fao*. http://agris.fao.org/agris-search/search/display.do?f=2008/XF/XF0806.xml;XF2008435243

Esturk, O., & Oren, N. M. (2014). Impact of Household Socio-Economic Factors on Food Security: Case of Adana. *Pakistan Journal of Nutrition*, *13*(1), 1–6.

FAO, & WFP. (2020). *Rapid Assessment – Possible Impact of the Novel Coronavirus Pandemic (COVID-19) on Livelihoods , Food Security , Nutrition and Agricultural Supply*. 1–47.

Matsungo, T. M., & Chopera, P. (2020). *The effects of COVID-19 induced lockdown on nutrition, health and lifestyle patterns among adults in Zimbabwe*. https://doi.org/10.1101/2020.06.16.20130278

Mhlanga, D. (2020). *Socio-economic Implications of the COVID-19 for Smallholder Livelihoods in Zimbabwe*. *April*. https://doi.org/10.20944/preprints202004.0219.v1

Mutisya, M., Ngware, M. W., Kabiru, C. W., & Kandala, N. bakwin. (2016). The effect of education on household food security in two informal urban settlements in Kenya: a longitudinal analysis. *Food Security*, *8*(4), 743–756. https://doi.org/10.1007/s12571-016-0589-3

Olayemi, A. O. (2012). Effects of Family Size on Household Food Security in Osun State, Nigeria. *Asian Journal of Agriculture and Rural Development*, *2*(22), 136–141.

Tesfaye, A., Habte, Y., & Minten, B. (2020). *COVID-19 is shifting consumption and disrupting dairy value chains in Ethiopia*. https://www.ifpri.org/blog/covid-19- shifting-consumption-and-disrupting-dairy-value-chains-ethiopia.

CHAPTER 6
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

1.23 Introduction

This chapter contains a summary of the research findings, the conclusion and recommendations. It also contains the areas for further research section as well as the appendices of the research

1.24 Research summary

This section of the report summarises the research findings per each study objective.

6.2.1 The specific objective of the present study was to identify the effect of COVID-19 national lockdown on household food accessibility before and during the COVID-19 pandemic. The study found that COVID-19 led to a decrease of food accessibility with a statistically significant difference between pre-covid and covid HFIES and FCS.

6.2.2 This study also sought to characterise food accessibility constraints faced by households during the COVID-19 pandemic. Findings showed that movement restriction was the greatest food accessibility constraint during the covid-19 pandemic followed by high food prices whereas drought was identified as the least food accessibility constraint.

6.2.3 The current study also investigated how the COVID-19 national lockdown has affected the average monthly household incomes were significantly reduced during the COVI-19 induced lockdowns

6.2.4 Another objective of this study was to investigate socio-economic factors (age, availability of remittances, gender of household head, family size, education level of the household, employment status of the head and household income) affecting household food security. The study findings revealed that education, income, household size and movement restriction were found to have a statistically significant effect on food security.

1.25 Conclusions

Results from the survey indicated that household size, years of education, movement and income were found to be the significant factors affecting food security during the COVID-19 lockdown period. Based on this finding, the study concludes that long term interventions to improve food security should target and prioritise addressing demographic determinants of

food insecurity. Movement restrictions were also identified to be the greatest restriction to food access. The COVID-19 lockdown causes a decrease in food access as well as income as they were statistically significant differences according to the results in the study. In light of this finding, movement restrictions should be accompanied by a clear-cut roadmap to promote access to basic food services. Furthermore, majority of the respondents were severely food insecure during the COVID 19 lockdown period. This may deter Zimbabwe's aim towards meeting the sustainable development goal number (SDG) 1 on ending hunger by 2030. The results showed that food insecurity worsened during the COVD-19 period as evidenced by consumption of less diverse diets and at times skipping of meals by various households. This is because of restricted movements, inability to visit markets by the farmers and also since the informal sector dominates Beitbridge, household income decreased due to closure of markets and also of the border. It can be concluded that COVD-19 came with more problems than reprieve to the majority of the households in the country who were further injured by the lockdown. Results from the study indicated that the majority of the respondents were in the informal sector which had operations which were shut down by the restrictive measures.

1.26 Policy implication and recommendations

Based on the above study findings and conclusions, the following are the recommendations of this study:

1. The government develop and implement a roadmap/strategic plan to cushion poor and marginal and vulnerable households with cash assistance, food assistance and capital to sustain the various business which were affected during the lockdown. This plan should prioritise among other issues addressing demographic determinants of food insecurity.
2. There may be a lot of families starving and this calls for collaborative efforts between the government and other community development stakeholders to assist curb the growing food insecurity in the country
3. There is also need for the responsible authorities and stakeholders to allow regularisation of informal trade as well as facilitate and monitor safe operations rather than closing the trading space since the majority of the households rely on the sector for their survival. There is need for the government to suspend duties and taxes which are levied on food businesses to ensure that goods are supplied without any disturbances. This is because any additional charge on a food product will be passed on to the end user(consumer) resulting in failure to access food by most citizens. Loans

can also be given to all players in the food systems so that the supply chain runs smoothly.

4. The government should support and invest in value addition projects in Beitbridge district e.g., mopane worms *(amacimbi)* value addition. They can be eaten as fresh from the harvest but they can be also dried and preserved so that they can be eaten during off season. *Amacimbi* are a source of income and a means of livelihoods for many households in the district. The money they get after selling is then used to buy other food items. Setting up of such hubs will also create employment for the locals, thereby reducing the number of informal sector employees who are the hardest hit section of the society due to COVID-19.

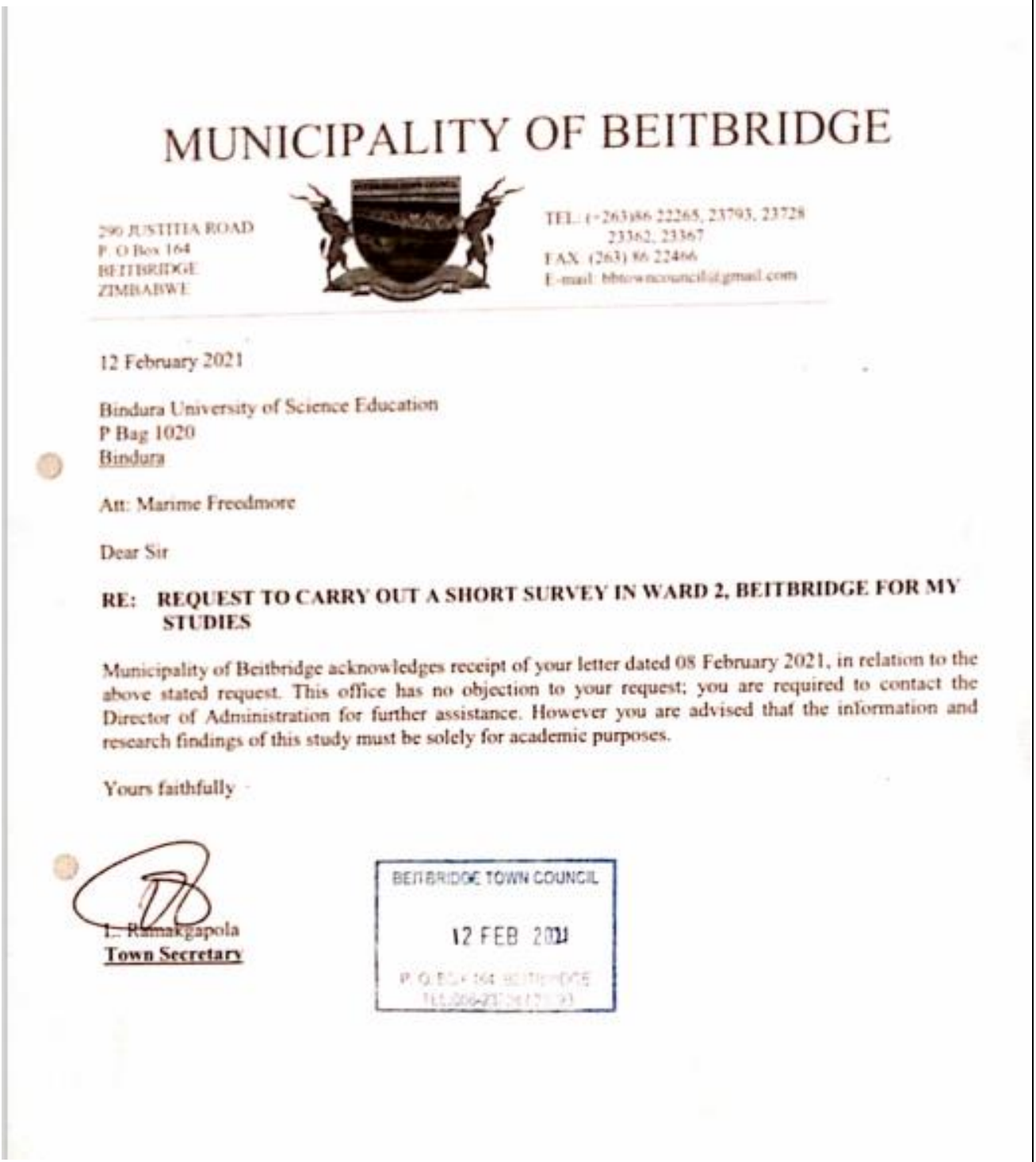
1.27 Areas for further research

The study focused on the effects of COVID-19 on food security, its effects on income as well as the various constraints during the COVID-19 period. Areas for further studies that can be explored include the effects of COVID-19 on nutrition as well as the implications of the COVID-19 pandemic on food systems. Other areas of study which can be explored are the effects of the pandemic on food production.

1.28 APPENDICES

Approval letter from MOB

Appendices 6. 1: Approval Letter from MOB



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12 February 2021

Bindura University of Science Education
P Bag 1020
Bindura

Att: Marime Freedmore

Dear Sir

RE: REQUEST TO CARRY OUT A SHORT SURVEY IN WARD 2, BEITBRIDGE FOR MY STUDIES

Municipality of Beitbridge acknowledges receipt of your letter dated 08 February 2021, in relation to the above stated request. This office has no objection to your request; you are required to contact the Director of Administration for further assistance. However you are advised that the information and research findings of this study must be solely for academic purposes.

Yours faithfully

L. Ramakgapola
Town Secretary

BEITBRIDGE TOWN COUNCIL
12 FEB 2021

Approval letter from the DA's office

Appendices 6.2:Approval letter from DAs Office

House Number 714

Baobab Road

Beitbridge

22 February 2021

The District Administrator

Municipality of Beitbridge

Beitbridge

Dear Sir/ Madam

RE: REQUEST TO CARRY OUT A SHORT SURVEY IN WARD 2, BEITBRIDGE FOR MY STUDIES

The above matter refers,

I am Marime Freedmore, student ID (B1954082), a resident of Ward 2 Beitbridge. I am an MSc Food security & Sustainable Agriculture student with BINDURA UNIVERSITY OF SCIENCE EDUCATION, who wishes to carry out a short survey in Ward 2 of Beitbridge District in partial fulfilment of the degree requirements. My proposed dissertation is entitled **"An analysis on the effects of COVID-19 national lockdown on household food security and livelihoods: A case of Ward 2, Beitbridge District"**. I am therefore humbly requesting your assistance with regards to socio-demographic information e.g., *number of households in the ward, population, gender distribution, map of the ward* and also the permission to carry the short survey. Please note that, the information will be treated as confidential and used for academic purposes only

Your assistance will be greatly appreciated

Marime FREEDMORE

(0773818147/0772769042), freedmorem@gmail.com

DISTRICT ADMINISTRATOR
24/02/2021

Approval letter from BUSE

Appendices 6.3:Official Research Letter from Bindura University

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE
DEPARTMENT OF AGRICULTURAL ECONOMICS EDUCATION AND EXTENSION

P. Bag 1020
BINDURA, Zimbabwe
Tel: 263 - 71 – 6505
Cell : 0782 057 303
Email : lmusemwa@gmail.com

BINDURA UNIVERSITY OF SCIENCE EDUCATION

09 February 2021

Dear Sir/Madam

PERMISSION TO VISIT AND COLLECT DATA FOR ACADEMIC RESEARCH PROJECT - SUPERVISOR – MR. I. GOVERE

This letter serves to inform you that **Marime Freedmore, (B1954082)** is a student at Bindura University of Science Education.

He is studying towards a Master of Science Degree in Food Security and Sustainable Agriculture. He is doing a research on: - **An analysis on the effects of Covid-19 National Lockdown on Household Food Security and Livelihoods: - A case of Ward 2, Beitbridge.**

The information that he is going to gather will be treated as confidential and used for academic purposes only.

Yours faithfully.

CHAIRPERSON
Department Of Agricultural Economics, Education & Extension
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1.28.1 Questionnaire

Appendices 4: Survey Questionnaire

GENERAL INFORMATION

District: Beitbridge	**Ward: 2**
Age of the household head/ respondent: |_____|*Years*	Sex of the household head: (i) Male |__| (ii) Female |__|
Household size (Members): |_____| members	Education level of Household Head i. Non formal |__| ii. Primary/Secondary |__| iii. Tertiary |__|
Marital status of the household head	i. Single |__| ii. Married |__| iii. Widowed |__| iv. Divorced |__|
What is your household **main** source of income? If it's farming please specify the nature of farming activity ……	i. Salaried employment |__| ii. Self-employment |__| iii. Cross-border trading |__| iv. Farming |__| v. Remittances |__| *Specify on other* ……
How much do you get per average on the following sources of income in ZAR	i. Salaried employment **ZAR**_____ ii. Self-employment **ZAR**_____ iii. Cross border trading **ZAR**_____. iv. Farming **ZAR**_____ v. Remittances **ZAR**_____ Specify on other ……
What is the principle nature of the employment of the household head?	i. Formal |__| ii. Non formal |__|

What was the extent of the following constraint of food access during COVID-19 lockdown restriction?

Constraint	Very High	High	Medium	Low	Very Low
Movement restriction					
High food prices					
Income decrease					
Drought					
Floods					
Food scarcity					

What was the average household monthly income (ZAR) before and during the lockdown period?	***Pre covid*** ZAR_____	***During covid*** ZAR_____

FOOD INSECURITY EXPERIENCE SCALE (FIES) SURVEY

Number	*Standard Label*	*Question wording* ***Was there a time when:***	*Responses* *Pre covid* *(Score)*	*Responses* *During covid* *(Score)*
1	Worried	You or others in your household worried about not having enough food to eat because of a lack of money or other resources?	NO [ ] YES [ ]	NO [ ] YES [ ]
2	Healthy	You or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources?	NO [ ] YES [ ]	NO [ ] YES [ ]

3	Fewfoods	You or others in your household ate only a few kinds of foods because of a lack of money or other resources?	NO [ ] YES [ ]	NO [ ] YES [ ]
4	Skipped	You or others in your household had to skip a meal because there was not enough money or other resources to get food?	NO [ ] YES [ ]	NO [ ] YES [ ]
5	Ateless	You or others in your household ate less than you thought you should because of a lack of money or other resources?	NO [ ] YES [ ]	NO [ ] YES [ ]
6	Ranout	Your household ran out of food because of a lack of money or other resources?	NO [ ] YES [ ]	NO [ ] YES [ ]
7	Hungry	You or others in your household were hungry but did not eat because there was not enough money or other resources for food?	NO [ ] YES [ ]	NO [ ] YES [ ]
8	Wholeday	You or others in your household went without eating for a whole day because of a lack of money or other resources?	NO [ ] YES [ ]	NO [ ] YES [ ]

FOOD CONSUMPTION SCORE SURVEY

How many times did you eat the following foods 7 days before COVID-19 lockdown?

Food Group	**Frequency**	**Weight**	**Total score**
Main Staples		2	
Pulses		3	
Vegetables		1	
Fruit		1	
Meat/Fish/Eggs		4	
Milk		4	
Sugar		0.5	
Oil		0.5	

How many times did you eat the following foods 7 days during the first week of COVID-19 lockdown?

Food Group	**Frequency**	**Weight**	**Total score**
Main Staples		2	
Pulses		3	
Vegetables		1	
Fruit		1	
Meat/Fish/Eggs		4	
Milk		4	
Sugar		0.5	
Oil		0.5	

Thank You!!!!