

# Consequence of Covid-19 lockdown on household food security: Voices from Hoima City, Uganda

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## Abstract

**Purpose:** To investigate the consequence covid-19 lockdown on food security among a cohort of peri-urban households in Hoima city.

**Research methodology:** A descriptive survey was employed targeting 186 respondents. Data were collected using a researcher-designed self-administered questionnaire and analysed using quantitative statistics. Specifically, chi-square was employed to establish whether the hypothesis held sway; also, regression analysis was employed with a view of forecasting the degree of change in household food security due to covid-19 lockdown.

**Results:** The period of lockdown announced and implemented by the government had a positive consequence on food security. Nonetheless, the economic hardships overturned the successes otherwise achieved as a number of households sold off much of the food so as acquire other household items.

**Recommendations:** While the government is credited for instituting a lockdown as a means to reduce the spread of covid-19 virus, it is recommended that city authorities are encouraged to boost urban farming by distributing agri-inputs to households in the peri-urban seeing that their daily incomes are already constrained.

**Contribution:** The findings of this study may be useful to city authorities in Uganda in evolving a guide on integration of food security as a cross-cutting issue in the overall strategic disaster management plan. This article makes an input to the budding field of understanding by underlining inroads that can generate more sustainable urban community livelihoods through food security.

**Keywords:** Covid-19, Food security, Kasingo, Peri-urban households

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## 1. Introduction

At the beginning of the year 2020, the whole world was awash with one of the fastest spreading viruses, named Covid-19, which is said to have been first discovered in the Chinese city of Wuhan ([El-Sayyad & Abdalhafid, 2020](#)). While there was media information on the virus from the December of 2019, few people really took interest and it remained ‘business-as-usual’ across nations. The international media played a greater role in informing the global population about the incidence of the virus on a daily basis but nations, including the so-called greatest countries, remained detached as the problem grew by the day. A study conducted by [Obi-Ani, Anikwenze, and Isiani \(2020\)](#), in Nigeria, reveals that the worth of social media channels as a remedy to distributing information. A different study conducted by [Yu, Li, Yu, He, and Zhou \(2020\)](#) notes the significance of social media in sharing information associated with catastrophes and health disasters. In their study, [Samy, Abdelmalak, Ahmed, and Kelada \(2020\)](#) underscore the significance of social media as an opening for people to

easily access medical info from expert information from medical specialists to street level information from non-medical individuals' personal feelings on wellbeing and disease. By the end of 2019, it became obvious that the virus was not about to be confined in only one Chinese city as it was spreading like a 'bushfire' across the Chinese nation and the neighboring nations including the distant ones who previously thought that China was too far. Between January and March of 2020, every continent had registered an individual testing positive for the virus and yet it was spreading faster than previously projected. By the beginning of the month of March 2020, it became very understandable that unless the world comes together and seeks joint interventions, the problem COVID-19 was not about to end any sooner.

With the above at the fore, different national leaders started making robust decisions aimed at reducing the spread of the virus from one person to another since it was, by that time, clear that COVID-19 was spreading from one individual to another mainly as a result of direct contact to the infected person or through indirect contact with the infected person through the different surfaces with which such a person could have got into within six hours namely lavatories, furniture, walls, clothes, vehicles, including direct body contact in terms of handshake, hugs, kiss, sexual intercourse, to mention just a few. As a remedy, governments sought that by limiting chances which aimed to bring huge crowds together, the virus would be contained ([Village & Francis, 2020](#); [Marstaller, 2020](#); [Pandey, Bansal, Suresh & Prajapat, 2020](#)). Such changes included social gatherings, business activities, and political actions.

In her study, [Igoye \(2020\)](#) reveals that the first case of COVID-19 was confirmed in Uganda on 22<sup>nd</sup> March 2020 and in a week, the figure rose to 44 cases. While the number of COVID-19 positive cases has been growing, Uganda's situation is still minimal. The level of COVID-19 has reached 222,051,739 cases registering 4,590,290 deaths and 198,668,020 recoveries worldwide. A number of stratagems have been put forth to try to ease the prevalence to a controllable level and amongst the stratagems espoused by the World Health Organization (WHO) is vaccination of vulnerable groups given their lifestyle or workstyle or age. In Uganda, 1.6% of the population (1,395,318 doses) has been vaccinated compared to the USA's 53.6% and Brazil's 31.5%. In Western Uganda, there is a marked decrease in infections, with 119 new infections reported on average each day; there have been 120,662 infections and 3,053 coronavirus-related deaths reported in the country since the pandemic began. In spite of these endeavors, little attention has been put to household food security yet several households appear to fall into food insecurity daily. For instance, recent statistics indicate that Uganda faces the threat of price rises, supply interruptions, higher rates for staple foods, and hunger as the country suffers lockdown enforced to stop a fatal second wave of the COVID-19 pandemic ([Wetaya, 2021](#)). Likewise, it is suggested that much of the country is expected to endure food insecurity because of the pandemic. It is on this foundation that this study investigated the effect of COVID-19 lockdown on household food security among peri-urban households in Kasingo ward, Hoima city in mid-western Uganda.

### ***Government's reaction to the COVID-19 outbreak***

As a strategic response, the President of Uganda instituted a country-wide lockdown on March 30 ([Nanima, 2020](#)) and came up with a set of thirteen interventions and were announced by the Country's President on the 18<sup>th</sup> of March 2020. These were:

- a) Closing all education institutions in the country given that these brought together about fifteen million students segmented in 36,000 primary schools, 7,000 pre-primary schools, 5,000 secondary schools, 49 universities, 143 tertiary institutions thus generating a total of 51,000 contact points with each having approximately 1,000 or more concentrations. By so doing, the government imagined that; firstly, it would have removed all the 1,000 concentration points for a month starting on Friday 20<sup>th</sup> March at mid-day. Secondly, by closing all education institutions, it would allow students to disperse in eight million homesteads hence bringing about only 1.5 students per household. According to [UNICEF \(2021\)](#), schools for over 168 million teenagers worldwide have been totally shut for a whole year as a result of COVID-19 lockdowns and approximately 214 million youngsters have lost over three-quarters of their physical learning.

- b) The next concentration was places of worship such as churches and mosques; these were suspended for a month with immediate effect with activities such as normal gatherings and special gatherings affected and religious were thus encouraged to shift to the mass media as the Pope had already indicated at St. Peter's square in the Vatican. This was done seeing that no place of worship had the capacity to protect the worshippers from coming into close contact. A study by [Wild-Wood and Chow \(2020\)](#) shows that places of worship, the world over, were shut and religious leaders encouraged the faithful to stay home as a consequence of COVID-19 pandemic.
- c) The political and cultural gatherings in form of rallies, meetings, and elections were suspended for a period of forty-two days.
- d) Category one countries, namely Italy, France, South Korea, China, USA, UK, Netherlands, Belgium, Australia, Malaysia, Pakistan, and Sara Moreno has given a suspended in terms of outboard movements or movements through those countries, however, foreigners to the same countries were free to leave as long as they were not returning soon.
- e) Ugandan nationals would not be stopped from returning home except that they would be required to be quarantined at a cost to be met by the returnee or remain in the affected country such as students in the Chinese city of Wuhan.
- f) Non-agricultural places of work such as factories, hotels, and taxi parks were allowed to continue under close caution from health experts.
- g) Mass weddings, as well as feasts, were equally suspended for thirty-two days and essential weddings were encouraged to adopt a scientific approach by having only the ten core members.
- h) Funerals could not be suspended but were restricted to only the nearby relatives however if the deceased succumbed to the virus, the government was expected to take over immediately.
- i) Farmers included about ten million families ([the Republic of Uganda, 2014](#)); since the majority of Ugandan live on scattered homesteads, these were allowed to continue normally. However, they were encouraged to observe proper hygiene practices as recommended by the technical personnel. On a separate hand, though, monthly farmers' markets were suspended for thirty-two days and farmers were encouraged to sell from homes.
- j) Public transport including buses, taxis, Boda-bodas, and trains were suspended and individuals were only allowed to drive personal vehicles while public transporters would be allowed under mandatory guidelines.
- k) Merrymakings such as discos, bars, cinemas, and music shows were suspended for a month.
- l) Appropriate nutrition was encouraged in terms of a balanced diet; taking large quantities of vitamin C.

Finally, the Ugandan public was encouraged to observe the following: avoid sneezing or coughing in public or use a hanky/disposable tissue, wash hands with soap regularly, avoid touching the soft parts such as mouth, nose, and eyes without washing hands, avoid handshake and hugging, reduce direct contact with money by resorting to digital methods, use the left hand when sneezing, avoid clapping hands-only bang the table with a right hand to avoid contaminating the left hand, eat more fruits and vegetables, and eat frequently to remain healthy.

## 2. Literature review

### *A glimpse at the agricultural sector in Uganda*

A close consideration of the strategies and or decisions that were taken, by the government of Uganda, suggests that it is only the agricultural sector, the construction sector, and the industrial sector that continued in operation. In particular, the agricultural sector has, since the immediate post-independence epoch, been considered indispensable to the overall development and growth of the economy of Uganda. As noted by [Fowler \(2020\)](#), the agricultural sector is the foundation of the Ugandan economy contributing 24% GDP, it is the source of revenue for 70% of the populace, contributing over 50% export revenues and approximately 60% of raw resources for manufacturing. All other sectors were directly affected by the lockdown resulting from COVID-19 for the whole year of 2020 and a number of them are still staggering both in Uganda and in the East African region. In his study, [Joones \(2020\)](#), suggests that while the impact of COVID-19 will be felt differently among different nations, the threat is widespread. That is, every nation has been affected in one way or another; a number of them being hard-hit while others having the capacity to absorb the shocks

resulting therefrom. That is probably the justification why [Miechie \(2020\)](#) emphasizes the centrality of economic factors during the COVID-19 pandemic era seeing that economic choices sway (and have swayed) the investment choices of virtually every nation. This is what [Olivia, Gibson, and Nasrudin \(2020\)](#) call economic distractions given that governments had to make robust macro-level structural adjustments within ministries, agencies, and departments to be able to accommodate the so-called *new-normal*. As a consequence, progressively more people in the country decided to take the issues of agriculture as their central concentration.

#### ***The household food security situation in Uganda***

Since a good number of homesteads in Uganda were informed that they needed more food to feed the higher numbers of members whom they had not prepared for. For instance, in a number of homes, children spend a larger part of the year in schools and colleges yet, by this time, they were forced to be with their families. Also, in the meantime, a number of people were no longer engaged in any other form of activity, it became apparent that they take farming as a one and only household socioeconomic activity. Through, casual observations, every single plot of land in the study area was cultivated and grown with some legume or grain (such as beans and maize) or tuber (such as potatoes and cassava) during the lockdown. Results from a study conducted by [Fowler \(2020\)](#) suggest that COVID-19 led to a significant drop in actual demand for foodstuff which was hitherto demanded by education institutions, lodging houses, and restaurants and as a consequence of low household revenues. Further, [Hamduzzaman and Islam \(2020\)](#) note that as a result of inadequate openings for income, the low-income earners would obtain a reduced aggregate and lament over welfare opportunities as well as struggling with a higher cost of routine provisions such as foodstuff.

#### ***The human population rise versus food security***

Obtainable studies advocate that the earth planet is now supporting nearly six billion persons, and hitherto, human populations continue swelling at approximately 1.5% for every passing year, as a consequence, translating into three children being born for each second that passes ([Bognar, 2019](#)). Accordingly, not any individual is sure of the actual number of persons the earth planet can sustain; some people estimate the earth's carrying capacity at eight billion people, but then others suggest that the earth can carry approximately sixteen billion people. For instance, a study conducted by [Chamdimba, Ortmann, and Wale \(2020\)](#) in southern Malawi reveals significant challenges ranging from low agri-production and agri-output to higher predisposition of rural means of support to food and food uncertainty. Consequently, it does not matter the exact number of persons that can be pressed on this earth; contrary wise, there are restrictions to both the renewable assets and the non-renewable assets that are particularly essential to sustaining biological lives including the human populations. For example, through well-organized administration of renewable assets and prudent utilization of non-renewable assets, along with enhanced conservation and safety of delicate and scarce species, will be determined by the appropriate acquirement of relevant data and clear-cut analysis of those data ([Reilly, 2020](#); [Tasneem, Engle-Warnick & Benchekroun, 2019](#)). This is so because the central challenge facing agriculture is among the essential concerns of human progress. Thus far, human civilization has a need for superior information concerning the behavior of individuals and communities during a pandemic (such as COVID-19) towards agriculture ([Laato, Islam, Islam & Whelan, 2020](#)). For example, when a pandemic arises, certain questions are put forth and answers demanded, *viz.*; how many people retreat to farming, how much food is produced, how many homesteads become food secure or insecure, and what interventions are put in place to increase access to and availability of food at the household level?

#### ***Contribution of the agricultural sector in Uganda***

In Uganda, the agricultural sector contributes approximately 24% of the GDP and generates 60% of the country's direct labor, accounting for almost 32% of the GDP for sub-Saharan Africa ([Jjuuko, Tukundane & Zeelen, 2019](#)). In spite of these inspiring figures, agriculture is characterized by a negative attitude among the majority of the urban population who consider that the sector is meant for the illiterate-rural-poor population. To the extent that, the volume of agricultural production in peri-urban areas remains very low yet a number of urban dwellers, in the cities and or municipalities in Uganda, survive on very poor standards of living. Available studies, for example, [Aryemo, Akite,](#)



[Kule, Kugonza, Okot, and Mugonola \(2019\)](#), reveal a number of factors that hold back agri-production in the peri-urban areas such as transport, agricultural extension services, and ownership of the enterprise, gender, and age of family heads but not attitude. On the contrary, a study conducted by [Jonah and May \(2020\)](#) in South Africa reveals high levels of urban food insecurity attributable to attitude. However, the COVID-19 influenced lockdown pressed a good number of urban dwellers to the peripheries of the urban centres since they had nothing to do in the city yet life was becoming hard-hitting day-to-day ([Montefrio, 2020](#)). By inference, this exodus meant that the amount of labor available on the small plots of land more than doubled within a short time. Despite that labor is one of the strategic components for agricultural development since it enhances production and income. Thus, the availability of cheap labor reduces the unit cost of agri-production, enhances the per capita output, and allows the household to save on resources otherwise spent on purchasing foodstuff. Yet, accessibility to cheap labor has a strong effect on agri-output for both small-holder and large-scale farmers. That is, increased availability of cheap labor is directly associated with increased agri-output and hence, reduced food insecurity. During COVID-19 lockdown, the cost of food or availability of affordable food was very significant since a number of household members otherwise engaged in other gainful sources of income were rendered jobless.

The central hypothesis of this paper, which draws on examples from Hoima city, is that the period of lockdown resulting from COVID-19 pandemic is a basis for food security at the household level. The study gives a brief description of the COVID-19 pandemic and the ways in which it is experienced in a number of aspects of human life including household food security. Three objectives guided the study, specifically: (a) to determine the level of household food security among smallholder peri-urban households in Kasingo ward; (b) to determine the relationship between COVID-19 lockdown and household food security among peri-urban households in Kasingo ward; (c) to determine the effect of COVID-19 lockdown on household food security among peri-urban households in Kasingo ward.

### **3. Research methodology**

#### ***Research design***

This study embraced a cross-sectional survey design in which the views of the respondents were gathered at a particular point in time on COVID-19 and household food security. This study employed a quantitative method to gain statistical data on peri-urban households that would straightforwardly be examined and generalized.

#### ***Participants***

A target population of 300 respondents, per cell, was selected due to security limitations thus yielding a total target population of 210. Using [Krejcie and Morgan's \(1970\)](#) table, a sample of 136 respondents was considered and distributed proportionately among the five participating cells. A simple random sampling technique was applied to select respondents from each cell. According to [West \(2016\)](#), adopting a simple random sampling technique reduces the possibility of biased choices that are expected to take place in the procedure of selecting respondents.

#### ***Instrument***

Closed-ended Self-Administered Questionnaires (SAQs) were developed to attain reliability of measurement. According to [Bird \(2009\)](#), a closed-ended questionnaire is permissible with ease, simple to code and examine, and, as a result, yields a comprehensive inquiry that circumvents inappropriate reactions.

#### ***Quality control***

The tool was pre-tested on a section of 16 randomly selected peri-urban farmers in Kasingo ward. The outcomes specified a reliability coefficient ( $\alpha=.750$ ), which was beyond the satisfactory limit of 0.7 thus, demonstrating that it was internally consistent.

### ***Procedures***

The study was conducted in the five cells of Butale-Ibambara, Mpaija, Kasasa, Ruyanja, and Rukoge. The choice of these cells was purely random seeing that they share common characteristics of mixed small-scale business operations and small-holder peri-urban farming activities. Since this study was conducted during the lockdown period, permission was obtained from the local leadership of Kasingo ward as well as the relevant cell leaders for each of the participating cells in the ward.

### ***Data analysis***

After cleaning and validating all the data for precision and constancy, descriptive, bivariate, and multivariate methods were applied. To find out whether COVID-19 lockdown did affect household food security among peri-urban households in Kasingo, a Chi-square was applied. Additionally, so as to forecast the degree of change in household food security resulting from changes in COVID-19 lockdown, a regression analysis was adopted. Consequently, the results are presented along with four sub-themes, namely: demographic characteristics of respondents; the level of household food security among peri-urban households in Kasingo ward; the relationship between covid-19 lockdown and household food security among peri-urban households in Kasingo ward; and, the effect of Covid-19 lockdown on household food security among peri-urban households in Kasingo ward.

## **4. Results**

The results were presented basing the emerging three specific research questions, namely: (a) what is the level of household food security among smallholder peri-urban households in Kasingo ward? (b) what relationship exists between COVID-19 lockdown and household food security among peri-urban households in Kasingo ward? (c) what effect did COVID-19 lockdown have on household food security among peri-urban households in Kasingo ward?

### ***Demographic characteristics of respondents***

In Kasingo ward, the majority of the respondents were female (80; 58.8%) against the males (56; 41.4%). While men are the heads of the households, the responsibility of feeding is left to the women as men focus on the macro-level household needs such as the construction of the house, machinery, furniture, and purchase of land. The situation is worse when it comes to small-scale agriculture as men do not see any monetary value except feeding the family. Regarding age, the highest number of respondents (48.2%) were aged 40 to 55 years, which suggests that small-scale agriculture is still adult-based while the young prefer large-scale agricultural production. Most of the respondents (63.7%) were below primary leaving examination (PLE) level of education indicating that involvement in small-scale agriculture is still an activity for the less-educated while the graduates and other highly educated prefer largescale agricultural production for commercial purposes. With the increasing number of unemployed university graduates, many are turning to commercial agriculture as a source of employment". And regarding food crops constituted the highest proportion (94.8%), which agrees with [Eton, Mwosi, Ejang, and Poro \(2021\)](#) in which the authors noted a tinny link between food produce and cash produce since a number of food crops are merchantable and it is economical to grow food crops on small-scale acreage rather than cash crops.

### ***What is the level of household food security among peri-urban households in Kasingo ward?***

The first research question aimed to determine the level of household food security among peri-urban households in Kasingo ward. Descriptive statistics were adopted to analyze the variable using means ( $\mu$ ) and standard deviations (Std. Dev.). The findings reveal that the level of availability of foodstuffs at the household is low ( $\mu=2.31$ , Std. Dev. =1.68) while accessibility to foodstuffs by every household member is high ( $\mu=4.18$ , Std. Dev. =1.10) revealing that there is a disconnection between the availability of and accessibility to household foodstuffs. (See table 1 below).

Table 1. The level of household food security among peri-urban households in Kasingo ward (N=142)

<b>Constructs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Interpretation</b>
Foodstuffs are available in my household	2.31	1.68	Low
Every household member has access to the foodstuffs available	4.18	1.10	High

My household can afford every foodstuff at all times	2.20	1.72	Low
My household has surplus foodstuffs	2.12	1.74	Low
<b>Average</b>	<b>2.70</b>	<b>1.56</b>	<b>Moderate</b>

*Legend: 1.00-1.79 (very low), 1.80-2.59 (low), 2.60-3.39 (moderate), 3.40-4.19 (high), 4.20-5.00 (very high)*

Further, the results indicate that affordability to foodstuffs at the household level is low ( $\mu=2.20$ , Std. Dev. =1.72) and so availability of surplus foodstuffs ( $\mu=2.12$ , Std. Dev. =1.74) suggesting a moderate level of household food security among peri-urban households in Kasingo ward. The views suggest that, generally, peri-urban households in Uganda are more likely to face food insecurity whenever a disaster and or pandemic arises and so policymakers need to put in place safety-nets which can ensure that such populations are not at higher risk for food uncertainty.

#### ***What relationship exists between covid-19 lockdown and household food security among peri-urban households in Kasingo ward?***

To establish a relationship between covid-19 lockdown and household food security among peri-urban households, a correlation test was applied. Ideally, the range of coefficient results spans from 0 to 1 where 0 suggests no relationship while 1 suggests a perfect relationship. Also, all values in proximity with zero are reflective of a very weak relationship as those values in proximity to one are reflective of a very strong relationship. On the one hand, when two variables indicate a proportionate change in a matching direction, then it is assumed to be a positive correlation coefficient. On the other hand, when two variables experience a non-proportionate change in opposite directions, it is assumed to be a negative correlation coefficient.

**Table 2. Correlation test between covid-19 lockdown and household food security in Kasingo ward**

<b>Variable</b>	<b>Outcome</b>	<b>Household food security</b>
Covid-19 lockdown	Correlation	0.315
	p-value	0.000
	N	142

*\*\*correlation is significant at 0.01 level (2-tailed)*

The results suggest that the relationship between covid-19 lockdown and household food security yielded a weak outcome ( $r=0.315$ ;  $p\text{-value}=0.000$ ). These results indicate that while the lockdown resulting from covid-19 is associated with a weak change in household food security, the p-value suggests a linear relationship between covid-19 lockdown and household food security at 99% level of confidence.

#### ***What effect did Covid-19 lockdown have on household food security among peri-urban households in Kasingo ward?***

To establish the effect of covid-19 lockdown on household food security among peri-urban households in Kasingo ward, the author embraced a regression analysis. This a mathematical relationship between two variables, which uses R-square to measure the difference in the dependent variable as a result of the independent variable (the results are summarised in the table below)

**Table 3. Regression coefficients between Covid-19 lockdown and household food security among peri-urban households in Kasingo ward**

<b>Model summary</b>	<b>Results</b>
R	0.315
R-square	0.098
Adjusted R-square	0.093
Std. error of est.	6.8653

*<sup>a</sup>Predictors: (constant) Covid-19 lockdown, <sup>b</sup>Dependent variable: Household food security*

Covid-19 lockdown describes merely 10% of the difference in household food security in Hoima city (R-Square=0.098). The figures suggest the non-appearance of significant changes in the consequence of Covid-19 lockdown among peri-urban farmers in Hoima city. Likewise, the consequence of covid-19 lockdown on household food security amongst peri-urban farmers is low as a result signifying the interaction of extra factors within the city. It is important to note that although the consequence of covid-19 lockdown seems low in the public, it enhanced household food security in Kasingo ward.

### ***Testing the hypothesis on covid-19 lockdown and household food security***

The research approved results of the chi-square under a cross-tabulation process to determine whether covid-19 lockdown and household food security are independent. An Asymp significant value less than 0.05 shows that the variables are correlated while Asymp. A significant value greater than 0.05 suggests that the factors under investigation are independent as illustrated in table 4 below.

Table 4. Results of the chi-square

	<b>Asymp. Sig. (2-sided)</b>
Pearson chi-square	0.000
Likelihood ratio	0.773
Linear-by-linear association	0.000
Frequency of valid cases	142

The research set  $H_0$  = Null hypothesis, and  $H_A$  = Alternative hypothesis. The  $H_0$ : Covid-19 lockdown does not affect household food security among smallholder farmers in peri-urban areas of Kasingo ward;  $H_A$ : Covid-19 lockdown does not affect household food security among smallholder farmers in peri-urban areas of Kasingo ward.

**Source:** Primary data, September to November 2020

From table 4 above, it is clear that the null hypothesis, which indicated that; ‘Covid-19 lockdown does not affect household food security among smallholder farmer in peri-urban areas of Kasingo ward’, was disallowed (Asymp. Sig. <0.05) and, the alternate hypothesis was, as an alternative, recognized. Based on the Asymp substantial values of the cross-tabulation, covid-19 lockdown and household food security are correlated in Kasingo ward. This result suggests that the research is expected to get a similar inference from more than 90% of the experimented objectives. Nonetheless, directional procedures suggest that covid-19 local down has a positive effect on household food security in Kasingo ward.

### ***Discussion***

The gender variance was no surprise seeing that a study by [Van Campenhout, Lecoutere, and Spielman \(2020\)](#) reveals that much of the small-scale agricultural production in Uganda is predominantly female. The limited number of men in small-scale agriculture is consistent with a previous study conducted by [Ali, Bowen, Deininger, and Duponchel \(2015\)](#) who established that resource accessibility between males and females played a significant role. These authors reveal that the higher number of women in small-scale agriculture, largely categorized as the informal sector is a reflection of the patrilineal culture in which men dominated the formal sector while women were left in the informal sector. The level of education appears to be in agreement with a study conducted by [Eton, et al \(2021\)](#), which established that; “in the past, participation in agriculture was an activity left to the rural poor and uneducated.

The findings support previous findings by [Msuya, Kideghesho, and Mosha \(2010\)](#) who observed that food insecurity is present even in circumstances when there is adequate foodstuff but the underprivileged fail to have access to it. Also, the results are in agreement with a study by [Vercillo, Kuuire, Ato Armahand Luginaah \(2015\)](#) who found a prevailing relationship of smallholder farming with scarcity and food insecurity leading to smallholder farming into the predicament. However, the results divert from findings of a study conducted by [Besada and Werner \(2015\)](#) who observed that the danger of food insecurity was more severe among rural residents, where agricultural reliance on climate variabilities is superior.



The findings are supportive of other studies such as [Nechifora, et. al \(2021\)](#) who found that sub-Saharan African nations and the nations in the Middle East and North Africa had the least effect on their GDP of about 3% compared to other nations of the world. Nonetheless, the same results seem to disagree with [Das, Rasul, and Hossain et al \(2020\)](#) who conducted a study in Bangladesh and established that households in urban and rural areas were both affected by food uncertainty for the period of the lockdown even though each category adopted a different coping strategy which might impact the nation's food security situation differently.

The study appears to disagree with the outcomes of research conducted by [World Bank \(2021\)](#) which indicated that COVID-19 have perpetuated acute and rife rises in worldwide food uncertainty, upsetting susceptible households in practically every single nation, and the situation is projected to endure beyond 2021. Despite the fact that covid-19 lockdown is one of the dynamics restraining a number of profitable activities amongst city dwellers, it was a small-scale account of the number of obstacles to household food security in a number of urban centers of Uganda. The results more so agree with [Kansiime, et. al \(2021\)](#) who acknowledged that the proportion of food-insecure households increased 44% in Uganda. Not to advocate that covid-19 lockdown was a policy for the urban polity, it affected the urban population more than their rural counterparts. The undesirable relationship between covid-19 lockdown and household food security among peri-urban households in Kasingo ward is concurring with the Food and Agriculture Organization (FAO) and Comunidad de Estados Lationamericanos Caribirios (CELAC) which found an acute food security situation in Latin American and the Caribbean countries more than several parts of the globe.

## 5. Conclusion

Food security, and indeed household food security, is one of the main subjects that must be considered during the COVID-19 pandemic in a developing country like Uganda nonetheless its level will rely on a number of socio-political factors. This article has recognized COVID-19 as one of the factors that can forecast the level of food security among smallholder peri-urban households, yet this fluctuates between households. The research establishes selected elements that illustrate the level of household food security in the study area. The presence of these elements and shades of COVID-19 offered a resilient base to disallow the null hypothesis that COVID-19 lockdown does not affect household food security among smallholder farmers in peri-urban areas of Kasingo ward.

## Limitations and study forward

1. This study only looked at the household food security situation in only one ward in Hoima city yet there were many other wards hence the need to conduct a follow-up study covering the entire city.
2. The study did not look at other factors which may contribute to household food security situation among peri-urban households. It is suggested that other studies be conducted on finding out other factors, besides COVID-19 lockdown, having an effect on peri-urban households.

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