COVID-19 PANDEMIC AND FOOD SECURITY WITHIN SELECTED HOUSEHOLDS IN KWARA STATE, NIGERIA

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Introduction

In many developing countries, research showed that 112 million individuals worldwide lacked economic food access due to the COVID-19 pandemic, while the total number of people who cannot afford a good diet is up to 3.1 billion. Supply chains were also affected by the conflict in Ukraine, with much impact on food, fertiliser, and oil costs. This caused additional hikes in food prices in the first half of 2022; extreme climate events that are occurring more frequently and severely, particularly in low-income nations, have also added to disrupting the supply chain. In Asia, there were increases of 58 million in 2020 compared to 2019, and 26 million in 2021 compared to 2020. In most sub-regions, the overall trend between 2015 and 2019 showed a continuous decline in hunger, with upturns starting in 2020 after the COVID-19 pandemic. Southern Asia experienced a slight upsurge in 2019 before the pandemic-related surge from 13.2 to 15.9 per cent between 2019 and 2020, and then another increase to 16.9 per cent in 2021. In Southeast Asia, there was a projected 6.3 per cent increase in the population of hungry people as of 2021, relatively lesser rises were seen for two straight years. For the past five years, levels in Western Asia have been around 10 per cent, those in Central Asia have been 3 per cent, and those in Eastern Asia have been below 2.5 per cent for more than a decade. In Latin America and the Caribbean, the Caribbean has the greatest rate of hunger-affected people (just over 16 per cent), compared to 8 per cent in

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Central America and South America. However, in the Caribbean, the prevalence of undernourished people stayed stable from 2020 to 2021, despite the fact that it remained above the pre-pandemic levels, with a general upward trend in hunger since 2015 and a considerable increase from 2019 to 2020. In contrast, from 2020 to 2021, hunger increased in South America and Central America. Since 2015, the prevalence of undernourished in South America has nearly doubled, with increases of 1.7 and 0.8 percentage points in 2020 and 2021, respectively. The prevalence of undernourished in Central America has barely increased since 2015, despite rising by 0.4 percentage points annually for the previous two years. Similarly, in Latin America and the Caribbean, between 2019 and 2020, there was an increase of 9 million more people in the population of hungry people, an additional 4 million between 2020 and 2021. In Africa, there was an increase of 35 million people who were affected by hunger in 2020 in comparison with 2019, before the outbreak of the COVID-19 pandemic, with an added 15 million in 2021, this equals a total of 50 million people in two years outside the previous sum (Food and Agriculture Organization et al., 2022).

A huge number of Nigerians is part of the global population of people that are affected by food insecurity. Out of the 7.954 billion people that have been estimated as global population (UNPF, 2022a); the people affected by hunger globally stood at 828 million as at 2021 (Food Agriculture Organization et al., 2022). Nigerian population was estimated to be 216.7 million in 2022 (UNPF, 2022b),a recent report put the population who would be at risk of hunger in Nigeria by June and August this year's lean season at nearly 25 million if no urgent step is taken to stop it, this statistic was based on an October 2022 food and nutrition analysis data that was obtained (UNICEF, 2023). The Global Hunger Index for 2022 ranked Nigeria as 103rd out of the121 countries using the 2022 Global Hunger Index scores, with a score of 27.3, equating Nigeria as a country with serious level of hunger (Global Hunger Index, 2022).The aim of this study is to assess the pre and post COVID-19 pandemic food security decline profile within the households in Kwara State. The objectives of the study were to investigate food security and insecurity levels of the households in 2019 and 2023; determine the disparity between food security and insecurity levels of the households; and evaluate the post-pandemic factors linked to food insecurity rise within the households. The scope of the study covered 2019 and 2023, which represent the pre- and post- COVID-19 periods.

Literature Review

The concept of food security was traced to a discussion on international food problems during a global food crisis in the mid-1970s. At the initial stage, the

focus of the stakeholders was on issues pertaining to food supply with steady availability and price stability of food at international and national levels. An interactive session that motivated the convergence of many nations occurred; this led to the World Food Conference of 1974 which defined food security as: "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (United Nations, 1975). Afterwards, there was a shift from availability to access due to the stress that the agricultural market was going through, which prevented the at-risk populations from accessing food. Thus, in 1983, Food Agriculture Organisation expressed food security as: "ensuring that all people at all times have both physical and economic access to the basic food that they need" (Food Agriculture Organization, 1983). In 1986, a World Bank report on "Poverty and Hunger" introduced a time scale dimension to food security and distinguished between chronic food insecurity and transitory food insecurity. Chronic food insecurity was said to mean 'continuous or structural poverty' while transitory food insecurity involved occasional periods of lack of food due to natural disasters, economic problem or war (The World Bank, 1986).

In the mid-1990s, food security became an essential concern at all levels, the definition was expanded to include food safety and nutritional balance. In 1994, UNDP Human Development Report popularised the idea of human security which embodied food security as a core aspect of human security. As a result, food security moved from just being a social security issue to becoming a human right concern (United Nations, 1994). In 1996, a new definition for food security was adopted at the World Food Summit so as to unify its various dimensions: "food security, at the individual, household, national, regional and global levels (is achieved) when all people, at all times, 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" (World Food Programme, 1996). In 2001, the state of food insecurity in the world redefined food security to include the social aspect of access: "food security (is) a situation that exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Food and Agriculture Organization, 2002a). In 2009, at the World Summit on Food Security, stability as a fourth dimension was added to the food security definition, which is the ability of food systems to withstand shocks (natural or man-made). It was noted that: "food security exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life

The four pillars of food security are availability, access, utilisation and stability" Food and Agriculture Organization, 2009). In 2015, Berry and Peng suggested another dimension to food security, which is to be a fifth dimension known as sustainability, but there has not been any official concerted effort to adopt this. The 2009 definition for food security is still the last official update on the concept of food security (Peng & Berry, 2019).

Over the years, there were three main indicators for food security (Timmer, 2004; and Omeje & Ogbu, 2015). However, a fourth dimension became popular when Food and Agriculture Organisation (FAO) presented a new definition for food security in 1996, which included the food stability as the fourth dimension of food security. For food security to occur four dimensions must be present, these are described below: (i) ***food availability***, this is secured through production, distribution and exchange mechanisms (Omeje & Ogbu, 2015; and Food and Agriculture Organisation, 2008a), Rivera-Ferre explained it more clearly to mean the physical quantities of food that is produced, stored, processed, distributed and exchanged, '*food distribution*' was described to mean 'how' food is made available, the 'form' it takes, 'when' it reaches a person and 'who' it reaches; and 'food exchange' as the amount of the available food obtained through exchange mechanism such as 'barter', 'trade', 'purchase' or 'loans' (Rivera-Ferre, 2014); (ii) ***food access***, this describes a dimension of food security that relates to *'food affordability', 'food allocation', and 'food preferences'* (Omeje and Ogbu, 2015), but Food and Agriculture Organisation (2008a) noted that food access is basically economic and physical access to food, and they are determined by income, expenditure, market and prices; (iii) ***food utilisation***, Food and Agriculture Organisation (2008a) opined that good care and feeding practices, good food preparation process, diversity of diets, and adequate distribution of food within the household for body nourishment are parameters for adequate food utilisation, it also describes how food is used with consideration for the nutritional value, social value and safety of food (Omeje and Ogbu, 2015); and (iv) ***food stability***, this is the ability to stabilise all the first three dimensions of food security over time because lack of access to food on a periodic basis results in the deterioration of the body's nutritional status, conditions that threaten food stability could be promoted by 'rising food prices', 'adverse weather conditions', 'political instability', 'war' and related factors (Food and Agriculture Organization, 2008b).

Global Epidemic, Conflicts and Food Security

Globally, cross border relations between countries have been known to promote international and regional trade relationships that foster economic growth and adequate food access. No country is self-sufficient when it comes to adequate

food access, and open borders are necessary for this. COVID-19 and regional closures further heightened food insecurity globally (Norbrook and Olurounbi, 2020). Gbajumo-Sheriff et al. (2021) showed that COVID-19 increased levels of unemployment and underemployment; and increased household economic vulnerabilities. Alade et al. (2021) revealed that COVID-19 affected people's economic ability due to a lack of prompt payment of employees' salaries, reduced access to fringe benefits, and declining saving ability; as a consequence, their cost of living increased, which resulted in higher household consumption and prices of goods and services. Nwobi (2021) discovered that COVID-19 disturbed employers' ability to pay their employees, and this led to reduced economic access to staple food supplies for the affected workers. Ndakara et al. (2022) showed that economic measures that the Nigerian government adopted to cushion the effects of COVID-19 led to increased unemployment rates, poverty, and crime; low patronage for businesses, which led to reduced productivity; reduced socialisation and participation in recreation and tourism; while agricultural sector productivity remained the same.

Craigmore Farming (2020) opined that about one third of all countries are major exporters of food, while the other two-thirds are importers, with the only region which has transited from importer to exporter over 50 years ago being the Former Soviet Union, and the satellite states of Eastern Europe as net exporters and that countries who are major exporters of food enjoy the advantages of greater access to land, water, and have smaller populations. The assertion above means countries cannot be food sufficient only through massive food production; but food trades that are supported by cross border trades will be necessary, thereby promoting global peace. Therefore, effective cross border trade is a driver of food security in the world.

At the national level, issues emerged that ended up in a slowdown in the attainment of the food security goal. The decision of the national government to close down Nigerian land borders in August 2019, though with an initial noble purpose, had a major negative impact on food prices. Foodstuffs' prices began to increase steadily until the inflation figures rose from 11.08% as of July 2019 which was before the closure of Nigerian land borders, to 13.71%, 14.23% and 14.89% by September, October and November 2020, respectively (National Bureau of Statistics, 2019). Norbrook and Olurounbi (2020) noted that Nigeria's borders were closed in Seme, Illela, Maigatari, and Mfun in August 2019 in order to prevent smuggling of rice and other products into the country, and to promote food self-sufficiency. However due to growing insecurity, farmers' productivity has been limited, making the initial purpose of the border closure counter-productive. As

a result, food prices soared to an all-time height of 18.3%, inflation also rose to a three-year height of 14.9%. As the impacts of COVID-19 increased in the world, the World Bank predicted that the global economy would shrink by 5%, this figure made it the deepest recession the world had experienced since the Second World War. In developing countries, COVID-19 could lead to an increased number of people affected by extreme poverty and this might be up to 150 million.

David Beasley, the World Food Programme's executive director warned that the world is "not only facing a global health pandemic but also a global humanitarian catastrophe," which could come with magnitudes such as "multiple famines of biblical proportions" (Swinnen and McDermott, 2020). There were restrictions to movements which later ended in total lockdowns in the world as the heat of the pandemic intensified at the second quarter of year 2020 and the last quarter in the United Kingdom and some other places, but there were considerable movements of essential commodities, and some countries like New Zealand confirmed that their food export level has been maintained as what it is before COVID-19 (Farmers Weekly NZ, 2020). COVID-19 impacted food security in various regards such as food supply chain, the pressure was heightened by lockdown strategies in many countries. Some food crops are grown for the food processing outlets, such as potatoes and diaries, the destinations of such farm produce were reduced during the various lockdowns, and this resulted in various agricultural losses. It also impacted the rise in staple food prices. It mounted much pressure on the national economy because there were trade restrictions that were imposed to limit movements and economic activities in order to control its spread. The same period in the nation witnessed a fall in international oil prices, and the foreign exchange reserves dropped significantly; the Nigerian currency on the official and parallel markets also depreciated in value. Other impacts could be seen in reduced agricultural engagements due to interstate and cross-border movement restrictions which affected migratory labour (FEWSNET, 2020).

The cost and affordability of a healthy diet have escalated globally due to inflation in consumer food prices premised by the COVID-19 pandemic's economic effects and the containment measures implemented to combat it. A healthy diet now costs more on the average globally, across all regions, and in almost all sub-regions of the world in 2020 due to the second half of the year's huge rise in consumer food prices around the world. A healthy diet in 2020 cost USD 3.54 per person per day on average, which is 3.3 % and 6.7 % more than what it was in 2019 and 2017, respectively. Due to the rising prices of a nutritious diet in 2020, almost 3.1 billion individuals were unable to afford one, an increase of 112 million people from the year 2019 figures. With 78 million more individuals unable to afford

this diet in Asia, Africa, and to a lesser extent Latin America and the Caribbean, Northern America, and Europe (Food and Agriculture Organization et al., 2022).

Income and Food Security

Arene and Anyaeji (2010) revealed that the income of a household has a positive effect on its foodsecurity status; which implies that the more gainfully employed a household head is, the more food secure the household is. They also showed that urban dwellers have greater probability of higher income than rural dwellers; urban households embark on savings compared to those of rural households who earn same income; and that salary earners who are close to retirement age tend to save more than their counterparts. Therefore, a typical household's saving habit involves limited savings when young, real-time saving in the middle years and limited savings upon retirement. Astemir (2014) showed that off farm income was a significant determinant for sufficiency of calorie intake at 1% significant level rural households in Ethiopia. In a most recent study, Rachman et al (2021) showed that income has a positive and significant effect with odds ratio of 1.74; showing that higher income of farmers will promote increased food security in East Java, Indonesia. In sub-Saharan Africa, Drammeh et al. (2019) opined that monthly household income increased household food security by 1.65 times, with significant impact on national, household and individual food access also. Low household income is connected to household food insecurity, poor living standard and malnutrition in children below five years old.

Akukwe (2020) showed that the coefficient of monthly income of the heads of households was positive and significant at 5% level in Southeast Nigeria; in the study, the odds ratio in favor of households' food security increased by 5.581 times for every increase in the monthly income of a household head, meaning that households with higher monthly income were 5.581 times more likely to increase in food security than households with lower monthly income. Cordero-Ahiman et al. (2020) found that single source of income for a farming household head increased the possibility of food insecurity for that household if the seeds from the last harvest is employed for household food consumption in Paute River Basin of Azuay Province, Ecuador. Semazzi and Kakungulu (2020) disclosed that households who were food secure had greater annual average incomes and were more likely to have greater food storage (availability) than the food insecure households. On the average, 36% of the food secure households were able to store food as compared to only 23% of the food insecure households. The implication suggested that majority of the households would be vulnerable to food shortage in Central Uganda. Studies showed that farming households who had a secondary

income source other than agriculture, were more food secured. Abegaz (2017) noted that up to 61.79% of the study population were food insecure and 38.2% were food secure; and nearly half (49.71%) of the population in the rural Ethiopia lacked access to off-farm income, and households with such access had greater likelihood of food security compared to those who lacked such access.

Methodology

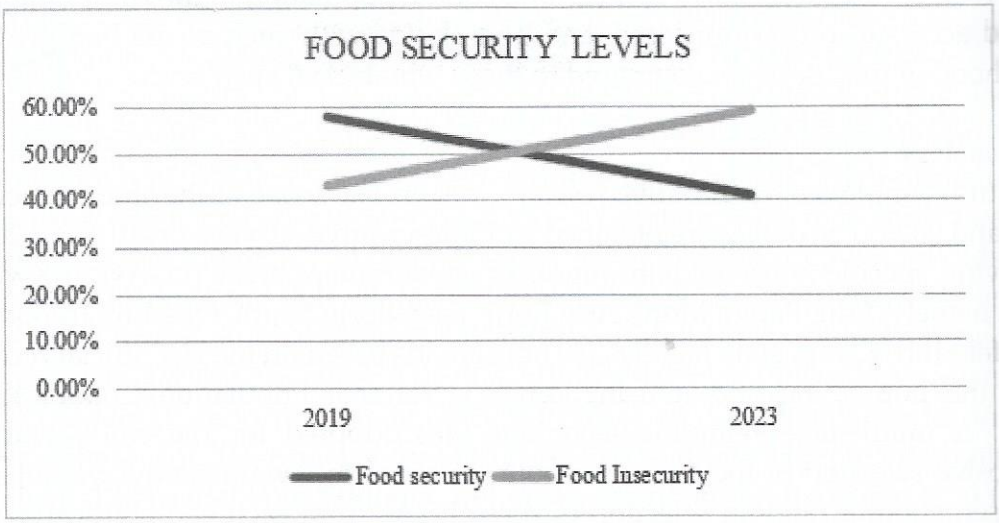
The study employed quantitative research design.The scope of the study covered 2019 and 2023. The data were obtained from descriptive surveys in 2019 and 2023 involving specific households in nine local government areas (LGAs) in Kwara State, namely: Edu, Patigi, Moro, Asa, Ilorin East, Ilorin South, Oke-Ero, Irepodun and Ifelodun. Kwara state has 468,780 households based on the last official record from the population and housing census (National Population Commission, 2006). A multi-stage sampling technique was adopted for the study with a purposive selection of the three geo-political zones in Kwara state for a holistic representation; a random selection of three LGAs from each geo-political zone; and a purposive selection of a precise number of households was made, based on the selected LGAs and the population size of the LGAs. Yamane's sample size formula (n = N / 1+N (e)2) was used to determine the sample size for the two surveys, 401respondents participated in each of the surveys. To assess the food security level of the respondents, enquiries were presented on the four indicators of food security which are availability, accessibility, affordability, and utilisation of food; each of these parameters had two survey questions, the average for both investigations determined its level, and the overall mean was the food security level within the households.The retrieved data were analysed through descriptive statistics.

Results and Discussions

Investigation of Food Security Levels in Households in 2019 and 2023 in Kwara State

In 2019, the food security level of households in Kwara state was 57.8% while in 2023, the food security level of the households was 41%.

Chart 1: Distribution based on Food Security Levels in Households in 2019 and 2023 in Kwara State.



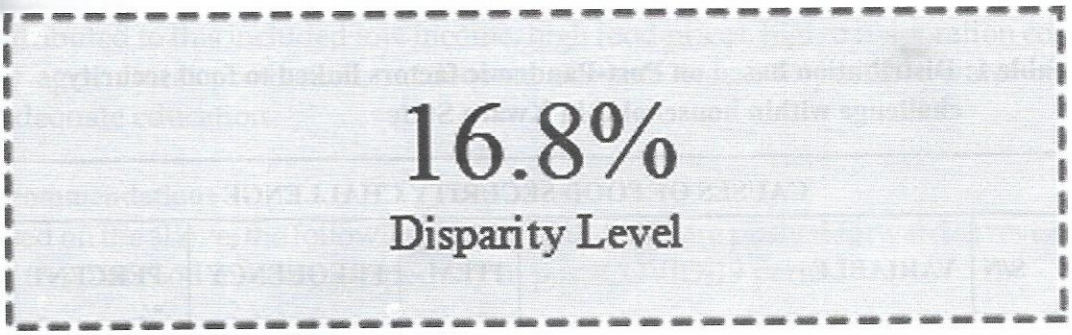
Source: *Researchers' Field Survey, 2019 and 2023*

From the figure above, the graph showed a decline in food security level of 2023 when compared to 2019. Thus, the Post COVID-19 era witnessed a decline in food security among the respondents. The findings from the study showed a downward trend in sustainable development agenda which aims to record a progressive growth in food security globally (United Nations (2019), UNESCO (2019), and UNDP (2019).

Determination of the Disparity between 2019 and 2023 Food Security Levels in Households in Kwara State

The disparity between 2019 and 2023 food security levels was 16.8%. These results revealed that 2023 witnessed a drop in household food security.

Chart 2: Distribution based on the disparity between 2019 and 2023 Food Security Levels of Households in Kwara State



Source: *Researchers' Field Survey, 2019 and 2023*

The findings derived from this study are consistent with previous studies. The post-pandemic era witnessed cross-border hitches in relationships and heightened food insecurity globally (Norbrook and Olurounbi, 2020; Craigmore Farming, 2020). Gbajumo-Sheriff et al. (2021) showed that COVID-19 worsened levels of unemployment and underemployment; and increased household economic vulnerabilities. Alade et al. (2021) revealed that COVID-19 affected people's economic ability due to a lack of prompt payment of employees' salaries, and also increased cost of living. Nwobi (2021) discovered that COVID-19 contributed to reduced economic access to staple food supplies. Ndakara et al. (2022) showed that COVID-19 led to increased unemployment rates, and poverty. Swinnen and McDermott (2020) cited David Beasley affirming that the pandemic was also associated with a global humanitarian catastrophe, with magnitudes such as multiple famines of biblical scopes. Farmers Weekly NZ (2020) observed that restrictions to movements that accompanied the pandemic prevented considerable movements of essential commodities and hindered food security. FEWSNET (2020) showed that COVID-19 reduced agricultural engagements thereby adversely affecting food security. While Food and Agriculture Organisation et al. (2022) showed that food affordability escalated globally due to inflation in consumer food prices caused by the COVID-19 pandemic's economic effects and containment measures.

Evaluation of the Post-Pandemic Factors Linked to Food Security Challenge within Households in Kwara State

The study revealed that food security challenge within the household were caused by various factors such as low income (73.6%), high food prices (63.7%), high

transportation cost (63.7%), low involvement in agriculture (57.4%), inadequate portable water access (39.8%), and inadequate education (30.8%) as shown in Table 1.

Table 1: Distribution based on Post-Pandemic factors linked to food security challenge within households in Kwara State

CAUSES OF FOOD SECURITY CHALLENGE				
S/N	**VARIABLE**	**ITEM**	**FREQUENCY**	**PERCENT %**
1	Low income	Yes	295	73.6
		No	106	26.4
2	High Food Prices	Yes	255	63.7
		No	146	26.3
3	High Transportation Cost	Yes	255	63.7
		No	146	36.3
4	Low Involvement in Agriculture	Yes	266	57.4
		No	135	33.6
5	Inadequate Portable Water Access	Yes	159	39.8
		No	241	60.2
6	Inadequate Education	Yes	133	30.8
		No	278	69.2
		Total	401	100.0

Source: *Researchers' Field Survey, 2019 and 2023*

Findings showed that economic factors mostly contributed to increased food security challenge among the households in Kwara state. The findings are consistent with previous studies. Arene and Anyaeji (2010), Astemir (2014), and Rachman et al (2021) showed that income has a positive and significant effect on food security. Drammeh et al. (2019) and Akukwe (2020) opined that monthly household income increased household food security. Abegaz (2017) showed that off-farm income led to greater likelihood of food security, Cordero-Ahiman et al. (2020) found that single source of income for a household head increased the possibility of food insecurity for that household, and Semazzi and Kakungulu (2020) disclosed that households who were food secure had greater annual average incomes.

Conclusion

The study concludes that the onset of COVID-19 pandemic negatively affected the level of food security among household in Kwara state. Major factors which contributed to this included low income, high food prices, high transporation cost, low agricultural production, inadequate portable access to portable water and inadequate education.

Recommendations

Based on the above, the following recommendations are pushed forward to reverse the trend of food insecurity especially in post-COVID-19 period:

1. Improved security coverage for farmers to improve agricultural production.
2. Government support for farmers to boost production.
3. Adoption of hi-tech and move towards mechanisation for sustainable agricultural production.

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