

Perceived Stress Faced by Rural Crop Farmers During the COVID-19 Pandemic in South-East Nigeria

Nwozuzu, S. O¹, A.O¹, Anaeto F. C¹, Nnadi F.N¹, Ukpongson M.T¹ Anyoha N.P¹, Emerihirhi, E².

¹Department of Agricultural Extension, Federal University of Technology, Owerri, Imo State, Nigeria

²Department of Agricultural Education, Federal College of Education (Technical), Omoku, River State, Nigeria

***Abstract:** The present study evaluated the perceived stress faced by rural crop farmers during the Covid-19 pandemic in South-East Nigeria. A multi-stage random technique was used to select 378 crop farmers in the three selected states of the study area. Data for the study were collected with the aid of a structured questionnaire and were analyzed using descriptive statistics, frequency, mean score, mean score, grand mean, standard deviation and the Pearson product moment correlation (PPMC). The mean age of crop farmers was 45.6 years, crop farming in the study area are dominated by male farmers. They have farming experience of 15years and with household size of 7. The mean monthly income of Crop farmers was ₦53,843.9. The result also revealed that out of 18- item statements measuring the perceived stress faced by farmers, 15 were acknowledged by the farmers as forms of stress they experienced during the Covid-19 pandemic. The result of the correlation analysis of the hypothesis revealed that there was a fairly strong and positively significant correlation between crop farmers' perceived stress and the coping strategies, this implied that as the farmers' perception of stress assumed with Covid-19 increased, their use of the coping strategies also increased. The study recommends that farmers should be encouraged by government and other stakeholder to take up agricultural insurance opportunities as a measure aimed at cushioning pandemic indispositions and losses following Covid-19.*

INTRODUCTION:

Before the Outbreak of COVID-19 pandemic, crop farmers in Nigeria faced several production challenges, can contract infections and parasitic diseases directly or indirectly during the course of farming. Examples of such diseases are: Tick-borne encephalitis, tetanus, bovine tuberculosis, tick-borne hemorrhagic fever, etc (Ulayi, 2019). Crop farmers are also faced with production challenges (e.g lack of fund, absence of modern storage, processing facilities, loss of farm products to natural disaster and lack of improved crop varieties).

The emergence of Covid-19 pandemic and its rapid spread, exacerbates already existing production challenges faced by crop farmers' considering Covid-19 induced alteration in agricultural operation, associated challenges to food production and supply chain and its global impact has increased the vulnerability of agricultural production (Ulayi, 2019). The spread of the Covid-19 outbreak has further aggravated the already bad conditions of living and its effect on agricultural production plunging farmers to more production stress in meeting food system.

Food system is a complex mix of activities within an area which include food production, harvesting, processing, consumption, marketing among others (Lamuka, 2014). In South-East Nigeria, farmers in rural areas are the hub of the food system. Fawole & Oladele (2007) supported this by stating that about 70% of the rural areas are sustaining Nigerian agricultural production. Unfortunately, with the emergence and spread of Covid-19, the food system activities in rural areas of South-East Nigeria were greatly affected by the pandemic which was said to have emanated from China in 2019.

The novel Coronavirus disease code-named COVID-19, a mild-to-severe respiratory illness that is caused by a coronavirus (genus: *Betacoronavirus*), is transmitted chiefly by contact with infected materials (such as respiratory

droplets), and it is characterized, especially, by fever, cough, and shortness of breath and may progress to pneumonia and respiratory failure (Zhu., Su., Wang., Liu., Wu., and Li, 2020). It is a contagious disease caused by a newly discovered corona virus, its emergence eventually disrupted many economic activities including the food system, thus posing a serious threat to food security, food safety and actualization of other SDGs (Iwelumo *et al.*, 2020). This abrupt disruption of food system by COVID-19 has increased the level of hunger and farming stress within South-East Nigeria.

Due to the widespread disruptive effects of COVID-19, different countries have been taking different prevention and control measures such as quarantining, closing and suspension of transportations, avoiding public gatherings, Because of the abovementioned measures, crop farmers were prevented from accessing their farms, processing plant, unable to move their farm produce to the market, and also unable to access farm inputs and seedlings.

According to Zhou, Snoswell and Harding (2020), the psychological symptoms such as anxiety/stress, panic buying, fear and paranoia about attending farm functions, and reduced autonomy and concerns about income, job, security, meeting food demand exacerbates already faced stress by farmers and same time caused more stress to farmers in discharging farm operations.

Crop farmers are also at risk of higher psychological distress due to longer working hours, unable to access farm laborers, increased post-harvest loss, this may also lead to stress, anxiety, burnout, depressive symptoms, which would harm the capacity of the farmers to meet food demand gap during the crisis.

Farmers have to practice safe labour practices, isolation, access to personal protective equipment, masks and gloves and reduced direct contact with extension services. However, this is quite difficult where these are not sufficient as farmers may use cotton clothes, towels to cover their faces and wear polythene packages as gloves that would be both cost effective and safe to some extent, (Pandav, Ranjan, Sharma, 2020). In the South-East part of Nigeria, there exists a gap understanding what stress farmers faced during COVID-19 pandemic as recent research on Covid-19 has focused on the coping strategies used by farmers (Onah *et al.*, 2019), more needs to be done to ascertain the perceived stress faced by rural crop farmers during the Covid-19 pandemic in the study area. Consequently, this research intent to investigate the perceived stress faced by rural Crop farmers during the Covid-19 pandemic in Southeast Nigeria.

Specific Objectives:

This study specifically sought to identify;

- I. describe the socioeconomic characteristics of crop farmers in the study area;
- II. discuss crop farmers' perceived stress during the COVID-19 pandemic in the study area;

Hypothesis of the Study:

There is no significant relationship between the socioeconomic characteristics of the farmers and their perceived stress during the Covid-19 pandemic.

2. MATERIALS AND METHODS

2.1 Description of the study area

This study was conducted in South-East zone of Nigeria. The South-East zone lies within latitude 5°N to 6°N of the equator and longitude 6°E and 8°E of Greenwich meridian. The zone occupies a total land mass of about 10, 952, 400 hectares with a population figure of 23, 542, 621 person in 2019 projected from 2006 (National Population Commission Census figure (NPC, 2006). There are two major seasons experienced in this zone. These are dry and rainy seasons. The dry season lasts between November and March, while the rainy season occurs between April and October. Although, over the recent decades, it appears very difficult to create a clear cut distinction between the periods referred to as rainy season and dry season especially between March and April, due to climate change. This is epitomized by heavy rainfall during the supposed dry spells suffered during the season that heavy rains are expected. Despite this observed erratic nature of both rainfall and dry spells, the location of the zone within the tropical forest belt of the country encourages and allows the growth and survival of most tropical food crops like yam, cassava, vegetables, rice, etc and livestock production. Again, there is also the growth of ever green succulent grasses for fodder and forage which draws the nomads to the zone. Hence about 60-70% of the inhabitants of the zone are observed to engage in agriculture, mainly crop farming and animal rearing (Okoye *et al.*, 2010). The South-East states have a scintillation features. The climate is influenced by three major air masses name the equatorial estuaries and the tropical continental air masses.

2.2 SAMPLING PROCEDURE AND DATA COLLECTION

Multistage sampling techniques was adopted in the process of sample selection. The first stage will involve the purposive selection of three states from South-East Nigeria where cases of Covid-19 pandemic have been recorded, reported widely and areas with high number of victims of COVID-19, whose farming activities were drastically affected. Here, Abia, Enugu and Imo State was selected because according to (WHO, 2021), they faced more hit of COVID-19 than Anambra and Ebonyi. The second stage involved the selection of two Local governments areas from each of the selected states using purposive sampling techniques based on the high concentration of crop farmers in the area to give a total of six Local Government Areas. This will be based on a reconnaissance survey that will be conducted to explore areas where farming is predominantly practiced. The third stage involved the selection of three autonomous communities from each of the selected local government areas in the state using random sampling techniques to give a total of 18 autonomous communities. The fourth stage involved the random selection of seven crop farmers from each of the villages which will give a sample size of three hundred and seventy eight (378) farmers, and to be used as the respondent for the study. The sampling frame will also include the list of crop farmers actively involved crop production and this will be supplied by the extension service unit in Agricultural Development Program in the headquarters, zones and block/circles in the states involved in the study. The primary data used for the study were collected from the field using structured validated questionnaire. Major variables on which data were collected include age, sex, years of farming experience, educational attainment, household size, monthly income. the perceived stress faced by farmers during the Covid-19 pandemic in the study area was analyzed using mean score. This which was achieved on a (5) point Likert scale and the respondents were provided a list of possible stress from literature and asked to rate their perception using a (5) point likert scale of Strongly agree =5, Agree =4, Undecided =3, Disagree =2, Strongly disagree=1, the weight of the Likert scale was added and divided by the number of scale to determine the farmers’ perceived stress discriminating mean score.

Data collected were analyzed using frequencies, means, mean score, grand mean, standard deviation and the pearson product moment correlation (PPMC).

PPMC is represented mathematical thus;

$$R = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}} \dots\dots\dots(1)$$

Where:

R = The Correlation coefficient value by which the inverse or direct statistical relationship between the crop farmers’ perceived stress and the coping strategies used by crop farmers during the Covid-19 pandemic in Southeast, Nigeria.

$\sum X$ = Summation of crop farmers’ perceived stress during the Covid-19 pandemic

Y = The coping strategies used by crop farmers during the Covid-19 pandemic.

3. RESULTS AND DISCUSSION

3.1 Socio-economic characteristics of respondent

Table 1 shows the frequency distribution of farmers according to age and sex. The table suggest that 31.7% of the crop farmers were between the ages of 23-38, 23.5% were between the ages of 55-70 and 1.4% were 71 years and above. Also, the majority 43.4% were within the age of 39-54 years. This mean age of the crop farmers in South-East, Nigeria was 45.6 years. The distribution implies that the farmers were relatively young and still in their active age, and as such expected to show greater zeal and enthusiasm in crop farming practices as this could be an asset for innovativeness and also could predisposes them to visiting their farms regularly (Chikaire, et al., 2015). This also implies that the age might be appropriate for strenuous farm activities like weeding, planting and heaping and in meeting labour demands during Covid-19 pandemic as younger farmers have the physique to endure stress and strain associated with farming activities

(Chikaire, et al., 2015). The table also shows that majority (52.7%) of the crop farmers were male, while the remaining 47.3% were female. This could entail that the male gender are more involved in crop farming than the female in South-East, Nigeria. Again the participation of 47.3% of female reveals that women cannot be ignored in agricultural production in the area as they contribute significantly to food production. The dominance of male is consistent with the findings of Alawode et al., (2018), who noted that male dominates crop farming in Nigeria.

Table 1: Socioeconomic Characteristics of Crop Farmers

Socio-economic charactersitics	Frequency	Percentage	Mean
Age			
23 – 38	120	31.7	45.6 years
39 – 54	164	43.4	
55 – 70	89	23.5	
71 – 86	5	1.4	
Sex			
Male	199	52.7	
Female	179	47.3	
Total	378	100	

Source: Field survey data, 2023.

Table 2 shows the frequency distribution of farmers according to farming. The result shows that 46.0% of the crop farmers had 2-12 years of experience, 40.2% had 12-23 years of experience, 12.4% had 23-34 years of experience, while 1.4% had 35-45 years of experience. The average years of farming experience of the crop farmers was 15 years. This was enormous and priceless for farm decision making. It is therefore pertinent to state that the crop farmers had garnered extensive knowledge and skill needed to excel in crop farming and contend with possible farm stress during Covid-19 pandemic which could enable them to relate encounters they had: Covid-19 associated stress, effect, resolutions and coping strategies utilized. The table also shows that 1.1% had no formal education, 4.8% attempted tertiary education, 8.7% completed tertiary education, 9.0% completed primary education, while majority of the farmers in the study 76.5% only attended and completed their secondary education. The result implied that 98.9 percent of the crop farmers had one level of formal education or the other. Education is a priceless asset, it sharpens reasoning and improves the farmers’ wisdom and capacity in production, handling farm stress, utilizing farm resources and stimulating their farm services. This is in conformity with the assertion of Ani (2007) that literacy promotes farmers involvement and productivity in agriculture. The higher educational attainment of the crop farmers’ could be a pointer to their level of consciousness. Thus, the farmers are well positioned to express their stress during the Covid-19 and utilize available coping strategies.

Table 2: Socioeconomic Characteristics of crop farmers

Socio-economic charactersitics	Frequency	Percentage	Mean
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Farming Experience (years)			
2 – 12	174	46.0	15 years
13 – 23	152	40.2	
24 – 70	47	12.4	
35 – 45	5	1.4	
Educational Attainment			
No formal education	4	1.1	
Primary Education Attempted	-	-	
Primary Education Completed	34	9.0	
Secondary Education Attempted	-	-	
Secondary Education Completed	289	76.5	
Tertiary Education Attempted	18	4.7	
Tertiary Education Completed	33	8.7	
Total	378	100	

Source: Field survey data, 2023.

Table 3 shows the frequency distribution of crop farmers based on household size. The result shows that the majority (51.1%) of the crop farmers had household size between 3-6 persons, 41.0% had 7-10 persons, 6.9% had 11-14 persons while 1.0 percent had 15-18 persons. The mean household size of the crop farmers was 7 persons. This reveals that crop farmers in the study area have relatively large household sizes. The large household size could also be reflective of the farm labour demands and increased chances of receiving farm-related information faster. This is in line with the finding of Amos (2017) who noted that large household is desirable in traditional agriculture as it determines the amount of labour that could be made available for use on the farm. He further noted that the greater the household size the faster and more efficient the work is done; thus, resulting in greater output. The table also shows the monthly income distribution of the crop farmers. 46.8 percent of the crop famers (majority) earned ₦ 41,000 – ₦ 61,000, 36.8 percent earned less than ₦ 40,000, while, 16.4 percent earned ₦ 83, 000 and above. The average monthly income was ₦ 53, 844.9. By this result, crop farmers are earning above the national minimum wage ₦ 30,000. Aligning the result with the findings of Chikaire (2015), he noted that crop farmers are not poor as they live above 1 dollar per day World Bank standard. The income could favour their capacity to be gainfully involved in farming practices which will likely help them to improve their productivity.

Table 3: Socioeconomic Characteristics of crop farmers

Socio-economic characteristics	Frequency	Percentage	Mean
Household size			
3 – 6	193	31.7	6.8
7 – 10	155	43.4	
11 – 14	26	23.5	
15 – 18	4	1.4	
Total	378	100	
Monthly income			
20,000 - 40,000	139	36.8	₦53,843.9
41,000 - 61,000	177	46.8	
62,000 - 82,000	-	-	
83,000 - 103,000	62	16.4	
Total	378	100	

Source: Field survey data, 2023.

3.2 Perceived Stress of crop farmers during Covid-19 Pandemic

Table 3.2 below shows the distribution of the farmers based on their perceived stress during Covid-19 pandemic using a mean discriminating index of 3.0, The result revealed that out of 18- item statements measuring the perceived stress faced by farmers, 15 were acknowledged by the farmers as forms of stress they experienced during the Covid-19 pandemic. These according to them mostly included feeling upset because pandemic happened unexpectedly ($\bar{X}=4.6$); felt unable to control the important things in their life due to Covid-19 ($\bar{X}=4.6$); had financial struggles managing things in the farm ($\bar{X}=4.5$). The farmers worried about not being able to move their farm produce ($\bar{X}=4.3$). Again, the farmers were upset that they could not cope with all the things that they had to do due to Covid-19 ($\bar{X}=4.3$). Others included being nervous and stressed due to Covid-19 ($\bar{X}=4.2$); farmers were worried that post-harvest losses might increase ($\bar{X}=4.1$); farmers were angered because things were outside their control due to Covid-19 ($\bar{X}=4.0$); farmers felt stressed due to inability to socialize ($\bar{X}=3.8$), farmers felt optimistic that the welfare of the family is threatened due to the pandemic ($\bar{X}=3.7$); farmers always felt difficulties were piling up so high that they could not overcome them due to Covid-19 ($\bar{X}=3.6$); they had the feeling of insecurity or threat to their lives and businesses and farmers could not cope with all the things they had to do due to Covid-19 ($\bar{X}=3.5$). The result also revealed that farmers felt upset because Covid-19 happened unexpectedly and were unable to control important things in their lives due to Covid-19. According to Reger et al., (2020), Covid-19 pandemic exposes farmers to psychological stress, being upset, among other health complications which limits their ability in controlling their farm activities. Covid-19 pandemic exposes crop farmers to trauma related thoughts and consequences which include uncertainty, ambiguity, loss of control, anxiety, depression, social isolation, and worries about one's own health and that of loved ones, increased stress and stress-related mental health problems, including internalizing symptoms, fear and anger. Mutebi & Hobbs (2022) noted that despite the fact that life has returned to some sense of perceived 'normal', the legacy and consequences from the pandemic has persisted both in terms of economic impact as well as on the farmers' lives and wellbeing. It is important to recognize that the long-term impacts of Covid-19 and vulnerability on mental health and well-being of farmers lives with them (Finch & Tinson, 2022). They further noted that Covid-19 resulted to increase in grief symptoms including distressing memories of the person who died due to Covid-19, distressing flashbacks to the time of death, distressing flashbacks of fear due to Covid-19, and more feelings of guilt around the death.

The Covid-19 pandemic has created a situation of uncertainty, it has shaken farming communities, disrupting supply chains, and exacerbating their financial instability, thereby increasing financial struggles among farmers in managing things in the farm. The closure of markets, restrictions and disruptions in supply chain prevented farmers from selling their products, thus affecting their income and limiting availability of financial resources to purchase input and the continuity of agricultural activity. According to Pappas (2020), farming is an economically challenging business in the best of times, the Covid-19 pandemic did not only introduce a new type of virus for the farming sector, it also came tough on status of crop farmers. According to Johansson (2020), cost of production for these commodities in 2019 was higher. He further noted that the rapid spread of Covid-19 exposed farmers to subsequent shutdown of farm activities which led to unprecedented and simultaneous supply and demand shocks to the food system. The associated consequences of the pandemic among crop farmers was immediate and severe thereby plunging farmers to financial struggles (Johansson, 2020). For example, the reduction and drastic decline in food demand by consumers led to agricultural commodity price decline significantly. It is obvious that the pandemic was nothing like we have ever experienced and that it had posed a real threat to the viability of many farming operations and, with it, to the sustainability of our domestic food supply.

The result also revealed that farmers were upset that they could not receive assistance from extension agents during the pandemic. Extension remains an important resource for farmers to access evidence-based information and programs, According to Settle et al., (2017), Extension professionals are often a trusted source of information for community members, they also act as important resource to help farmers get informed and adapt to new life while maintaining safety. Services of extension remains key in informing crop farmers about present and future impact of Covid-19. They may provide educational programs on this pandemic fight through mass media and collaborate in recovery efforts with goal aimed at achieving stable, healthy and hunger free society in the near future. According to Buys (2020), in the time of Covid-19 and future pandemic, extension agents could be empowered and trained to ensure delivering and providing technical assistance on a host of matters at distance basis, while ensuring that they make connections through video, social media, and print resources during crisis period.

It is evident that the Covid-19 pandemic exacerbated already existing challenges faced by crop farmers as they were worried not being able to move their farm produce to the market. The challenges facing vulnerable crop farmers differ significantly, according to (FAO, 2019), there are number of common risks, including having access to inputs due to limited market access and reduced incomes, harvesting disrupted by lack of seasonal labour, transportation of farm produce to market reduced due to movement restriction, market themselves were constrained by lockdown, physical

distancing and lower purchasing power. Transportation is crucial to aspects of production, processing, and marketing of agricultural products and therefore, whatever affects it would have impact on the general outcome of production process (Chikaire et al., 2015). It is evident that the closures of nonessential businesses coupled with sit at-home advisories/orders, caused a sharp and sudden shift in food consumption away from commercial and institutional food service establishments, primarily to home use. The transportation sector provides crucial support for commodity and food distribution to the food and agriculture sector. The Covid-19 pandemic created many challenges globally, among crop farmers, there was a significant adverse impact on personal routines and economic and commercial activities limiting their capacity in market demands.

Nguyen *et al.* (2020) noted that the level of depression, nervousness and stress due to Covid-19 exposed farmers to post-traumatic situations, the psychological impact of quarantine and isolation was exacerbated by the harmful effects of limited physical activity and changes in farmers farm activities. According to Füzéki *et al.* (2020), such changes may result in dramatic and long-lasting psychological impacts. They further noted that the feeling of nervousness leaves farmers traumatized, confused, angered, feelings of infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss, loss of self-esteem, fear and anticipation of negative events, persistent state of over arousal and low frustration tolerance and stigma continuous to precipitate stress to farmers' wellbeing.

The findings of this research agree with that of Chekole *et al.* (2020) who noted that some of the stress situations of Covid-19 are feeling of stress due to inability to socialize due to Covid-19, not being able to cope with all the things that you had to due to Covid-19, feelings that difficulties were piling up so high that you could not overcome them, angered by things outside. Covid-19 precipitated stress which in turn affected the general wellbeing of farmers, whatever that affected the general wellbeing of farmers would have impacted on the general outcome of production process.

A grand mean of 3.6 was obtained from the mean scores of the table which was above the discriminating decision index of 3.0. This implies that based on this work, crop farmers in the sampled States experienced and shared similar views about stress faced during the Covid-19 pandemic.

This implies that the Covid-19 pandemic made people stressed because they were afraid and anxious about the new disease, about how great its impact and associated consequences might be and because they did not know when it would end. Inaccurate news from various media sometimes triggered anxiety, depression and fear of contacting the virus. According to Marbot (2020), Covid-19 pandemic impacted severely on every aspect of what is known as "normal life", while health protocols such as social distancing can make people feel isolated and lonely, thus increasing levels of stress and anxiety. Stress occurs when a person has a problem that makes him feel he is unable to solve, thus leading to feelings of frustration due to a lack of control (Sadaghiani and Sorkhab, 2013). These psychological risks can cause a person's health condition to deteriorate. Crop farmers experienced unexpected challenges that may have led to their decline in productivity considering the fact that they were unable to control the important things in life, and had financial struggles to ensure efficient farm management to the extent that farmers became worried about the marketability of their produce. Covid-19 pandemic has a far-reaching economic impact on the world economy generally. This is consistent with the findings of Demertzis, Sapir, Tagliapietra & Wolff (2020) who points out the volatility of the global economic scene, as it is currently, has not been witnessed since 2008 during the global financial crisis.

The standard deviation score ranged from 1.3 to 3.0. These implied that though the farmers were in agreement with the perceived stress of Covid-19 with a grand mean of 3.6, their opinions varied so much; they deviated so much from the mean culminating in heterogeneous perception.

Table 4: Distribution of Farmers by their Perceived Stress during Covid-19 Pandemic

Perceived stress faced by farmers	S.A	A	U	D	S.D	Mean	SD
I felt upset because Covid-19 pandemic happened unexpectedly	296	61	-	-	21	4.6	2.1
I Felt unable to control the important things in your life due to Covid-19	296	62	-	-	20	4.6	1.3
I had felt nervous and stressed due to Covid-19	249	61	-	32	36	4.2	2.4
I have felt unable to cope with the things have to do to monitor for a possible infection	140	2	61	152	23	3.2	1.3
Felt that things were going your way	58	14	-	226	80	2.3	1.3
I Felt unable cope with all the things that had to do due to Covid-19.	76	114	22	97	69	3.0	3.0
Felt that you were on top of things	51	24	-	152	151	2.1	2.0
I felt stressed due to inability to socialize because of Covid-19	143	146	31	-	58	3.8	1.9
I had been angered because things were out of control due to Covid-19	128	172	36	21	21	4.0	1.9
Worried you could not move your farm produce to the market	227	69	61	-	21	4.3	1.7
I had always felt difficulties were piling up so high that you could not overcome them due to Covid-19	136	97	39	60	46	3.6	1.3
I had difficulties accessing farm hands	6	52	24	202	94	2.1	1.4
I felt worried that the welfare of the family is threatened due to the pandemic	132	134	32	29	51	3.7	1.9
Having financial struggles managing things in the farm	270	87	-	-	21	4.5	2.4
Had been upset that you could not receive assistance from Extension agents due to the pandemic	193	131	26	7	21	4.3	2.5
Felt worried that Post-harvest loses increase	173	161	-	-	44	4.1	2.5
I had felt difficulties but could not overcome	100	35	-	91	151	2.6	2.5
Angered by things outside your reach.	152	76	39	29	82	3.5	2.4
Grand Mean						3.6	

Source: Field survey data, 2023

Note: S.D = Strongly Agree, A = Agree, U = Undecided, D = Disagree, S.D = Strongly Disagree
Mean score above the discriminating index of 3.0 were considered (**Perceived Stress**).

Hypothesis of the study: There is no significant relationship between the socioeconomic characteristics of the farmers and their perceived stress during the Covid-19 pandemic.

The result of the correlation analysis of the hypothesis revealed that there was a fairly strong and positively significant correlation between crop farmers’ perceived stress and the coping strategies ($r = 0.565$, $p 0.000$). This implied that as the farmers’ perception of stress assumed with Covid-19 increased, their use of the coping strategies also increased. This is in agreement with the assertion of Udoh (2017) that farmers will participate, learn and adopt any activity, training, method, technique that are capable of improving their livelihood, resilience, social capital and general quality of life. Implicitly, the level of stress perceived by crop farmers during the Covid-19 pandemic could determine the number of specific coping strategies they will be willing to adopt which will help them tolerate, minimize and deal with stressful situations of life during the pandemic. Therefore the coping strategies used can play a great role in preventing and alleviating the perceived stress and safeguard the farmers from stress which will have a positive impact in relation to their stress

Hence, the null hypothesis which states that there is no significant relationship between crop farmers’ perceived stress and the coping strategies is therefore rejected. Thus, the implied alternative there is a significant relationship between crop farmers’ perceived stress and the coping strategies used is accepted.

Table 5: PPMC showing significant relationship between the crop farmers’ perceived stress and the coping strategies used during the Covid-19 pandemic

Variable	Coping strategies		
	r	p-value	Decision
Perceived stress	0.565**	0.000	Significant

Source: Computed from Field Survey, 2023

Conclusion

Covid-19 had a negative impact on the crop farmers’ wellbeing and influenced the amount of stress faced by farmers during the Covid-19 pandemic period. The perceived stress included felt you are unable to control the important things in your life due to Covid-19, felt upset because Covid-19 pandemic happened unexpectedly, having financial struggles managing things in the farm, worried you could not move your farm produce to the market, had been upset that you could not receive assistance from Extension agents during the pandemic, felt nervous and stressed due to Covid-19. The result also revealed that there was significant relationship between the crop farmers’ perceived stress and the coping strategies used during the Covid-19 pandemic. The study calls for pragmatic and proactive action to reduce and control the effect of the pandemic and keep the crop farmers going.

Recommendation:

Based on the findings of the study, it was recommended that:

1. Farmers should be empowered with funds by the federal government through soft loans to facilitate continuity in food production and eradicate food scarcity during period of pandemic.
2. Ministries of Agriculture must support the extension agencies to function actively and be seen as a platforms for providing timely information about lucrative opportunities, challenges, preaching and teaching farmers’ issues bordering on stress, resilient strategies from pandemics and related issues and effects.
3. Farmers should be encouraged by government and other stakeholder to take up agricultural insurance opportunities as a measure aimed at cushioning pandemic indispositions and losses following Covid-19.

REFERENCES

X. Zhou, C. L. Snoswell, L. E. Harding (2020). “The role of telehealth in reducing the mental health burden from COVID-19,” *Telemedicine and E-Health*, vol. 26, no. 4, pp. 377–379.

Ulayi, A. I. (2019). Environmental awareness creation strategies and sustainable crop farming among female farmers in Cross River State, Nigeria. Unpublished Ph.D Dissertation university of Calabar Nigeria.

Pandav, C.S., Ranjan, S., Sharma, S. (2020). COVID19: Agriculture innovation to achieve food security & tackle malnutrition in India.

- Obaniyi K.S., Kolawole A.E., Ajala A.O., Owolabi A.O., Adeyonu A., and Oguntade A., (2020). Environmental change impacts on agribusiness and food security in sub sahara africa: a practical way forward medwell. *J Eng Appl Sci.* 2019;14 (24):9639–44. [10.36478/jeasci.2019.9639.9644](https://doi.org/10.36478/jeasci.2019.9639.9644)
- Onah, O., Gideon, N.M., Ekenta, L.U., Ezebuio F. N. (2019). Covid-19 and Food System, Security and Safety in Rural Areas of South-East Nigeria: Impacts and Possible Coping Strategies, *Jos Journal of Religion and Philosophy (JJRP)*. Vol. 1. No. 2. 2019. ISSN 2795-2592 PG: 2795-2584.
- Fawole, O. P., & Oladele, O. I. (2007). Sustainable food production through multiple cropping patterns among farmers in South West Nigeria. *Journal of Human Ecology*, 21(4), 245–249
- Lamuka P.O. (2014). Food Production Management. *Encyclopedia of Food Safety*. Accessed from <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/food-production>.
- Zhou X, Snoswell CL, Harding LE, Bambling M, Edirippulige S, Bai X, et al. The role of Telehealth in reducing the mental health burden from COVID-19. *Telemed E Health*. 2020. <https://doi.org/10.1089/tmj.2020.0068>.
- Chikaire, J.U. (2015), Socio-Economic Consequences of Crop Farmers and Pastoralists Land Use Conflicts in South-East Agro-Ecological Zone of Nigeria.
- Ani, A.O, (2004). Women in agriculture and rural development, Priscaquilla (Ed.) *Essential Issues in Rural Development CREMD*, Owerri.
- Alawode O.O., Abegunde V.O., Abdullahi A.O. (2018). Rural Land Market and Commercialization Among Crop Farming Households In Southwestern Nigeria. *International Journal of Innovative Food, Nutrition & Sustainable Agriculture* 6(3):54-62, July-Sept, 2018.
- Chikaire, J.U., Nnadi, F.N., Anaeto, F.C. , Echetama, J.A.and Ejiogu-Okereke, N (2015). Socio - Economic Consequences of Land use conflicts between Crop Farmers and Pastoralists in South - East Agro - Ecological Zone Of Nigeria: *Journal of Agricultural Economics, Extension & Science; JAEES* Vol. 3 No. 1 2017, Pages 42 – 57.
- FAO. (2019). Addressing the impacts of COVID-19 in food crises (April–December 2020), FAO’s component of the Global COVID-19 Humanitarian Response Plan.
- Buys, D.R. (2020). Cooperative Extension as a Public Health Partner in COVID-19 Outreach. *Journal of Public Health Management and Practiice Direct*. Retrieved from <https://jphmpdirect.com/2020/03/30/cooperativeextension-as-a-public-health-partner-in-covid-19-outreach>.
- Settle, Q., Rumble, J. N., McCarty, K., & Ruth, T. K. (2017). Public knowledge and trust of agricultural and natural resources organizations. *Journal of Applied Communications*, 101(2). <https://doi.org/10.4148/1051-0834.1007>.
- Johansson, R., (2020). America’s Farmers: Resilient Throughout the COVID Pandemic; <https://www.usda.gov/media/blog/2020/09/24/americas-farmers-resilient-throughout-covid-pandemic>.
- Pappas, S., (2020). COVID-19 fallout hits farmers <https://www.apa.org/topics/covid-19/farming-communities-stress>.
- Finch D, Tinson A. (2022). The continuing impact of COVID-19 on health and inequalities; A year on from our COVID-19 impact inquiry. The Health Foundation. <https://www.health.org.uk/publications/long-reads/thecontinuing-impact-of-covid-19-on-health-and-inequalities> [retrieved 17/12/ 22].
- Mutebi N, Hobbs A. (2022). The impact of remote and hybrid working on workers and organisations. UK Parliament POST.
- Reger, M.A.; Stanley, I.H.; Joiner, T.E. (2020). Suicide Mortality and Coronavirus Disease A Perfect Storm? *JAMA Psychiatry* 2020, 77, 1093–1094. [CrossRef].
- Demertzis, M., Sapir, A., Tagliapietra, S., & Wolff, G. B. (2020). An effective economic response to the Coronavirus in Europe (No. 35323). Bruegel.
- Sadaghiani, N. S. K., & Sorkhab, M. S. (2013). The comparison of coping styles in depressed, anxious, under stress individuals and the normal ones. *Procedia - Social and Behavioral Sciences*, 84, 615–620. <https://doi.org/10.1016/j.sbspro.2013.06.613>.

- Marbot, O. (2020). Coronavirus Africa Map: Which Countries are Most at Risk?<https://www.theafricareport.com/23948/coronavirus-africa-which-countries-are-most-at-risk/> [Google Scholar] [Ref list].
- Chekole, Y. A., Solomon, Y. M., Abate, S.M., Mekuriaw, B. (2020). Perceived Stress and Its Associated Factors during COVID-19 among Healthcare Providers in Ethiopia: A Cross-Sectional Study: Hindawi Advances in Public Health. Volume 2020, Article ID 5036861, 7 pages <https://doi.org/10.1155/2020/5036861>.
- Iwelumo M., Nevin S. A., Edefe E., Oladipo O., Taiwo O., & Omomia O. (2020). Responding to Impacts of COVID-19 on Food Security and Agriculture in Nigeria. Retrieved from <https://www.pwc.com/ng/en/publications/impact-covid-19-food-security-nigeria.htm>.
- Nguyen LH et al., 2020. Risk of COVID-19 among front-line healthcare workers and the general community: a prospective cohort study. *Lancet Public Health* 5: e475–e483.
- WHO (2021). Corona virus disease 2019 (COVID-19) situation report-37. World Health Organization.
- NPC (2016). National Policy on Food and Nutrition in Nigeria. National Planning Commission, Abuja.