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### Effects of Climate Change on the Health of Rural Farming Households in Oyun Local Government Area, of Kwara State Nigeria

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#### Abstract

*This study examined the impacts of climate change on the health of rural family households-in Kwara State, Nigeria. A multistage sampling procedure was used to select 120 farmers for the study. The data collected through structured questionnaires and interview schedules was analyzed using mean, percentages, and Chi-Square. The findings revealed that the common effect of climate change on health is heat stress (M =4.1), malaria (M=3.76), depression (M=3.43), hunger (M=3.37), and death (M=2.88). Moreover, the coping strategies to ameliorate the effect of climate change were good medical care (16.7%), personal hygiene (25.0%), proper sanitation (13.3%), planting of trees to replace felled trees (16.7%), and prayer to God (6.7%). The major constraints to adaptation were lack of information and credit. Respondents' age ( $x^2= 10.50$ . ) and educational status ( $x^2= 14.97$ ) were positively significant factors determining the adaptation strategies' choice. The study, therefore, recommends that free health care facilities should be given to farmers while extension services should help in increasing the awareness campaign on the best method to cope with the effects of climate change.*

**Keywords:** Climate change coping strategies, health, farmers

#### Introduction

According to the World Health Organization (WHO), human health is at risk of climate change, because environmental and social factor that support sound health is under the attack of climate change. Basic factors such as portable water, good air condition, sufficient and quality food, and good shelter among other things are at the mercy of climate change. Climate change affects almost all things that support human survival. The report of WHO affirmed that between 2030 and 2050, health challenges that would be attributed to food and water-related diseases such as malaria, diarrhea, malnutrition, and heat stress is projected to add to a death rate of about 250,000

people yearly. Health risks due to climate change are diversified which include respiratory illness w, waterborne diseases, foodborne diseases Injury and mortality from extreme weather events Heat-related illnesses Zoonoses Vector-borne diseases Malnutrition and foodborne diseases Noncommunicable diseases Mental and psychosocial health Apart from the impact of climate change on social life, sanitation, water and food, the direct impact of climate change is projected to be between 2 and 4 billion USD by 2030. This is not a good report about the human race. ( World Health Organization, 2021).

The devastating effects of climate change have compelled both individuals and parastatals to focus on this topic, As health is wealth. Considering these negative effects, The World Health Organization chose “protecting health from climate change” as the theme for World Health Day a few years ago. This theme was selected in recognition of the fact that climate change is posing ever-growing threats to global public health security and that “wherever you live, climate change threatens your health.” The impacts of climate change are apparent historically, currently important, and will continue to be important in both the short and long term. For instance, Over 930 million people - around 12% of the world’s population - spend at least 10% of their household budget to pay for health care. Rural family is the most vulnerable to climate change. The major determinant in food security is the sound health of the rural family of which the majority are farmers and their contribution to national and global food security. It is our understanding-of these concepts that make this research work meaningful and worth studying.

Many research works (Mabogunje 2018: Obaniyi et al 2019,) have been done on climate change, the impacts of climate change, and adaptation strategies in Nigeria, but literature on the impact on health has been scarce. It is on this background that this research seeks to examine the effects of climate change on the health of rural family households because families are a major source of food in the country. There can never be greater output if the manpower is sick. Rural family household health is affected by many factors, of which climate change has contributed immensely. The general objective is to assess the effects of climate change on the health status of rural family households in Kwara state Nigeria

The specific objectives were to:

1. examine the effects of climate change on their health
2. identify the coping strategies used by the farmers

Ho1= There is no significant relationship between some selected socio-economic characteristics of farmers and their choice of coping strategies to climate change.

## **Methodology**

The study was conducted in Oyun Local Government Area of Kwara State Nigeria. Oyun Local Government Area is located in the south-eastern part of Kwara State, The state is located at Latitude 8° 4' 59" N Longitude: 4° 37' 0" E It has an area of 476 km<sup>2</sup> and a population of 94,253 at the 2006 census. The main occupation of the people of this area is farming, According to Kwara State Agricultural Development Project, (KWADP, 2006), approximately 25% of the land area in the study area is used for farming activities. Agriculture is the bedrock of its economy and the occupation of almost all the inhabitants. Common crops grown are sweet potatoes, yam, maize, palm oil, palm produce, cassava, cassava processing, and industry.

All inhabitants of Oyun Local Government Area that are involved in farming, small, medium, and large scale male and female farmers constitute the population of the study. The farmers that made up the population of this study have been involved in farming for a minimum of ten years

A multistage sampling procedure was adopted. In the first stage, Oyun Local Government Area was randomly selected from Kwara state's 16 Local Government Areas. Six wards were randomly selected from the eleven wards in Oyun Local Government Area in the second stage. In the third stage, two villages were purposively selected from each of the six selected wards, to give a total of twelve villages. The reason for this purposive sampling is their high level of agricultural productivity. In the fourth stage, ten farmers were randomly selected from each of the twelve villages to give a total of 120 farmers used for the study.

The instruments used were a structured questionnaire and interview schedule. The data collected were analyzed using percentage, mean score, and chi-square.

#### Socio-economic Characteristics

Sex: Measured at nominal level, Male 1, Female 2

Age: Measured at interval level

Marital status: measured at nominal level single, married, separated widowed,

Household size: Measured as interval level

Education status : Measured at the ordinal level

Occupation: Measured at interval level

Effects of Climate Change on Human Health were measured at ordinal level of measurement using a five-point Likert type scale; very high, high, moderately high, low, very low, the mean score for each question was estimated while the average score was 3. Any effect higher than 3 is regarded as high any effect lower than 3 as low

Measure taken by the respondent to adapt to climate and health challenges were measured at nominal "yes" or "no" and percentage scores was used to rate their level of coping with climate change

## Results and Discussion

### Effects of Climate Change on Human Health

Table 1 reveals that the majority of the respondents agreed that heat stress (mean (M=4.10) constituted the highest threat to human health in the study area, this could be a result of unpredictable increases in the temperature beyond what can be tolerated thereby causing stress among the respondents. This finding is congruent with the finding of Akinbile et al (2018) that an increase in temperature as a result of climate

change is a major threat perceived by farmers as effects of climate change. Secondly, a decrease in productivity of the farmers as a result of climate change (M= 4.06) was also considered as one of the highest impacts. The farmers believe that unfavourable climate change has resulted in crop failure and the death of the animal on their farm. This event has resulted in hypertension and psychological disturbance which aggravated health challenges that are beyond control. Some of them claimed that rain refuses to fall after four weeks of planting maize on their farm and crop failure is the result that causes emotional breakdown. This finding agreed with the previous finding of Ekemini et al 2019 who reported a reduction in crop yield and crop production as major effects of climate change. It also corroborates the finding of Olorunfemi et al (2020) who asserted that climate change has a more negative effect on agricultural production.

Another severe effect of climate change on health was the development of malaria sickness (M= 3.76)..which has claimed a lot of lives in rural family households. The respondents claimed that when there is flooding around August –September, it helps to breed mosquitoes that transmit the plasmodium to rural households and the majority that were bitten by mosquitoes fell sick and had malaria fever. This corroborates the report of Turkiye (2023 ) reported vector-borne diseases as one of the health risks of climate change. Also, the perception that climate change causes depression (M=3.43) was also agreed by the respondents in the study area. This may be linked to the emotional breakdown of the rural farming household as a result of crop failure which may predispose them to any attack. This is in line with Turkiye (2023) report which stated that impacts of climate change may likely cause mental and psychosocial health which is one of the symptoms of depression.

Moreover, the other effects of climate change complained about by the climate change were hunger (M=3.37) and death (M=2.88). The rural farm household claimed that people had lost their lives as a result of the flood that destroyed things planted on the farm which caused them to be sick and finally die. This finding corroborates the finding of Turkiye (2023) reported that climate change has claimed up to 36,698 deaths from ambient air pollution in Türkiye in 2016 which was a result of climate change impact. In summary, this result on the effects of climate change on health is in line with the result of Akinbile et al (2018) who discovered that the impacts of climate on the livelihood of the forest dwellers in Oyo state, Nigeria include a reduction in food production and high vulnerability to diseases and pest. This finding calls for sensitization by extension agents and health workers on how the rural households in that area can cope with climate change to reduce the effect of damages caused and the mortality rate among rural dwellers. Moreover, this finding calls for the introduction of climate change smart agriculture that can reduce the impact of climate change in Nigeria and any vulnerable countries in the world.

**Table 1: Effects of climate change on health**

Effects	Mean	STADEV
Heat stress	4.1	0.085
Decreased productivity	4.05	0.026
Malaria Sickness	3.76	0.086
Depression	3.43	0.015
Hunger	3.37	0.050
Death	2.88	0.046

**Source: Field Survey, 2021**

### **Coping Strategies to Health Challenges**

Data in Table 2 indicate that farmers have taken measures such as personal hygiene (25.0%), planting of trees to replace felled trees (16.7%), good medical care (16.7%), proper sanitation (13.3%), and prayer to God (6.7%) to address climate change, While a combined number of about 20% were Waiting for the government (3.3%), this finding is in congruence with the finding of Akinbile et al 2018, identified planting a tree as a means of adapting and mitigating climate change while Turkiye (2023) recognized personal hygiene, good medical care, and good sanitation as a means of coping with health challenges while Obaniyi et al 2019 confirmed that prayer to God is a means of mitigating climate change and health challenges. Therefore, there is a need to embrace a combination of indigenous and modern adaptation strategies in controlling

**Table 2: Measures taken by farmers**

Measures taken	percentage
Good medical care	16.7
Personal hygiene	25.0
Proper sanitation	13.3
Planting trees	16.7
Wait for government	3.3
Prayer to God	16.7

**Source: Field Survey, 2021**

### Factors Influencing Adaptation Strategies

The Chi-Square results (Table 4) further reveal that age ( $\chi^2 = 10.50$ ) and educational status ( $\chi^2 = 14.97$ ) of farmers were positively significant factors that determine the choice of adaptation strategies. This means that the age of the household head and their educational status influence their use of adaptation strategies.

**Table 3: Factors influencing adaptation strategies**

Characteristics	$\chi^2$ -value
Gender	2.147
Age	10.503 *
Marital status	12.002
Educational level	14.970 *
Farm experience	8.672

### Conclusion and Recommendations

The study concludes that the major effects of climate change on the health of rural household farmers were heat stress, decrease in productivity malaria fever, depression, hunger, and death while the adaptation strategies engaged by rural household farming include personal hygiene and tree planting programme for soil protection and mitigation of climate change. Practicing sanitation and prayer to god was also identified as a means of protection against climate change. Age and educational level of the rural household influenced adaptation strategies to climate change and should be put into consideration by government and non-governmental bodies when embarking on training programs. for rural household farmers in alleviating the effects of climate change. Free health care facilities should be given to farmers while extension services should help in increasing the awareness campaign on the best method to cope with the effects of climate change.

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