

IMPACT OF COVID-19 INDUCED LOCKDOWN ON AQUACULTURE PRODUCTION IN MINNA, NIGER STATE, NIGERIA

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ABSTRACT

It is an established fact that the world has been ravage with corona virus pandemic, and expert have envisaged that the virus has come to stay. Thus, has affect virtually all facet of human endeavor especially the quality of food and meat we eat. Consequently, this study assessed the effects of the covid-19 induced lockdown on Aquaculture activities in Minna Niger State, Nigeria. Hence, a timeframe for this study is 12 months, (six months' pre- imposition of the lockdown order and six months' post-suspension of the lockdown order in Minna. The methods used in the data collection and data analyses techniques were both descriptive and inferential statistics. Whereas tables and charts used to present results. The t-test was used to determine the statistically significance difference in type of species cultured. The outcome of this study has shown that the outbreak of COVID-19 has impacted aquaculture value chain in both pre and post COVID period. The result showed that, there is no statistically significant difference in the species of fish sold and as well as the impact on its value chain. Thus, 92% of the respondent sold hybrid fish and 8% of them sold clarias before COVID while 12% of the respondent sold clarias catfish with 88% sold hybrid after covid. The study therefore, recommend that incentives should be put in place by Government and multinational agencies like world bank, Agricultural Development Bank and other Stakeholders in agricultural sector in order to cushion the effect of the Covid-19 pandemic.

Keywords: Covid-19, Aquaculture, Lockdown and Pandemic

INTRODUCTION

The COVID-19 disease is a global pandemic that has since its emergence affected all facets of human endeavours (Ghebreyesus, 2020), with the world's poorest being the most vulnerable UN-DESA, 2020 in UN-DESA, 2020). According to webmd.com (2020), there are other ways aside physical contact (that is, coming within six feet of an infected person without wearing a Personal Protective Equipment), of contracting the virus. These other ways are airborne transmission (because the virus can live in the air for up to 3 hours), surface transmission (touching an infected surface, as the virus can live up to 3 days on surfaces) and fecal-oral (being exposed to traces of an infected person's faces. As a result of these, the disease has a high transmission rate (Roy and

Ghosh, 2020).

In order to halt the spread of the pandemic, some stringent measures were put in place by most countries of the world. One of which was the restrictive mass quarantine or the lockdown mechanism. The aim of the lockdown was to drastically reduce non-essential physical contact among individuals and possibly break the chain of transmission of the disease.

Coronavirus 2019 is a global health concern that has left most countries in a state of severe economic meltdown. Scientific research has been done on the virus and its impact on various sectors but that of the Nigerian aquaculture industry has been missing. Previous studies reviewed Adeleke *et al.*, (2020) only looked at the perception of fish farmers on the influence of coronavirus and strategy to mitigate its impact. This paves for this research to aim at bridging the gap by looking at impact of corona virus on aquaculture and aquaculture value chain during pre and post covid 19 era in minna, Niger state. However, the impact of covid-19 induced lockdown has greatly affected the aquaculture activities and other value chain. However, as a result of increase in prices of goods and services for example, increase in prices of raw materials for fish meals which in turn affects the value chain production in aquaculture output. The restriction in movement during the lockdown period have impacted negatively on its value chain. Consequently, this study is set to assess the effects of the covid-19 induced lockdown on aquaculture production and its related activities in Minna metropolis Niger State, Nigeria.

MATERIALS AND METHODS

This chapter is based on the general approach/methodology used in the data collection exercise as well as the analyses techniques employed. In this research work, both primary and the secondary source of data collection was employed. The information/data from this sources was used to establish the background (introduction) to the study and it as well, formed the basis of the data analysis section. The information used in the introductory section was obtained from relevant dissertations, journals and conference proceedings, while the data used in the analysis section was sourced from the questionnaire administered to the fish sellers and fish producers in the study area. The data from the respondents in the study areas centered on the pre and post COVID-19 lockdown. Thus, observations to obtain first-hand information about the aquaculture production includes types of fishing activities, post-harvest and, the aquaculture value chain and as well as the impact of covid-19 induced lockdown on the aquaculture value chain in the study area. Data collected includes the types of fishing reared, inventory of facility use for fishing, source of water

and types of feeds used for feeding etc. The timeframe for this study is 12 months, that is, six months before the imposition of the lockdown order on Minna and six months after the suspension of the lockdown order. For the purpose of clarity, the six months preceding the lockdown order ranged from 23rd September, 2019 to 23rd March, 2020, while the six months after the lifting of the lockdown covered from 20th April, 2020 to 20th October, 2020. Both the descriptive and inferential statistics were used in the data analysis exercise. The descriptive statistics was used in order to analyses the information obtained on the operations and/or activities of the fish sellers and fish producers in the study areas and this helped in answering questions such as “how many would-be/prospective developers applied for permits and how many permits were granted?” The inferential statistics on the other hand, answered questions like ‘is there any statistically significant difference in the pre and post lockdown in fish sellers and fish producers?’

The t-test analysis was employed in testing the hypotheses of the study. This is because the t-test analysis is statistically used to determine the existence of any significant difference between the means of two groups. These groups may however be related. The first hypothesis tested was to determine whether or not, there exists any statistically significant difference in the impact on types of fish sold in Minna in the six months preceding the imposition of the lockdown, and in the six months after the suspension of the total lockdown on Minna. Data on both the descriptive and inferential statistics were analyzed using the Microsoft Excel environment and the outcome were presented with the aid of the graphical tool (charts and tables). These tools in essence, helped in summarizing and describing the outcomes of the analysis.

RESULTS AND DISCUSSIONS

Variations in the Fish Culture Characteristics and Management Practices

Species of fish sold before COVID

The result of figure 1 revealed that 92% and 88% of the total respondents sold hybrid catfish before and after covid-19 while 12% and 8% of the respondent sold clarias catfish respectively. It is evident from the analysis that the respondents are mostly engaged in the selling of hybrid catfish in the study area.

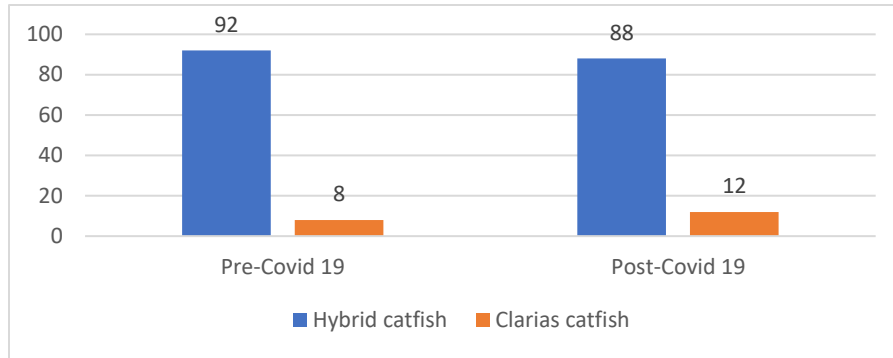


Figure 1: Types of Fish sold
Source field survey, 2022.

Record Keeping

The data obtained from the variables shows that 14% of the respondents have good record keeping, 40% have fair record keeping while 46% have poor record keeping. It is therefore deduced from the analysis that fish sellers attitude towards record keeping in the study area.

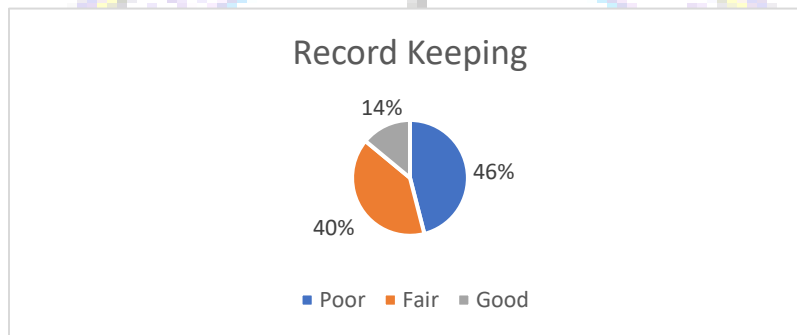


Figure 2: Periods of fish sales by Respondents
Sources: Field Survey ,2022

Impacts of Lockdown on Fish Sales and Distribution

Other non-fisheries related Business(es) involved

It is evident from the data reeled out from figure3 that 44% of the respondents are into farming activities,2% of the respondents are into buying and selling goods. While 2% of the respondents are into carpentry work, trading, printing press, civil servant and business respectively. Thus, with 22% has no any other business they engaged in for livelihood. So it is deduced from the analysis that most of the fish sellers in the study area are also into farming activities to support or augment their fishing business as seen in the table below.

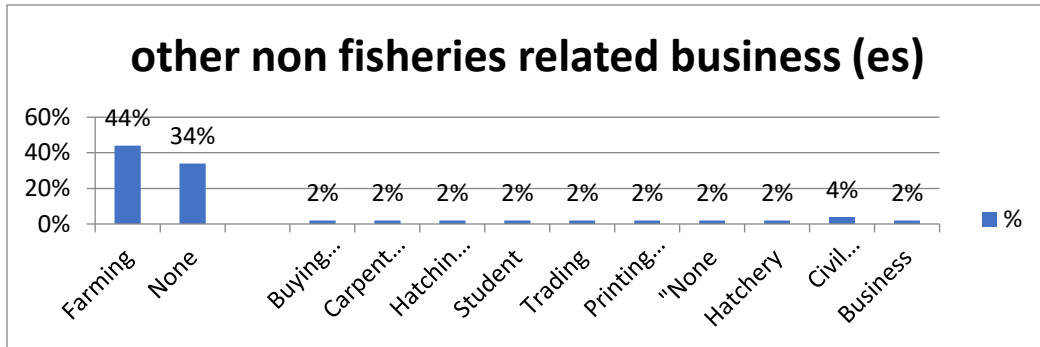


Figure 3: Other non-Fisheries related business

Sources: Field Survey ,2022

Types of aquaculture production before COVID 19

The data obtained from the figure below indicates that 64% of the respondents in the study area into grow out practices of fish production, 21% of the respondents are into sub-adults production while 7% of the respondents are into hatchery as well as all aspect of aquacultural production respectively. It is deduced from the analysis that quite a number of fish producers in the study area are mainly into grow out type of aquaculture production.

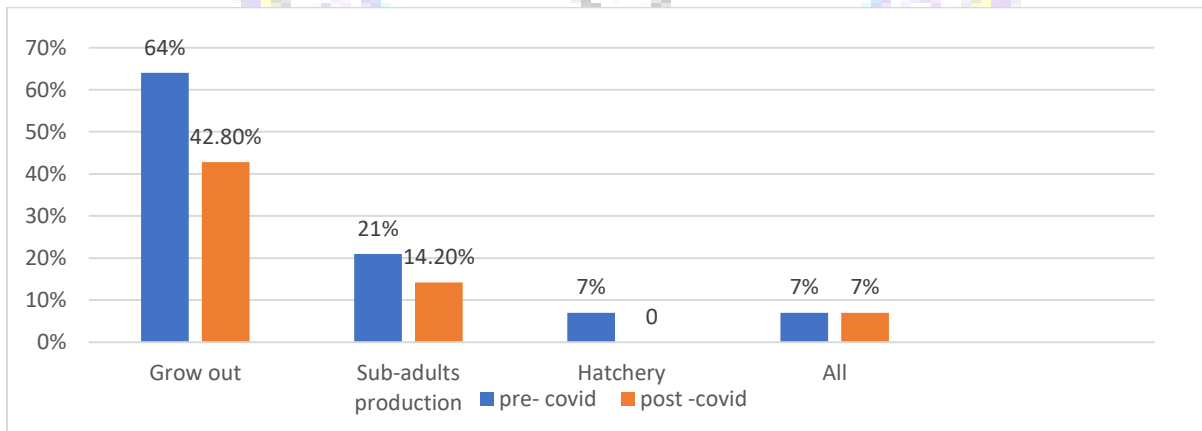


Figure 4: Types of aquaculture production

Sources: Field Survey ,2022

Hypothesis Testing

As earlier stated, the t-test analysis was employed to test the hypotheses set for this study. The outcome of the first hypothesis tested was to determine whether or not, there exists any statistically significant difference in the Species of fish sold in Minna in the six months preceding the

imposition of the lockdown, and in the six months after the suspension of the total lockdown on Minna is presented in Fig.1. In order to attain this, the pre and post lockdown aquaculture value chain data in Figure 1 were respectively loaded. As shown in Table1, the recorded P-value is 0.486733. Hence, the p-value is greater than the significance level of 0.05. The implication of this is that the H_0 is accepted and the H_1 is rejected. This in other words means that there is no statistically significant difference in the species of fish sold in minna in the six months preceding the imposition of the lockdown, and in the six months after the suspension of the total lockdown on Minna in the pre and post COVID-19 induced lockdown period in Minna.

Table 1: t-Test: Paired Two Sample for Means
(Species of fish sold)

| | <i>Variable</i> <i>1</i> | <i>Variable</i> <i>2</i> |
|----------------------------|-----------------------------|-----------------------------|
| Mean | 24.5 | 0.5 |
| Variance | 1104.5 | 0.4608 |
| Observations | 2 | 2 |
| Pearson Correlation | 1 | |
| Hypothesized Difference | Mean | 0 |
| Df | 1 | |
| t Stat | 1.042572 | |
| P(T<=t) one-tail | 0.243367 | |
| t Critical one-tail | 6.313752 | |
| P(T<=t) two-tail | 0.486733 | |
| t Critical two-tail | 12.7062 | |

CONCLUSION AND RECOMMENDATIONS

The outcome of this study has shown that the outbreak of COVID-19 has affected the Agriculture and Aquaculture industry in Minna. Hence, the outcome revealed that quantity of fish sold per day in the study area is more in the six months before the coronavirus induced lockdown were as reduces during the post lockdown period. This trend was similarly observed in the incidences of transportation of aquaculture products and also impacted negatively on other aquaculture value chain in the study area.

The study also revealed that there is no statistically significant difference in the species of fish sold in Minna in the six months preceding the imposition of the lockdown, and in the six months after

the suspension of the total lockdown in Minna in the pre and post COVID-19 induced lockdown period in Minna. The outcome of the study similarly indicated that there is statistically significant difference in the other non-related fish business in Minna during the pre and post COVID-19 induced lockdown on Minna. While the last hypothesis outcome of this has in other words, shows post COVID-19 induced lockdown on Minna. The implication of this is that, it had seamless post lockdown aquaculture activities, as there was no any statistically significant difference in the types of aquaculture practice observed. Owing to some of the observed challenges identified by this study, the following recommendations significant have been put forward

1. The aquaculture producers should be encouraged in growing other species of fishes to boost production and have more dividends in return for profit.
2. There is need to embark on sustained advocacy on aqua culturist to grow exotics breeds that will withstand any adverse weather condition and also the need to keep proper farm records for sustainability in the business.
3. Finally, the study recommended that incentives should be put in place by Government and multinational agencies like world Bank, Agricultural Development Bank and other Stakeholders in agricultural sector to cushion the effect of pandemic

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