

Socio-Economic Determinants Influencing Artisanal Fishers' Household Food Security in Ogun Water Side Local Government Area of Ogun State

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Abstract

Nigeria is blessed with abundant natural and fishery resources, but fish-catching activities are mostly done with crude tools. This results in relatively low fish catches and increased household food insecurity. The study examined socio-economic determinants influencing artisanal fishers' household food security in Ogun Waterside Local Government Area. Fifty percent of the sampling frames (active 167 artisanal fishers) were selected from three fishing communities in the study area and a total of 84 artisanal fishers were randomly selected. The interview guide was used to elicit relevant data from the artisanal fishers'. Household food security was measured at interval level using the United State Department of Agriculture Household Food Security Scale Module (HFSSM), as 'Always', 'Sometimes' and 'Rarely' were referred to as 'Yes' and transformed to 'Affirmative' (1) and never to 'Negative' (0). Artisanal fisher scores were categorized into three: food secure (0-2), low food insecure (3-7) and very low food insecure (8-18). Data were analyzed using descriptive, inferential statistics (multiple linear

regression). Results showed that 56.7% of the artisanal fishers' were male, 50.0% of the artisanal fishers' were in their productive age of 35 to 45 years, and 81.0% of the artisanal fishers' had an average of 4 persons per household size. Also, 82.1% of artisanal fishers' were full-time artisanal fishers. Gill nets (86.9%) were mostly used to capture fish, 52.4 percent of the artisanal fishers' were food insecure. Multiple linear regression revealed that artisanal fishers' age, education, residency years, and access to credit were the socioeconomic determinants that influenced household food security; therefore, the study recommended the need for targeted interventions to improve the artisanal fishers' food security and overall well-being.

Keywords: Artisanal fishing, Artisanal fishers', Determinants, Livelihood activities, Households' food insecurity

1.0 Introduction

Artisanal fishery plays a significant role in food security, livelihood sustenance, economic and global development for many fishing communities in developing countries like Nigeria (Ojo *et al.*, 2025). The demand for fish in the world increased due to an increasing human population and health benefits attributable to fish consumption (Adisa *et al.*, 2021). Small-scale fisheries play a vital informal social protection system, especially in developing countries, where alternative employment opportunities are scarce; therefore this results in poverty alleviation and food security (Zeller *et al.*, 2023). Several studies have affirmed that Nigerian artisanal fishers have the largest supply of varieties of fish and are ranked among the top animal protein contributors to food security, improved household income, and nutritional well-being, especially among the inhabitants of lagoons, coastal areas, and riverine areas (Food and Agriculture Organization (FAO), 2020).

Artisanal fishers play a vital role in food supply, nutrition security for low-income families, providing over 80% of the domestic fish production in Nigeria coastal and riverine communities. Artisanal fisheries provide a sustainable source of fish protein and micronutrients, essential for domestic fish production and food availability in rural and coastal communities. Small-scale fishers enhance rural employment and income, diversify diets, and strengthen local food systems by supplying fish and fish products to local markets, thereby sustaining food distribution channels (Adebo and Ayelari, 2020; George, 2021). Artisanal fishers play a crucial role in providing affordable fish to local markets, promoting the availability of animal protein and strengthening rural food distribution systems (Oladimeji, 2021). Literature indicates that artisanal fishers primarily focus on household consumption to ensure food security, with various controllable and uncontrollable factors influencing food security outcomes (Rumagia *et al.*, 2020; Simmance *et al.*, 2021; Yazdanpanah *et al.*, 2021). Furthermore, findings indicated that technology, input quality, age, family structure, educational level, and marital status promotes the likelihood of artisanal household food security (Iheoma, 2020).

According to Alwedyan (2022), food security is globally recognized as a fundamental human right and vital indicator of household and national development. The World Health Organization (2023) emphasized that food security exists when all individuals have consistent access to sufficient and nutritious food for a healthy life. In many sub-Saharan countries, especially Nigeria, achieving food security remains a persistent challenge due to fishers' socio-economic instability, climate change, and inadequate livelihood opportunities.

Food security still remains a critical issue in many rural communities across Nigeria, despite their reliance on natural resources for their livelihood. However, artisanal fishers experienced economic vulnerabilities, low income, restricted access to credit and modern resources, environmental challenges, climate change and insufficient institutional support (FAO, 2022). Recent interventions in Ogun State have predominantly focused on crop farmers, leading to insufficient documentation of the food security situation in fishing communities (Olaoye *et al.*, 2021; Oyetade *et al.*, 2022)

Artisanal fisheries play an important role in promoting food security and rural household livelihood support. However, artisanal fishing households face significant food insecurity, due to limited access to technology, alongside rising costs and climate impacts (Kravolec, 2020). Ogun Waterside Local Government Area is predominantly an artisanal fishing-based rural economy with abundant natural resources. Despite this natural endowment, artisanal fishers still struggle for stable access to nutritious food year-round due to seasonal fluctuations in fish catch, rising fuel and input costs, and changes in water ecosystems (Odioko and Becer, 2022). In addition, artisanal fishers' livelihood diversification, limited agricultural extension support, weak fisheries management, and inadequate infrastructure hinder fishers' income and productivity resulting in decreased household food access, diet quality, and nutritional outcomes (Ali *et al.*, 2023). These challenges result in decreased household food access, diet quality, and nutritional outcomes. However, there is a lack of empirical evidence regarding the nature, severity, and socio-economic drivers of food security (Kruijssen *et al.*, 2020).

The Intergovernmental Panel on Climate Change (2022) conceptualizes vulnerability as a key determinant of climate risk, alongside exposure and hazard, stressing that vulnerable populations and ecosystems often face disproportionate climate losses and food insecurity. It therefore becomes necessary to examine the socio-economic determinants influencing artisanal fishers' household food security in Ogun Water side Local Government Area, Ogun State. Many studies have investigated food insecurity determinants at national and state levels, particularly focusing on crop farmers and urban poor populations in Nigeria, while artisanal fishing households remain under-researched. In Ogun State, especially Ogun Waterside Local Government Area, there is a lack of data on socio-economic factors such as income stability and market linkages that affect food security among these fishers. Pull factors that influence artisanal household food security positively will be projected more, and push factors (environmental degradation, conflict, and climate change) need to be addressed to improve the productivity of artisanal fishing in Ogun State. This study provided information on the contribution of socioeconomic and determinant factors to household food security to improve artisanal fishers' livelihood outcomes and achieve sustainable development goals in the study area. Furthermore, the findings will be useful for the government, stakeholders, and other agencies to promote export revenue that could result in positive trade stability. There is a need to enforce fishing laws and regulations to avoid the illegal exploitation of fishing grounds by trawlers and the destruction of artisanal fishing gear. This study will corroborate the efforts of international food security experts and decision-makers on the benefits of food security in the rural communities' especially coastal and riverine communities.

The specific objectives of the study were to describe the socio-economic characteristics of the respondents, identify the production practices engaged in by the artisanal fishers, and determine the respondents' household food security. The hypotheses of the study were stated in null form:

(a) There is no significant association between socio-economic characteristics of artisanal fishers and their household food security (b) There is no significant relationship between socio-economic determinants of artisanal fishers and household food security.

1.1 Socio-Ecologic Theory (SET)

This theory offers a comprehensive framework for evaluating the relationship between artisanal fishers' social, economic, natural, and environmental factors that influence household food security. Bronfenbrenner (1997) and Oladimeji (2021) established that SET plays a vital role in describing the interaction between human behaviour and well-being. Bronfenbrenner indicated that social-ecological theory is based on evidence that no single factor or system can describe household food security as the outcome. SET provides a comprehensive framework investigating how income, education, household size, gender, occupation, and resource access interact with environmental and policy influences on household food security outcomes.

Olaoye *et al.* (2021) affirmed that factors affecting artisanal livelihoods include food prices, storage facilities, household income, mechanization, climate change, household size, government support, security, market access, credit, flooding, fishing input cost, housing infrastructure, and time consumption. The theory suggests that household dynamics and social networks, family support, and fishing cooperatives enhance social capital, resource sharing, and gender roles in artisanal fishing. The interactions among fishers, local communities, and organizations are crucial for enhancing resilience and adaptive capacity, which improves food availability and stability for households. The theory illustrates the importance of stakeholders and institutions that influence artisanal fisher households. SET explores the interplay between individual socio-economic traits and broader structural factors impacting food security, highlighting that community cooperation can alleviate income shocks for fishers and enhance food availability during challenging times. Consequently, food security for artisanal fishers is tied to the dynamics of economic, social, institutional, and ecological systems, rather than solely relying on income levels.

2.0 Material and Methods

The study was conducted in Ogun Waterside Local Government Area, Ogun State, in the southwest geopolitical zone of Nigeria, which lies at 7°00' N and 3°35' E (Oyebamiji *et al.*, 2024). Its headquarters are located in the town of Abigi. The projected population in 2023 for the study area based on the 2006 National Population Census growth of 3.4% is 381,081 and is dominated by the Yoruba ethnic group (National Bureau of Statistics, 2019). The coastal waters of Ogun State are rich in a variety of fishery resources, with 475 species of finfish documented, including cartilaginous fish such as sharks, skates and rays (Oyebamiji *et al.*, 2024). Purposive sampling technique was used to select 3 fishing communities (Iwopin, Olosa, and Olokun) in the Local Government Area due to the prominent and highest number of active and resident artisanal fishers in the study area. The Local Government Area is located around the coast of the Lekki Lagoon and fifty percent of the sample frames (167) were selected through simple random sampling technique to make a total of 84 artisanal fishers' (Table 2.1)

Table 2.1: Sampling frames and sample sizes of artisanal fishers

Local Government Area	Fishing Communities	Sample Frame	Sample Size (50%)
Ogun waterside	Iwopin	67	34
	Olokun	58	29
	Olosa	42	21
Total		167	84

Source: Field Survey, 2023

Primary data was obtained through an interview guide. Age, monthly income, fishing experience, household size, and years of residence were measured at interval level, while sex, marital status and religion were measured at nominal level. Mode of artisanal fishing, types of fishing net used, period of fishing, types of labour used, state of fish during sale, assistance received from stakeholders, types of markets were measured at nominal level, while hours worked per day, average number of artisanal fishers per boat per trip and number of labour were measured at interval level. Food security status was measured at interval level using the 18-item Household Food Security Survey (HFSS) based measure over a period of 30 days, developed by the United States Department of Agriculture –USDA and adapted from Olaoye (2021); Opaluwa *et al.* (2023); Scott (2024). Respondent response options from the 18 negative statements adopted from the Household Food Security Survey Module, where structured as follows: Yes was scored as 1 (affirmative), while No was scored as 0 (non-affirmative). Based on Household Food Security Survey Module (HFSSM), the scores were categorized as high food security (0-2), low food security (3 -7) and very low food security (8-18).

2.1 Statistical Analysis

Descriptive statistics such as frequency, counts, percentage, and mean were used to analyze the specific objectives. Chi-square and PPMC were used to test hypothesis one. Chi-square was for variables measured at nominal levels and Pearson Product Moment Correlation was for variables measured at interval levels. Multiple linear regression was used to test hypothesis two.

3.0 Results and Discussion

3.1 Socio-economic Characteristics of Artisanal Fishers

The result, as shown in Table 3.1, reveals that half (50.0%) of the artisanal fishers were within the age bracket of 36–45 years, with a mean age of 41 years. This implies that the artisanal fishers were of a youthful age and were active and energetic enough to perform laborious production activities, and it is expected of them to be productive with available resources. It further implies that more young people are developing interest in the artisanal fishing industry as they explore opportunities for daily livelihood and income. Fishing, by its very nature, tends to be more attractive to the youth than the elderly. This is in line with Magego *et al.* (2021) who showed that youth tend to engage in strenuous or energy-demanding activities for survival. Furthermore, the majority (82.1%) of the artisanal fishers were male, which indicates the complexity of artisanal fishing activities- more associated with males than females. This finding agrees with Antia-Obong *et al.* (2021) and Mufutau *et al.* (2022), that hectic and labourious agricultural activities are mostly done by men, and processing is mostly done by women. Most (94.0%) of the artisanal fishers were married; this implies that they were married artisanal fishers who may have family responsibilities and may need to invest their resources into artisanal

fishing to support their families. This is in accordance with Ashley-Dejo (2023); Oyetade *et al.* (2023) findings, who reports that the majority of the artisanal fishers were married.

Religious beliefs and practices influence fishers' behavior and help them manage fishing challenges and foster unity and cooperation among the artisanal fishers. Although the majority (70%) of the artisanal fishers were Muslims because the study area is a Muslim-dominated region and it does not prohibit the fishing profession for its customers or households. Aderinola *et al.* (2021) reports that religion plays a vital role in artisanal fishing, influencing fishing practices, behaviors, and their relationships with the environment. Less than half (44.0%) of the artisanal fishers had informal education, which implies that non-formal education can enhance artisanal fishers' skills, knowledge, and economic competitiveness by providing training in sustainable practices, gear maintenance, safety protocols, and entrepreneurship, thereby reducing climate change vulnerability. This finding disagrees with Hila and Wahyuni (2020) that formal education is the foundation of performance, efficiency, and development in artisanal fishing.

Majority (81.0%) of artisanal fishers had household sizes between 2 and 10 persons, with a mean of 4 persons per household. This implies that each household size of 4 persons could rely on family labour and could support a hired labour force for artisanal fishing activities, potentially increasing productivity and income. This finding correlates with Oyedele *et al.* (2023), who reported that artisanal fishers have a high dependency ratio. Almost half (48.8%) of the artisanal fishers earned an average monthly income of ₦ 421,154.72. This implies that the artisanal fishers are financially independent and have the ability to purchase more fishing equipment to boost their catch and improve their livelihood activities. This is in line with Ali *et al.* (2023) suggests that artisanal fishers can acquire more assets from their livelihood activities. Furthermore, 34.5% of the artisanal fishers had fishing experience between 16 and 30 years, with a mean of 19 years. This implies that artisanal fishers have been involved in artisanal fishing for a long period of time, and they were expected to have adequate knowledge of different fishing techniques to influence their productivity and contribute positively to food security. This finding agrees with Mussa *et al.* (2021), who observed that fishing experience is important in determining the profit levels of artisanal fishers and that the more experience, the more fishers understand the system, trends, and prices. Furthermore, 45.2% of the artisanal fishers reside in the study area, with a mean age of 20 years; this implies that they should be more familiar with the environment and have better access to livelihood assets to improve artisanal livelihood outcomes.

3.2 Production Characteristics of the Artisanal Activities

Findings in Table 3.2 reveal that 96.4% of the artisanal fishers did their fishing activities in the morning, while almost all (91.6%) of the artisanal fishers made use of gill nets to capture fish, and majority (82.1%) of the artisanal fishers were full-time artisanal fishers. This finding shows that the artisanal fishers observed their fishing activities in the morning because of the coolness of the weather, so it could be easier to catch fish in larger quantities. This can be due to the nearness of artisanal fishers around the Lekki Lagoon and their access to natural resources (water and land) that could sustain household livelihoods. Also, gill nets were artisanal fishers' preference due to their ability to target specific fish species, and they were more familiar with gear techniques. The net is more effective, affordable, and versatile. This finding is in line with Magego *et al.* (2021) and FAO (2021) reports that the most appropriate period to catch more fish is very early in the morning and once a day due to the usage of traditional equipment.

Table 3.1: Socio-economic characteristics of the artisanal fishers' (n=84)

Socio-economic characteristics	Frequency (f)	Percentage (%)	Mean (\bar{x})
Age			
≤35	26	31.0	
36-45	42	50.0	41 years
46-55	11	13.0	
56-65	5	6.0	
Sex			
Male	69	82.1	
Female	15	17.9	
Marital Status			
Single	4	4.8	
Married	79	94.0	
Widow	1	1.2	
Religion			
Christian	20	23.8	
Muslim	62	73.8	
Traditional	2	2.4	
Educational Level			
Non formal education	37	44.0	
Primary school	26	31.0	
Secondary school	18	21.4	
Tertiary	3	3.6	
Monthly Income Level (₦)			
≤100000	9	10.7	
100001-200000	7	8.3	
200001-300000	13	15.5	
300001-400000	14	16.7	
> 400000	41	48.8	₦421,154.76
Fishing Experience			
≤15	9	10.7	
16-30	29	34.5	19 years
31-45	26	31.0	
46-60	20	23.8	
Household Size			
2-10	68	81.0	4 people
11-20	16	19.1	
Years of Residence			
≤15	13	15.5	
16-30	38	45.2	20 years
31-45	20	23.8	
46-60	13	15.5	

Source: Field Survey, 2023

In addition, Table 3.2 shows that less than half (44.0%) of artisanal fishers engaged all types of labour (family, hired, and self), and 53.6% of the artisanal fishers engaged an average of 3 persons as labour for fishing. This reveals that artisanal fishers engaged an average of 3 persons for an average of 9.8 hours per fishing trip with an average of 8 trips per week this indicates that

artisanal fishing is a small-scale enterprise, and they had an understanding of the importance of labour dynamics, high labour- intensity and usage of crude tools in artisanal fishing to get high fishing productivity and efficiency, which could improve the artisanal livelihood outcomes. This result is in line with FAO (2022), which states that artisanal fishers are small-scale farmers with low technological equipment, which makes their activities strenuous.

The result in Table 3.2 reveals that majority (88.1%) of artisanal fishers sold the fish caught fresh due to high perishability, limited preservation and storage facilities, low processing knowledge, high market demand of fish, and quick return of investment. This result corroborates with the Food and Agriculture Organization (2020) and Ashley-Dejo (2023), who observe that fish is a perishable food that has a high potential for waste and loss and artisanal fishers' operates with crude tools

Result in Table 3.3 highlights a relative prevalence of food insecurity among artisanal fisher households in the study area. 80.95 percent of households of artisanal fishers show that they could not feed themselves with balanced meals because they could not afford it, and 77.38 percent of artisanal fisher households indicate that they were hungry because they could not afford food. This implies that artisanal fishers frequently experienced anxiety over food availability, affordability, unstable income, and inadequate financial resources associated with artisanal fishing livelihoods. In addition, artisanal fisher households report severe food insecurity, characterized by skipping meals and not eating for an entire day. Furthermore, dietary balance in artisanal fishers' households could be due to access to artisanal fish, local staple foods, adequate nutrition knowledge, cultural practices, and the advantages of the availability and accessibility of natural resources. It could enhance dietary diversity and plays a vital role in sustaining diets during economic hardships through food sharing. Also, result Table 3.3 shows that child food insecurity is widespread among the fishers' households due to skipped meals and not being able to afford enough food provision. The findings reveal that artisanal fisher households were food insecure, vulnerable to adequate nutritional deprivation and income instability. Food insecurity still remains a major challenge among artisanal fisher households because they cannot afford quality food, had limited access to basic services, low asset ownership and unstable income (Oyetade *et al.*, 2023; Oparinde *et al.*, 2025).

By combining low and very low food insecurity (31.0+21.4), the finding in Table 3.4 reveals above half (52.4%), of the artisanal fishers were food insecure, this implies that artisanal fishers were vulnerable to food insecurity, which can negatively impact their health, well-being, and livelihood. This indicates that artisanal fishers still encounter some challenges in artisanal fishing, which could have higher tendency to promote food insecurity and make the artisanal fishers more vulnerable. This result corroborates with Nkeme, (2021) and Sambo *et al.* (2022), findings that artisanal fishing contributes to food and nutrition security in the fishing communities due to climate change and livelihood diversification of artisanal fishers.

3.3 Test of Significant Association between Socio-Economic Characteristics of Artisanal Fishers' and their Household Food Security

Hypothesis one: "There is no significant association between socio-economic characteristics of the artisanal fishers' and their household food security." The result is presented in Tables 3.5a and 3.5b reveals a significant association between variables tested. Sex ($\chi^2 = 3.920$; $p \leq 0.05$), access to credit ($\chi^2 = 6.635$; $p \leq 0.05$), and education level ($\chi^2 = 7.815$; $p \leq 0.05$) of the artisanal

Table 3.2: Production characteristics of the artisanal activities (n=84)

Fishing mode	Frequency(f)	Percentage (%)	Mean(\bar{x})
Full time	69	82.1	
Part time	15	17.9	
Type of net used			
Gill net	77	91.6	
Siene	3	3.6	
Bamboo	4	4.8	
*Period of fishing			
Morning	81	96.4	
Afternoon	40	47.6	
Evening	22	26.2	
Type of Labor use			
Family labour	16	19.1	
Hired labor	13	15.5	
Self	18	21.4	
Family, self and hired	37	44.0	
Number of Laborer Employed			
1-5	45	53.6	3 persons
6-10	24	28.5	
11-15	15	17.9	
Hours' work per day			
1-5	14	16.7	
6-10	34	40.5	9.8 hours
11-15	8	9.5	
16-24	28	33.3	
Average number of artisanal fishers per trip per week			
1-5	29	34.5	
6-10	55	65.5	8 trips
State of fish during sales			
Fresh fish	74	88.1	
Processed fish	3	3.6	
Fresh and processed	7	8.3	
Assistance received			
Government	4	4.8	
Private Organization	11	13.1	
Non-Governmental Organization	7	8.3	
Individual	62	73.8	
Market			
Middlemen	32	38.1	
open market	52	61.9	

Source: Field Survey, 2023

*: Multiple responses

Table 3.3: Food Security of the Artisanal Fishers for the past four weeks

S/N	Variables	Affirmative	Negative
		F (%)	F (%)
1	I worried whether food would run out before I get money to buy	61 (72.62)	23 (27.38)
2	The food that I bought just did not last and we did not have money to get more	59 (70.24)	25 (29.76)
3	I could not afford to eat balanced meals or diet	12 (14.29)	72 (85.71)
4	I rely on only a few kinds of low-cost food to feed because I don't have money to buy food	10 (11.9)	74 (88.10)
5	I could not feed myself with balanced meals because I could not afford it	16 (19.05)	68 (80.95)
6	I did not eat whole day three or more times in the last 30 days	58 (69.05)	26 (30.95)
7	I skip meals because there was not enough money	21 (25.00)	63 (75.00)
8	I eat less than I felt because there was not enough money to buy food	68 (80.95)	16 (19.05)
9	I am hungry but did not eat because I could not afford food	65 (77.38)	19 (22.62)
10	I lose weight because there was not enough money	22 (26.19)	62 (73.81)
11	I cut size child(ren) meals because there was no enough food	56 (66.67)	28 (33.33)
12	My child(ren) skip meals because I cannot afford it	26 (30.95)	58 (69.05)
13	My Child being hungry but did not eat because I could not afford more food	52 (61.91)	32 (38.09)
14	My child(ren) were not eating enough because I just could not afford enough food	30 (35.71)	54 (64.29)
15	I could not feed my child(ren) a balanced diet because I could not afford that	29 (34.52)	55 (65.48)
16	My child (ren) did not eat for a whole day	58 (69.05)	26 (30.95)
17	My child (ren) skipped meal, three or more times in the last 30 days.	25 (29.76)	59 (70.24)

Table 3.4: Categorization of Artisanal fishers' household security status

Food security Status	Frequency (f)	Percentage (%)
Food secure (0-2)	40	47.6
Low Food insecurity (3-7)	26	31.0
Very low food insecurity (8-18)	18	21.4

Source: Field survey, 2023

fishers' and household food security. The findings imply that sex, access to credit, and education level of the artisanal fishers' influence household food security. It could be deduced that there is a synergy between the sex of the artisanal fishers', the education level, access to funds, and food security. Likewise, the variable considered for PPMC shows no significant relationship between the variable tested, age ($r = -0.995$; $p \leq 0.443$), years of experience ($r = -0.573$; $p \leq 0.05$), and household food security. This implies that artisanal fishers' socioeconomic characteristics, such as age and years of experience in fishing, have effects on household food security. It could be adduced that the older the fish farmer becomes; years of experience in the fishing business have significant influences on the household food security. Furthermore, access to finance could boost food security among artisanal fishers because access to resources, such as financial, human, and

Table 3.5a: Test of significant association between socio-economic characteristic of the artisanal fishers' and their household food security (Chi-square)

Socio-economic characteristics	χ^2	df	p-value	Decision
Sex	3.920	1	0.041	S*
Religion	0.359	2	0.836	NS
Marital Status	0.064	2	0.968	NS
Access to credit	6.635	1	0.005	S*
Membership of cooperative society	0.479	1	0.489	NS
Educational Status	7.815	3	0.041	S*
Household Structure	0.965	2	0.617	NS

Source: Field Survey, 2023. S= Significant at 0.05 levels, NS = not significant * \leq 0.05

Table 3.5b: Test of significant association between socio-economic characteristic of the artisanal fishers' and their household food security (PPMC)

Socio-economic characteristics	r-value	p-value	Decision
Age	-0.085	0.443	NS
Income	-0.995	0.049	S*
fishing experience	-0.573	0.040	S*
Household Size	-0.010	0.931	NS
Years of residence	-0.088	0.429	NS

Source: Field Survey, 2023. S=Significant at 0.05 levels, NS =not significant * \leq 0.05

advisory resources, allows them to lease technological equipment from their friends and customers to acquire higher and better assets to increase fish production. This indicates that artisanal fishers avoid commercial financial institutions because of the high interest bank rate and inadequate collateral required. In addition, the study area is dominated by agricultural activities, and artisanal fishers' income may not be directed to buying agricultural products but to incurring more assets like buildings, cars, etc. Therefore, the null hypothesis is accepted. This finding agrees with the idea that age and years of experience in fishing influence household food security Olaoye *et al.* (2021).

3.4 Test of Significant Relationship between Factors Influencing Artisanal Fishers and Household Food Security

Hypothesis two: The result in Table 3.6 shows a significant relationship between age ($\beta = 0.755$; $P \leq 0.05$), education ($\beta = -0.327$; $p \leq 0.05$), residency years ($\beta = 0.415$; $p \leq 0.05$), access to credit ($\beta = 0.459$; $p \leq 0.05$), and artisanal fishers' household food security. This indicates that age, education, residency years, and access to credit were the socioeconomic determinants of artisanal household food security. This result shows that age (75.5%) access to credit (45.9%), residency years (41.5%) and education (-32.7%) contributes to the artisanal fishers' household

food security (Table 3.6). This implies that younger artisanal fishers may have more access to modern fishing technologies and resources, leading to increased productivity, income, and food security, while the older artisanal fishers may experience declining physical abilities, thereby harming their fishing productivity and income and potentially affecting their food security. Therefore, the age of artisanal fishers can significantly affect their income stability, potentially leading to reduced income due to declining physical ability and subsequently affecting their food security. Also, access to credit may help artisanal fishers purchase essential items, increase food stability, reduce food insecurity, and boost artisanal fishers' livelihood income. Non-formal education can enhance the artisanal fishers' resilience to vulnerability and artisanal fishing challenges, thereby promoting the artisanal fishers' ability to improve their food security and enhance their income.

In addition, artisanal fishers with longer residency years may experience improved livelihoods, increased resilience to environmental changes, and better resource management. They are more likely to engage in sustainable fishing practices, thereby enhancing their food security and overall well-being. Sinambela *et al.* (2022) reported that artisanal fishers' age, education, access to credit, and residency years were among the most important factors that influenced artisanal fishers' household food security.

Table 3.6: Test of significant relationship between socio-determinant of the artisanal fishers' and household food security (multiple linear regression)

Factors	β	p-value	Decision
Constant		0.562	
Age	0.755	0.040	S*
Sex	0.059	0.719	NS
Marital Status	-0.115	0.431	NS
Education	-0.327	0.047	S*
Income	-0.182	0.338	NS
Fishing experience	-0.641	0.033	NS
Household structure	-0.410	0.084	NS
Household size	0.377	0.102	NS
Residency years	0.415	0.047	S*
Access to Credit	0.459	0.011	S*
Membership of Association	-0/055	0.727	NS
R ² value	0.339		
F-value	1.498		

Source: Field Survey, 2022. Significant at 0.05 levels *= 0.05, NS is not significant, * ≤ 0.05

4.0 Conclusions and Recommendations

The study concluded that the majority of the artisanal fishers were energetic youth and small-scale artisanal fishers with extensive experience in their production activities with crude tools. Artisanal fishers were food insecure. There is a significant relationship between the socioeconomic characteristics of artisanal fishers (sex, marital status, education, fishing experience, and income) and household food security. Also, artisanal fishers' age, education,

residency years, and access were the important factors that influenced household food security. The study therefore recommends that targeted training and capacity-building programmes should be introduced to the artisanal fishers to improve household food security. Stakeholders should provide adequate access to credit and assets to the artisanal fisher to enhance their food security.

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