

Influence of Socio-Economic Characteristics on Fishing Practices and Livelihoods in Delta State, Nigeria

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ABSTRACT

This study explored the influence of socio-economic characteristics on fishing practices and livelihoods in Delta State, Nigeria. The study discussed the roles of adult males, adult females, youth males, youth females and children in the study area, the constraints faced by adult males, adult females, youth males, youth females and children in fishing activities, and the significant relationship between the socio-economic characteristics of respondents and their involvement in fishing activities. The study employed descriptive research design to explore the current status of the influence of socio-economic characteristics on fishing practices and livelihoods in Delta State, Nigeria. The study was made possible by the responses obtained from 151 respondents who are artisanal fishermen/women in Delta State, Nigeria using multistage sampling technique. The researcher elicited responses from the respondents with the aid of a self-constructed open ended questionnaire, interview and a thorough review of both empirical and theoretical literature were carried out. The findings revealed that that fish sorting, salting of fish, maintenance of fish processing equipment and smoking of fish are the fish processing activities that are engaged in by the respondents. Also, artisanal fisher folks are faced with several challenges such as insufficient fish input, poor extension service, inadequate information on fishing enterprise, and lack of credit facilities. It was equally found that religion of respondents, marital status, age, income, source of credit, family size and the years of experience in fishing activities significantly determine their level of involvement in fishing activities. It was concluded that socio-economic characteristics play a pivotal role in shaping fishing practices and livelihoods in Delta State, Nigeria. Thus, it was recommended among other things that government bodies and financial institutions must collaborate to establish specialized credit facilities tailored to the needs of fishing communities

Keywords: Artisanal fisher folks, Riverine communities, Influence, Socio-economic Characteristics, Livelihoods.

INTRODUCTION

Water bodies are among the numerous natural resources bequeathed to Nigeria by nature. Water bodies, covers from rivers, streams and lakes to swamps, coastal lagoons, ponds and floodplains; where a large percentage of fishing activities take place. In the Nigerian economy, fish occupies a unique position in the agricultural sector as it provides the bulk and most affordable source of animal protein (FDF, 2003). It serves as an important protein supplement to meat protein, more so because of the persistent rise in cost of meat (Oladedji & Oyesola, 2002). According to FAO 2000, fish contributes about 20-25% of animal intake and could be as high as 80% in the coastal and riverine communities. Fishing activities constitute the traditional occupation of communities possessing these water sources such as lakes, streams, oceans and rivers especially along River Niger and Benue, which tri-set the country. The hunting, catching and marketing of edible freshwater and ocean fishes largely dominate fishing industry in Nigeria. The artisanal

fishermen in Nigeria, however, total about half a million and approximately 42 percent of these numbers are part-time fishermen who also engage in other economic activities such as farming and tailoring. Fish supply from three sub-sectors – artisanal, aquaculture and industrial on the average had not met 30 percent of the required fish demand in the last 20 years (Bada, 2005).

Generation is the period of time required for humans, animals, or plants to grow up and produce their own offspring; it is between 30 and 35 years in humans (Encarta, 2009). It helps to reveal the idea about people in a particular age group that tend to share a distinct set of beliefs, attitude, values and behaviours because they all grew up and come of age during a particular period in history (Hoover & Eric, 2009). A social generation is the aggregate of all the people born over a span of roughly twenty years or about the length of one phase of life: childhood, youth, adulthood and old age. In view of this, members of a generation are shaped in lasting ways by the eras they encounter as children, youth and adult and they share certain common beliefs and behaviours (Strauss & Howe, 1991). Therefore, Generational roles are those activities carried out by a group of people born over a span of roughly thirty years. In practice, the traditional skill and knowledge is transferred from one generation to the next. (Hooper *et al*, 2014).

Statement of the Problem

Delta State which is one of the nine States in the Niger Delta region of Nigeria is greatly endowed with abundant natural resources and a weather which supports all year round agricultural production (Gbadegesin, 1997). According to Federal Office Statistics (FOS,1996), about 50 percent of the active labour force is engaged in one form of livelihood activities ranging from farming to self-employment in trade and small enterprises in fishing.

Men, often assisted by boys and male adolescents, typically specialize in doing the fishing in small-scale capture fisheries, while women and girls predominate in traditional processing for human consumption (smoking, drying, salting, pickling and fermenting) and marketing. In many traditional poor fishing communities, fish products are also exchanged or given as gifts to other families (sometimes these may be reciprocated), or to the elderly or disabled. Tiani, and Kenmegne (2010). However, there are considerable variations in certain regions due to the continuous crude oil exploration, exploitation and increased pressure on the environment for other uses deplete the ability of the environment to support sustainable agriculture and related livelihood activities especial fishing activities. Consequently, fishing activity which is a major livelihood of people in the fishing communities are seriously affected and threatened; resulting in declining productivity and a drastic change in fishing activity roles by generation. Considering the fact that these roles are changing and that several work has been done focusing on gender without due consideration of the socio-economic characteristics. There is a need to examine socio-economic characteristics. It is against this backdrop that this study seeks to proffer empirical data to such change and bridge the gap in several studies by examining socio-economic characteristics of artisanal fisher folks in fishing communities in Delta State. By proffering answers to the following questions:

1. What are the roles of adult males, adult females, youth males, youth females and children in the study area?
2. What are the constraints faced by adult males, adult females, youth males, youth females and children in fishing activities?
3. Is there a significant relationship between the socio-economic characteristics of respondents and their involvement in fishing activities?

LITERATURE REVIEW

This section of the study is focused on the review of relevant and related literature to address the roles of adult males, adult females, youth males, youth females and children, the constraints faced by adult males,

adult females, youth males, youth females and children in fishing activities, and if there is a significant relationship between the socio-economic characteristics of respondents and their involvement in fishing activities.

Understanding the roles played by individuals within fishing communities is essential for comprehending the dynamics of fishing practices and livelihoods. Research has shown that within these communities, adult males often play a central role in fishing activities, serving as primary breadwinners and leaders in the fishing industry (Smith et al., 2018). Empirical studies have consistently found that adult males typically engage in the most physically demanding and hazardous fishing tasks, such as deep-sea fishing and net casting (Jones & Johnson, 2019). Furthermore, adult males often pass down traditional fishing knowledge and skills to younger generations, perpetuating cultural heritage and sustaining fishing practices over time (Davis et al., 2020).

In contrast, adult females in fishing communities often fulfill crucial roles in supporting fishing activities through ancillary tasks such as processing, marketing, and selling fish products (Abdullah et al., 2017). Research indicates that adult females play a vital role in ensuring the economic sustainability of fishing households by managing finances and household resources (Bose & Khan, 2016). Additionally, empirical studies have highlighted the significant contributions of adult females to community cohesion and social networks within fishing villages (Ahmed et al., 2018). However, gender disparities persist, with adult females often facing limited access to resources and decision-making power in fishing-related matters (Haque et al., 2019). Among youth males in fishing communities, there is a transition from dependence to active participation in fishing activities as they reach adolescence. Studies have shown that youth males typically undergo informal apprenticeships under the guidance of adult males, gradually acquiring fishing skills and responsibilities (Gupta & Sharma, 2019). Empirical evidence suggests that youth males often exhibit high levels of enthusiasm and adaptability in learning fishing techniques, contributing to the sustainability of fishing practices (Nguyen & Tran, 2020). However, challenges such as limited access to education and employment opportunities outside of fishing pose risks to the long-term livelihoods of youth males in fishing communities (Chowdhury et al., 2017).

Similarly, youth females in fishing communities experience a transition from childhood to adulthood, with shifting roles and responsibilities within the family and community. Research has shown that youth females often support household livelihoods by engaging in tasks such as fish processing, domestic chores, and childcare (Khatun et al., 2018). However, empirical studies have highlighted the prevalence of gender-based constraints and social norms that limit the educational and economic opportunities available to youth females in fishing communities (Miah et al., 2020). Despite these challenges, youth females demonstrate resilience and resourcefulness in navigating their roles within fishing households and communities. Children in fishing communities play multifaceted roles that contribute to household livelihoods and community well-being. Empirical studies have shown that children often assist with minor fishing tasks, such as net mending and bait collection, while also attending school and engaging in recreational activities (Tadesse et al., 2019). However, children in fishing communities face unique vulnerabilities, including exposure to hazardous working conditions, limited access to education, and health risks associated with waterborne diseases (Begum et al., 2019). Research underscores the importance of addressing child welfare issues and implementing policies to safeguard the rights and well-being of children in fishing communities.

Constraints faced by individuals across different age and gender groups in fishing activities are multifaceted and have significant implications for their livelihoods and well-being. Research has identified various challenges encountered by adult males in fishing communities, including limited access to fishing resources, fluctuating fish stocks, and adverse weather conditions (Ofori-Danson et al., 2018). Empirical studies highlight the precarious nature of fishing livelihoods, with adult males often facing income instability and economic vulnerability due to factors beyond their control (Islam et al., 2020). Additionally, adult males

may experience occupational health hazards such as injuries, fatigue, and exposure to environmental pollutants, further exacerbating their livelihood challenges (Cinner et al., 2019).

Similarly, adult females in fishing communities encounter numerous constraints that impede their participation and economic empowerment. Research indicates that adult females often face gender-based discrimination, unequal access to fishing resources, and limited opportunities for skill development and entrepreneurship (Badru et al., 2017). Empirical studies highlight the intersecting challenges of balancing household responsibilities with income-generating activities, with adult females often shouldering the burden of unpaid care work (Mukherjee et al., 2019). Additionally, cultural norms and patriarchal attitudes may perpetuate gender disparities in fishing communities, restricting the agency and autonomy of adult females (Ahmed & Hossain, 2020). Among youth males in fishing communities, constraints may include limited access to education and vocational training opportunities, leading to a cycle of poverty and dependency on fishing livelihoods (Das et al., 2018). Empirical studies suggest that youth males often face social pressures to enter the fishing industry at an early age, foregoing educational pursuits and alternative livelihood options (Mahmud et al., 2020). Furthermore, youth males may experience challenges in accessing credit, technology, and market information, hindering their ability to innovate and diversify fishing practices (Islam et al., 2020). These constraints underscore the need for targeted interventions to support the educational and economic empowerment of youth males in fishing communities.

Similarly, youth females in fishing communities encounter barriers to education, employment, and social mobility, perpetuating cycles of poverty and gender inequality (Begum et al., 2021). Research indicates that youth females often face early marriage and pregnancy, limiting their educational and economic opportunities (Sultana et al., 2019). Empirical studies highlight the intersecting challenges of gender-based violence, social stigma, and lack of access to reproductive health services, further marginalizing youth females in fishing communities (Rahman et al., 2020). Addressing these constraints requires comprehensive strategies that promote gender equality, reproductive rights, and social inclusion for youth females. Children in fishing communities also face numerous constraints that jeopardize their well-being and future prospects. Research indicates that children may be engaged in hazardous fishing activities, exposing them to risks of injury, exploitation, and trafficking (Mitra et al., 2018). Empirical studies highlight the prevalence of child labor in fishing communities, with children often working long hours under harsh conditions instead of attending school (Rahman et al., 2020). Additionally, children may experience food insecurity, inadequate healthcare, and limited access to social services, exacerbating their vulnerability and marginalization (Hossain et al., 2019). Addressing these constraints requires concerted efforts to enforce child labor laws, expand access to education, and improve social protection mechanisms for children in fishing communities.

The relationship between the socio-economic characteristics of respondents and their involvement in fishing activities is a complex and multifaceted topic that has garnered significant attention in empirical studies. Research has shown that socio-economic factors such as education, income, and access to resources play a crucial role in shaping individuals' participation in fishing activities. For example, a study by Ahmed et al. (2018) found that individuals with higher levels of education were more likely to engage in non-fishing income-generating activities, indicating a negative relationship between education and fishing involvement. Similarly, research by Khan et al. (2018) highlighted the positive correlation between household income levels and the extent of participation in fishing activities, suggesting that individuals from wealthier households may have greater access to fishing resources and technology.

Moreover, empirical studies have explored the influence of demographic characteristics such as age, gender, and household size on individuals' involvement in fishing activities. For instance, research by Gupta and Sharma (2020) revealed that younger individuals and those belonging to larger households were more likely to engage in fishing as a primary source of livelihood, indicating a positive relationship between age and fishing involvement. Conversely, studies by Rahman et al. (2017) found that female respondents were less

likely to participate in fishing activities compared to their male counterparts, highlighting gender disparities in fishing involvement. Furthermore, the geographic location of respondents has been identified as a significant determinant of fishing activity participation. Empirical evidence suggests that individuals living in coastal or riverine areas are more likely to be involved in fishing activities compared to those residing inland (Das et al., 2021). This relationship can be attributed to the proximity to fishing grounds and access to aquatic resources, which facilitate greater engagement in fishing-related livelihoods. Additionally, studies have explored the influence of social networks and community norms on individuals' decision to participate in fishing activities, highlighting the importance of social capital in shaping livelihood choices (Kabir et al., 2019).

Moreover, the availability of fishing infrastructure and support services has been shown to influence individuals' involvement in fishing activities. Research by Islam et al. (2020) found that access to credit and extension services positively correlated with fishing activity participation, indicating that supportive institutional frameworks can enhance individuals' engagement in the fishing sector. Additionally, studies have examined the impact of environmental factors such as climate variability and natural resource abundance on fishing activity involvement, highlighting the vulnerability of fishing communities to environmental change (Rahman et al., 2019). Furthermore, socio-cultural factors such as traditional fishing practices and community norms have been found to shape individuals' involvement in fishing activities. Research by Smith et al. (2018) demonstrated that adherence to traditional fishing techniques and cultural norms influenced individuals' decision to participate in fishing as a livelihood. Similarly, studies have explored the role of indigenous knowledge and local institutions in sustaining fishing practices and livelihoods, highlighting the importance of cultural heritage in shaping fishing activity involvement (Ahmed & Hossain, 2021).

METHODOLOGY

The descriptive research design was employed for this study to enable the researcher to explore the current status of the influence of socio-economic characteristics on fishing practices and livelihoods in Delta State, Nigeria. According to Johnson (2018), descriptive research design facilitates observation and description of the variables under the study, without manipulation of any kind thereby bringing about an in-depth understating the variables. The population of the study was 3,204 from which a sample size of 151 respondents which represent 5% of the entire population was selected.

The study employed a multi-stage sampling technique. First, six out of twenty-five Local Government Areas in Delta State were chosen because they are active in artisanal fishing. From these, two were randomly picked: Warri North and Burutu. Each of these areas has five fishing communities. One community from each area was randomly selected, totaling two communities: Ayakoromo and Koko. Then, through snowball sampling, a sample frame was created in each community across gender and generation. Finally, 5% of respondents were randomly selected from each category (old male, old female, youth male, youth female, and children) in each community, resulting in a total of 151 respondents.

Data for this study were collected using structured questionnaire and interview. While the generated data were analysed using frequency, percentage, mean, and Person's Product Moment Correlation Coefficient (PPMC).

RESULTS

Research Question 1: What are the generational roles of adult males, adult females, youth males, youth females and children in the study area?

Table 1: Frequency distribution on fish processing activities by respondents

Fishing processing activities	Adult male		Adult female		Youth male		Youth female		Children		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Fish sorting												
Not involved	0	0	2	4.9	0	0	9	23.7	6	18.8	17	11.3
Rarely involved	4	14.8	2	4.9	5	38.5	0	0	6	18.8	17	11.3
Often involved	23	85.2	37	90.2	8	61.5	29	76.3	20	62.5	117	77.5
Sun drying												
Not involved	3	11.1	6	14.6	0	0	11	28.9	21	65.6	41	27.2
Rarely involved	1	3.7	2	4.9	6	46.2	7	18.4	7	18.4	7	21.9
Often involved	23	85.2	33	80.5	7	53.8	20	52.6	4	12.5	87	57.6
Smoking												
Not involved	1	3.7	2	4.9	1	7.7	6	15.8	11	34.4	21	13.9
Rarely involved	2	7.4	4	9.8	3	23.1	10	26.3	10	31.3	29	19.2
Often involved	24	88.9	35	85.4	9	69.2	22	57.9	11	34.4	101	66.9
Salting												
Not involved	2	7.4	4	9.8	2	15.4	12	31.6	16	50.0	36	23.8
Rarely involved	2	7.4	2	4.9	5	38.5	6	15.8	11	34.4	26	17.2
Often involved	23	85.2	35	85.4	6	46.2	20	56.6	5	15.6	5	89
Refrigeration												
Not involved	22	81.5	33	80.5	12	92.3	37	97.4	29	90.6	133	88.1
Rarely involved	4	14.8	4	9.8	37	97.4	1	2.6	3	9.4	3	12
Often involved	1	3.7	4	9.8	29	90.6	0	0	0	0	6	4.0
Storing												
Not involved	2	7.4	3	7.3	4	30.8	13	34.2	21	65.6	43	28.5
Rarely involved	12	44.4	10	24.4	3	23.1	18	47.4	7	21.9	50	33.1
Often involved	13	48.1	28	68.3	6	46.2	7	18.4	4	12.5	58	38.4
Maintenance of fish processing equipment												
Not involved	2	7.4	0	0	0	0	9	23.7	5	15.6	16	10.6
Rarely involved	4	14.8	5	12.2	4	30.8	5	13.2	11	34.4	29	19.2
Often involved	21	77.8	36	87.8	9	69.2	24	63.2	16	50	106	70.2
Maintenance of fish storage facilities												
Not involved	2	7.4	0	0	1	7.7	7	18.4	9	28.1	19	12.6
Rarely involved	5	18.5	5	12.2	5	38.5	12	31.6	10	31.3	37	24.5
Often involved	20	74.1	36	87.8	7	53.8	19	50	13	40.6	95	62.9

Results on Table 1 shows the involvement in fish processing activities among respondents, it reveals that majority of the respondents are often involved in fish sorting (77.5%), salting of fish (89%), maintenance of fish processing equipment (70.2%) and smoking of fish (66.9%), while majority 88.1% are not involved in

refrigeration. Adult males are more often involved in sun dry (82.5) and smoking of fish (88.9), adult females are often involved in fish sorting (90.2), maintenance of processing equipment (87.8%) and maintenance of storage facilities (87.8%). This implies that adults are more involved in fish processing activities.

Research Question 2: What are the constraints faced by adult males, adult females, youth males, youth females and children in fishing activities?

Table 2: Frequency distribution of constraints to fishing facing respondents

Constraints	Adult male		Adult female		Youth male		Youth female		Children		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Insufficient fish inputs												
Not severe constraints	1	3.7	2	4.9	1	7.7	3	7.9	4	12.5	11	7.3
Severe constraints	2	7.4	0	0	0	0	1	2.6	1	3.1	4	2.6
Very severe constraint	24	88.9	39	95.1	12	92.3	34	89.5	27	84.4	136	90.1
Poor gov't policies on fishing activities												
Not severe constraints	1	3.7	0	0	1	7.7	5	13.2	4	12.5	11	7.3
Severe constraints	2	7.4	0	0	0	0	5	13.2	1	3.1	8	5.3
Very severe constraint	24	88.9	41	100	12	92.3	28	73.7	27	84.4	132	87.4
Lack of credit facilities												
Not severe constraints	0	0	0	0	1	7.7	0	0	4	12.5	5	3.3
Severe constraints	3	11.1	2	4.9	1	7.7	7	18.4	7	18.4	16	10.6
Very severe constraint	24	88.9	39	95.1	11	84.6	31	81.6	25	78.1	130	86.1
Inadequate labour												
Not severe constraints	5	18.5	1	2.4	2	15.4	0	0	6	18.8	14	9.3
Severe constraints	4	14.8	6	14.6	2	15.4	7	18.4	5	15.6	24	15.9
Very severe constraint	18	66.7	34	82.9	9	69.2	31	81.6	21	65.5	113	74.8
Transport problem												
Not severe constraints	1	3.7	0	0	2	15.4	1	2.6	7	21.9	11	7.3
Severe constraints	1	3.7	2	4.9	1	7.7	7	18.4	3	9.4	14	9.3
Very severe constraint	25	92.6	39	95.1	10	76.9	30	78.9	22	68.8	126	83.4
Lack of infrastructures												
Not severe constraints	1	3.7	4	9.8	1	7.7	3	7.9	4	12.5	13	8.6
Severe constraints	3	11.1	0	0	2	15.4	6	15.8	2	6.3	13	8.6
Very severe constraint	23	85.2	37	90.2	10	76.9	29	76.3	29	76.3	125	82.8
Poor market channels												
Not severe constraints	2	7.4	3	7.3	3	23.1	4	10.5	5	15.6	17	11.3
Severe constraints	4	14.8	5	12.2	1	7.7	10	26.3	1	3.1	21	13.9
Very severe constraint	21	77.8	33	80.5	9	69.2	24	63.2	26	81.3	113	74.8
Poor storage facilities												
Not severe constraints	1	3.7	1	2.4	0	0	2	5.3	5	15.6	9	6.0

Severe constraints	4	14.8	0	0	0	0	9	23.7	1	3.1	16	10.6
Very severe constraint	22	81.5	38	92.7	13	100	27	71.1	26	81.3	126	83.4
Poor extension services												
Not severe constraints	0	0	0	0	1	7.7	0	0	1	3.1	2	1.3
Severe constraints	4	14.8	2	4.9	0	0	5	13.2	3	9.4	14	9.3
Very severe constraint	23	85.2	39	95.1	12	92.3	33	86.8	28	87.5	135	89.4
Inadequate information on fishing activities												
Not severe constraints	0	0	3	7.3	1	7.7	1	2.6	1	3.1	6	4.0
Severe constraints	5	18.5	0	0	1	7.7	2	5.3	4	12.5	12	7.9
Very severe constraint	22	81.5	38	92.7	11	84.6	35	92.1	27	84.4	27	88.1

Results on Table 2 show that insufficient fish input was the most severe constraints as it was a very severe constraint to 88.1% of the respondents, poor extension service was very severe constraint to 89.4%. Poor extension service was very severe constraints to 85.2% adult males, 92.1% adult females, 92.3% youth males, 86.8% youth females and 87.5% children. Furthermore, the most severe constraints were: lack of extension service (1.88) and inadequate information on fishing enterprise (1.84), and Insufficient fish input and Lack of credit facilities (1.82). This implies that there the constraints facing respondents are severe and are limiting the fishing activities of the respondents.

Research Question 3: Is there a significant relationship between the socio-economic characteristics of respondents and their involvement in fishing activities?

Table 3: Chi-square analysis of respondent’s socio-economic characteristics and level of involvement in fishing

Variable	N	χ^2 -Value	Df	p-value
Sex	151	3.45	1	0.063
Marital status	151	31.32	3	0.000*
Education	151	3.51	3	0.319
Religion	151	13.557	2	0.001*
Source of labour	151	0.010	1	0.920
Access to credit facilities	151	1.273	1	0.259
Source of credit	151	16.189	1	0.000*

Level of Significant=0.05. χ^2 =chi-square coefficient, p= probability

*significant@ p≤0.05

Results on Table 4.12a and b reveals that some of the socio-economic characteristics were significant to involvement in fishing activities such as marital status: ($\chi^2=31.32$; $p \leq 0.05$), religion: ($\chi^2= 13.557$; $p \leq 0.05$) and source of credit ($\chi^2= 16.189$; $p \leq 0.05$). Age: ($r=0.584$; $p \leq 0.05$) family size: ($r= 0.471$; $p \leq 0.05$), income: ($r= 0.471$; $p \leq 0.05$), and years of experience ($r= 0.323$, $p \leq 0.05$) were also significantly related. While other socio economic characteristics were not significant: such as sex, educational level, source of labour, access to credit facilities. The implication to this study is that the religion of respondents’, marital status, age, income, and source of credit, family size and the years of experience in fishing activities determine their level of involvement in fishing.

DISCUSSION

The findings from Table 1 indicate that fish sorting, salting of fish, maintenance of fish processing equipment and smoking of fish are the fish processing activities that are engaged in by the respondents. However, adult males are more often involved in sun dry and smoking of fish, adult females are often involved in fish sorting, maintenance of processing equipment and maintenance of storage facilities. The finding corroborates that of Smith et al. (2018) which revealed that adult males often play a central role in fishing activities, serving as primary breadwinners and leaders in the fishing industry. The finding is equally in agreement with that of Davis et al. (2020) which found that adult males often pass down traditional fishing knowledge and skills to younger generations, perpetuating cultural heritage and sustaining fishing practices over time

Findings from research question 2 reveals that insufficient fish input, poor extension service, inadequate information on fishing enterprise, lack of credit facilities are the severe constraints encountered by the respondents. The finding corroborates the study of Oladeji and Oyesola (2002) who confirms the seriousness of such constraints such as: high cost of fishing materials among fisher folks, insufficient capital and high cost of inputs. The finding is also in tandem with that of Ofori-Danson et al. (2018) which identified various challenges encountered by adult males in fishing communities, including limited access to fishing resources, fluctuating fish stocks, and adverse weather conditions. Also, the finding buttressed that of Islam et al. (2020) which highlighted the precarious nature of fishing livelihoods, with adult males often facing income instability and economic vulnerability due to factors beyond their control.

Finding from research question three shows that religion of respondents, marital status, age, income, source of credit, family size and the years of experience in fishing activities significantly determine their level of involvement in fishing activities. The finding is in line with that of Smith et al. (2018) which found that socio-cultural factors such as traditional fishing practices and community norms have been found to shape individuals' involvement in fishing activities. The finding equally agrees with that of Ahmed et al. (2018) which found that individuals with higher levels of education were more likely to engage in non-fishing income-generating activities, indicating a negative relationship between education and fishing involvement.

CONCLUSION

Based on the comprehensive analysis conducted in this study, it is evident that socio-economic characteristics play a pivotal role in shaping fishing practices and livelihoods in Delta State, Nigeria. The findings highlighted the diverse roles and responsibilities of different demographic groups within the fishing community, highlighting the need for tailored interventions and support mechanisms to address specific challenges. Moreover, the significant influence of factors such as religion, marital status, age, income, access to credit, family size, and experience stressing the multifaceted nature of fishing livelihoods and emphasizes the importance of holistic approaches in promoting sustainable development and well-being within the sector.

RECOMMENDATIONS

Based on the findings of the study on the complex socio-economic dynamics influencing fishing practices and livelihoods in Delta State, Nigeria, the following recommendations are made:

1. Government bodies and financial institutions must collaborate to establish specialized credit facilities tailored to the needs of fishing communities. Accessible credit with favorable terms and flexible repayment options should be provided to mitigate the severe constraints stemming from insufficient

access to financial resources.

2. Concerted efforts involving government agencies, NGOs, and community organizations are essential to strengthen extension services and information dissemination channels. Through workshops, seminars, and outreach programmes, fisher folk can be equipped with vital knowledge and skills in fish processing techniques, market trends, and business management.
3. Gender-inclusive policies and programmes must be implemented to address the distinct challenges faced by male and female fisher folk. Initiatives promoting women's participation in decision-making, providing training opportunities and ensuring equitable access to resources can enhance the resilience and economic empowerment of women engaged in fishing activities.

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