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Role of Community Based Organizations on Poverty Status of Fish Processors in Kogi State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author SJ designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RSO and RUB managed the analyses of the study. Authors HS and AIO managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Fish is highly perishable and need to be processed immediately they are caught but the processors lack the capital and other necessities to carry out their processing activities. The study examined the role of community based organizations on poverty status of fish processors in Kogi State Nigeria. Data was collected with the aid of structured questionnaires and interview schedules from 192 randomly selected respondents in the study area and analyzed using descriptive and inferential statistics. Results revealed that fish processing is a female dominated business in the study area and average household size was 4. Analysis of poverty status indicated that almost 40.0% of fish processors were below the poverty line using ₦383 per dollar official exchange rate. Provision of improved processing equipment, training on processing and gaining higher social status are some of the benefits derived by members of CBOs. Some of the constraints faced by the respondents were inadequate capital (86.5%), unavailability of loan (68.8%) and high cost of transportation (41.7%). Based on the findings, it was recommended that CBOs should be supported and strengthened financially by government and nongovernmental organizations to empower women.

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1. INTRODUCTION

Poverty is seen as a situation of low income and/or low consumption, and people are considered poor when their measured standard of living is below a minimum acceptable level of poverty known as poverty line [1]. Efforts towards eradicating poverty and achieving Millennium Development Goals (MDGs) are being carried out by Governments, Non-Governmental Organizations (NGOs), International organizations, and private institutions around the world. The aim of the organization is to reduce by 50% the number of people who suffer from hunger between 1990 and 2015 [2]. In Nigeria, government and non-governmental organizations at national and international levels have been doing a lot towards poverty reduction. These organizations include the world Hunger Project, Strategic partnership with Africa, National Poverty Alleviation Programme (NAPEP) and National Directorate of Employment (NDE), etc [3]. Community Based Organization (CBO'S) came into being as a result of inability of government in meeting the socio-economic needs of its citizen. They are non-profit and non-governmental organizations because all members contribute economically towards the fulfilment of their responsibilities to the immediate environment and not depend on government solely before fulfilling these [4].

Yamane [5] reported that people in developing countries have until recently depended on their government to meet their basic needs. Self-help projects undertaken through voluntary effort and full engagement of individuals and corporate groups in communities are the important nucleus in grassroots development.

Community members in most rural settings come together in order to identify their needs, plans, challenges and for ways to meet these needs with maximum dependence on their initiative and resources with or without the assistance of government or non-governmental organizations. Community Based Organizations in Nigeria includes town unions, women association, peer groups, credit groups, social clubs committee of friends etc. [6] reported that community based organizations provide forum for people to relate with their environment. The cooperative societies tend to assist their members financially and materially and also serve as avenue for people to discuss their socio-economic problems so as to decide ways of bringing desirable changes.

Fish is one of the richest source of protein yet highly perishable. In Nigeria, fish processors help to reduce post-harvest losses and provision of fish all year round but are restricted by lack of capital and improved fish processing technology as reported by [7]. Fish processing involves the preparation of fish for direct consumption or for preservation. It is essential to preserve fish in appreciable quantities in good condition until its use is required.

Specifically, the objectives of this study are to examine the influence of community based organizations on poverty status of fish processors; examine the benefits derived from CBOs by fish processors in the last five years.

2. REVIEW OF LITERATURE

2.1 Poverty Status of Processors

Armando [8] reported that Organic Producers and Processors Association of Zambia (OPPAZ) have contributed to poverty alleviation among smallholder farmers in Zambia by raising their income through the premium generated from the sale of organic products. [9] in their study titled impact of extension services on poverty status of palm oil processors in Southwest Nigeria reported that out of 180 respondents sampled, 54.2% were non poor and only small amount (10%) of the palm oil processors visited by extension agents were poor. [10] in their work titled household poverty and its effect on child labour use among palm oil processors in Abia State reported that within the group of households whose children engage in child labour activities, less than 28% are living below poverty threshold compared to about 18% and 22% whose children do not engage in child labour activities.

2.2 Socio – economic Characteristics of Fish Processors

Aqeela [11] also reported that two third of the one billion illiterate persons in the world are women and girls. The average quantity of fish processed daily by the respondents was 3kg implying that the processors operated at a small scale level due to the use of tradition methods of fish processing. Some of the respondents were also engaged in farming activities and petty trading. About half of the respondents earned between ₦600 – ₦900 daily with an average daily earning of ₦1, 000. [7] also revealed that

the mean age of fish processors was 39 years. More so, about 42% of the processors were married. The respondents had up to six [11] children on the average. A low level of education was observed among the respondents as more than half (60%) had no formal education while only few (22%) were educated up to primary school level.

2.3 Benefits of Community Based Organizations

Adeyemo [12] in their study on assessment of impact of women's organizations on sustainable rural environment and livelihood in Nigeria found out that the organizations serves as sources of informal credit to the women in other to support their businesses. [7] reported that the different projects embarked upon by the community based organizations in Yewa South Local Government Area, Nigeria have no significant effect on poverty reduction in the area. The few projects executed particularly provisions of infrastructures are not directly initiated as poverty reduction projects but they were mainly aimed at addressing the problems of neglect by government for development purposes. [6] in a study of impact of a non-governmental agricultural extension training programme, reported a significant impact on the farmer's livelihood in terms of ownership of commercial vehicles, motor-cycles, bicycles, clothing, food crops and food consumption as a result of them been members of the programme.

3. MATERIALS AND METHODS

The research was carried out in Kogi State, Nigeria. Farming is the predominant occupation of the people in this area. The study employed a multi-stage sampling technique. In the first stage, one [6] Local Government Area (LGA) was purposively selected from each of the four agricultural zones (A, B, C and D) due to their high level of involvement in fish processing activities. In the second stage, four communities were randomly selected from each of the selected LGAs, giving a total of 16 communities. In the third stage, sampling of 192 fish processors was determined proportionately using [5].

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

Where:

n = sample size
N = finite population
e = limit of tolerable error (level of significance = (0.05)
1 = constant

Thus a total of 192 fish processors were interviewed.

Table 1 shows the number of fish processors from the selected agricultural zones that were used for the study. Applying the formula above, Aiyetoro, Ayengba, Koton-Karfe and Alloma has 67, 52, 42 and 31 fish processors respectively. Some existing CBOs in the study area include Atoku-Ojoo Multipurpose Co-operative Society, Oruwagi Multipurpose Cooperative Society, Enemona Fish Processors Cooperative Society, Ogonegbecha Women Fish Processors Association, Adagbatokuli Multipurpose Cooperative Society and Okpareke Women Fish Processors Association.

3.1 Construction of Poverty Line

The first stage towards measurement of poverty is to agree on a relevant measure for the standard of living. Poverty line is the minimum or cut off standard of expenditure on food or per capita income below which an individual or household is described as poor [13]. [14] reported that there is no official poverty line in Nigeria. [15] defined poverty line using three measures: first on the basis of a dollar per day (i.e ₦58,400) per annum regarded as the international poverty line (IPL); Second on the basis of national minimum wage (i.e ₦216,000) per annum regarded as national poverty line (NPL) and then on the basis of average income of the families involved in the study (i.e₦584,247.56) per annum regarded as community poverty line (CPL). Hence this study used the CPL as the poverty line.

3.2 Foster, Greer and Thorbecke (FGT) Model

The [16] was used to determine the poverty status of the various fish processors. The index allows us to measure the proportion of the poor in the population (the headcount ratio). Furthermore, it provides a measure of the depth of poverty (poverty gap), which provides information regarding how far households are from the poverty line, as well as a measure of the severity of poverty (squared poverty gap), which takes into account not only the distance separating the poor from the poverty line, and also the inequality among the poor.

$$p_{\alpha} = \frac{1}{N} \sum_{i=1}^{q} \left[\frac{z - yi}{z} \right]^{\alpha} \quad (2)$$

The headcount index (P_0) measures the proportion of the population that is poor. It is popular because it is easy to understand and measure. But it does not indicate how poor the poor are. The poverty gap index (P_1) measures the extent to which individuals fall below the poverty line (the poverty gaps) as a proportion of the poverty line. The sum (P_2) of these poverty gaps gives the minimum cost of eliminating poverty, if transfers were perfectly targeted. The measure does not reflect changes in inequality among the poor. [17].

$$p_0 = \frac{1}{N} \sum_{i=1}^{q} \left[\frac{z - yi}{z} \right]^{0} \quad (3)$$

0 = head count index

$$p_1 = \frac{1}{N} \sum_{i=1}^{q} \left[\frac{z - yi}{z} \right]^{1} \quad (4)$$

1= poverty gap

$$p_2 = \frac{1}{N} \sum_{i=1}^{q} \left[\frac{z - yi}{z} \right]^{2} \quad (5)$$

2 = severity of poverty

P_{α} = Foster, Greer and Thorbecke index ($0 \leq P_{\alpha} \leq 1$)
N = total number of sampled household in the study area
Z = poverty per capita expenditure of i^{th}household
α = FGT parameter (μ≥0) poverty avertion parameter
i = individual or household
y_i = income for the i^{th} household

4. RESULTS AND DISCUSSION

4.1 Socio-economic Characteristics of Sampled Fish Processors in the Study Area

Information on age limit, types of education, gender, marital status, household size and years of trading experience in fish processing activities is shown on Table 1.

The result in Table 1 reveals that the mean age of the all fish processors was 40 years implying that fish processors are in their most active and productive age. This implies likelihood of active participation in their various organizations. This result is in line with the findings of [18] who reported that majority of the fish processors in Obatoko were within the age of 30-40 years.

The Table 1 shows that all the sampled fish processors in the study area were female. The higher proportion of female in fish processing activities in the study area indicated that the business is gender biased and sensitive. The female dominance of this means of livelihood might be due to the various activities involved in the processing activities while their male counterparts are mostly engaged in fishing activities. The result is also in line with the findings of [18] who reported that all the fish processors in Obatoko were female.

Majority (81.3%) of the fish processors were found married, 13.5% were widow, 3.6% were single, and 1.6% were separated. The highest percentage of the married fish processors could be as a result of the active age range of between 41-50 years of the majority of the respondents. The result is in consonance with the findings [19] who revealed that majority of fish processors in Asejire were married.

Result in Table 1 also shows that all the fish processors had one form of education or the other (i.e informal and formal). Majority (58.9%) of the fish processors had Quranic education, 20.8% had primary education while 20.3% had secondary education. This implies that majority of the fish processor have no female education. This finding agrees with that of [7] who reported low level of education among the fish processors. The finding is also supported by [11] who reported that two third of the one billion illiterate persons in the world are women and girls.

The mean household size of the fish processors was 4 members. The result suggests that the fish processors have small family sizes. This result is in line with [18] who reported that 80% of fish processors in Obatoko had household size of between 4-6 persons.

More also, the result showed that the mean year of experience for the fish processors is 17.46 The result implies that fish processors in the study area are well experienced, thus they have adequate knowledge of fish processing activities to alleviate their poverty conditions. This result is

in agreement with that of [19] who reported that fish processors have experience of between 6-15 years.

The result in Table 1 also reveals that majority (64.1%) of the fish processors had their capital through personal saving. About 27.1% said they got their capital through friends while 8.9% got theirs through CBOs. This may be as a result of the fact that most of them started their fish processing business before the coming of the various CBOs. The result is supported by [20] who reported that personal saving and cooperatives were the predominate sources of funding for food crop and livestock farmers. [21] also reported that fish processors had no access to bank credit. The inability of fish processors to lend money from the bank may be attributed to the problem of collateral security and other bottlenecks. The mean amount of credit received by fish processors was ₦30, 177.08. This implies that the respondents received low credit from organizations and inadequate amount of loan granted to the respondents can lead to loan divert or limit their ability to finance their business plans thereby affecting their output and productivity negatively. This result is in accordance with the findings of [22] who reported that farmers who receive less than ₦40, 000 as credit tends to divert the fund for other purposes while [23] reported that women receive less than a tenth of the credit received by men.

4.2 Poverty Status of Fish Processors

Poverty status of the fish processors in the study area is shown in Table 2. The respondents were divided into poor and non-poor. Majority (60.93%) of the fish processors are non poor while 39.10% of them were poor. The poverty head count or incidence (P_0), poverty gap or depth (P_1) and squared poverty gap or severities (P2) were also calculated. The mean income of the entire fish processors was ₦ 460920 per annum. The poverty line for this study is ₦ 230,460 which is half the mean income or 50% of the mean income and was used to divide the fish processors into poor and non poor categories. In comparison to the international poverty line of $2.50 per day (₦957.5) at ₦383 and ₦11,490.00 per annum, the result indicates that the poverty line of the respondents (₦230, 460) is below that of the international figure as at 2016. The P_0 of the respondents was 0.390 which implies that 39.0% of the respondents were poor and 61% were non poor. The poverty gap or depth (P_1) which is the distance between a fish processor and the poverty line was 0.23 and this implies that 23% of the poverty line (₦53,005.8) is require to bring an average poor person to the poverty line. The squared poverty gap or severity (P_2) which measures the distance of one poor person and another was 0.07. This implies that 7% of fish processors were severely poor. The result is in line with [15] who used the CPL to identify poverty incidence in Niger and Kogi, the measure indicated that poverty incidence, poverty gap and poverty severity were 2.78%, 30.19% and 66.30% respectively.

4.3 Benefits Derived from Community Based Organizations (CBOs)

Results in Table 3 shows distribution fish processors according to the benefits they derived from various CBOs. 64.1% reported that they had high access to improved processing equipment which goes a long way in improving the quality and hygiene of processed fish. Furthermore, fish processors reported that they had one form of training or the other on fish processing from their various CBOs as 60.4% of them reported that training in fish processing was high. This implies that the fish processors will be able to handle and use the various fish processing equipment brought to them by their organizations.

Table 3 also revealed that 69.8% of fish processor had high access to credit facilities from their organizations. The implication is that there is room for business expansion for fish processors while about 42.2% of the fish processors said they had high number of extension visit implying that fish processors were exposed to extension activities and there is tendency for them to acquire knowledge and access to improved technologies. Furthermore, 41.1% of fish processors indicated that they got high market information. This implies that fish processors are aware of where and when to do business as information is regarded as power. Majority (53.1%) of fish processors indicated they got higher social status due to their involvement in CBOs implying that they now have high sense of belonging in their localities. These results are in consonance with the findings of [12] who reported that various benefits offered to members of an association include credit facilities, access to improve production input, and access to information that could increase member's productive capacities and help reduces their poverty level.

4.4 Distribution of Respondents According Constraints Faced by Fish Processor

Table 4 reveals the distribution of fish processors according to constraints faced. The constraints encountered by fish processors among others were inadequate capital (86.5%), high cost of transportation (41.7%), time spent in processing (34.9%) and adequate attention needed during fish processing (30.2%).

Table 1. Socio-economic characteristics of fish processors in the study area

Variables	Frequency	Percentage	Mean
Age			
11-20	3	1.60	39.83
21-30	34	17.70	
31-40	59	30.70	
41-50	75	39.10	
>50	21	10.90	
Sex			
Female	192	100	
Total	192	100	
Marital status			
Single	7	3.60	
Married	156	81.30	
Widow/Widower	26	13.50	
Separated	3	1.30	
Total	192	100	
Level of education			
Quranic	113	58.90	
Primary	40	20.80	
Secondary	39	20.30	
Total	192	100	
Household size			
0-5	148	77.10	3.84
6-10	44	22.90	
Years of experience			
1-5	10	5.20	17.46
6-10	40	20.80	
11-15	47	24.50	
16-20	37	19.30	
>20	58	30.20	
Total	192	100	
Sources of capital			
Friends	52	27.10	
Personal saving	123	64.10	
CBOs	17	8.90	
Total	192	100	
Amount of credit received			
0-25000	80	41.70	30177.08
26000-50000	112	58.30	
Total	192	100	

Source: Field survey, 2016

Table 2. Poverty status of respondents

Poverty status		Frequency	Percentage
Non-poor		117	60.9
Poor		75	39.1
Total		**192**	**100**
FGT indices	**Head count**	**Poverty depth**	**Poverty severity**
Value	0.39	0.23	0.07

Source: Field survey, 2016

Table 3. Distribution of fish processors according to the benefits derived from CBOs

Benefits*	High Freq (%)	Moderate Freq (%)	Low Freq (%)
Improved processing equipment	123(64.10)	61(31.80)	8(4.20)
Improved storage facilities	20(10.50)	57(29.70)	115(59.90)
Training on processing	116(60.40)	54(28.10)	22(11.50)
Training on storage methods	8(4.20)	45(23.40)	139(72.40)
Access to credit	134(69.80)	38(19.80)	20(10.40)
Extension services	81(42.20)	72(37.50)	39(20.30)
Market information	79(41.10)	59(30.70)	54(28.10)
Gaining higher social status	102(53.10)	69(39.10)	21(10.90)

*Source: Field survey, 2016; *Multiple responses recorded*

Table 4. Distribution of fish processors according constraints faced by fish processors

Constraints	Frequency*	Percentage	Ranking
Inadequate capital	166	86.5	1st
Unavailability of loan	132	68.8	2nd
Smoke pollution	71	37.0	4th
High cost of fish	10	5.2	8th
High cost of transportation	80	41.7	3rd
High perish ability nature of fish	49	25.5	7th
Time spent in processing fish	67	34.9	5th
Strict attention needed during processing	58	30.2	6th

*Source: Field survey, 2016; *Multiple responses recorded*

In ranking order, inadequate capital ranked 1st which suggest that majority (86.5%) of the fish processor in the study area lack adequate capital to carry out or expand their business. Furthermore, unavailability of loan ranked 2nd and this might be attributed to the unwillingness of financial institution to grant loan to fish processors due to lack of collateral. The result is in line with the findings of [7] who reported that lack of collateral to obtain bank loan is one of the problems of fish processor in the study area. More so, high cost of transportation ranked 3rd this is probably due to the fact that most of the fish processors in the study area reside in the rural areas and will have to transport themselves to major road sides or town ship market in order to sell their products. Smoke pollution ranked 4th in the ranking of order of problems faced by the fish processors problem. Smoke pollution according to fish often cause redness/swollen of the eyes. Time spent in processing fish ranked 5th this might be attributed to the fact that most fish processors still use the traditional method in processing their fish. The identified constraints are in line with the findings of [24] who reported that processors in South-Western Nigeria identified unavailability of capital, transportation problem, and smoke pollution as some of the constraints confronting them. Other constraints identified were adequate attention needed in fish processing (30.2%), high perishability nature of fish (25.5%), and high cost of fish (5.2%).

5. CONCLUSION

The study showed that fish processing is a female dominated business with an average processing experience of about 18yeras, low level of literacy was also discovered among them. Analysis of poverty status revealed that almost 40.0% of fish processors were poor while benefits derived from CBOs include provision of training, shops, improved storage facilities, modern processing technologies, extension services and market information. Inadequate capital, unavailability of loan, high cost of transportation and smoke pollution where some of the constraints found among the women.

6. RECOMMENDATIONS

1. Since it is women dominated business, CBOs should be supported and strengthened by government and money lending institutions by proving them with loans which will help in empowering them.
2. Improved processing equipments should be provided by the organization so as to help boost their members business which will help reduce poverty and reduce the problem of smoke pollution.

3. Government and other NGOs should help to open up new roads and rehabilitate the existing once to reduce the cost of transportation.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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