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Fishermen of Karimnagar District, Telangana: A socio-economic profile

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Abstract

Research on socioeconomic conditions must be done before any initiative, training, demonstration, or government development program can be appropriately created and carried out. Assessing the economic characteristics of fish farmers in the Karimnagar region, such as their employment, educational attainment, income from farming, and other non-farm pursuits like aquaculture, as well as the condition of fish farming and their means of subsistence, was the aim of this study. Fish farmers are the main participants in the fishing business. Thus, in order to address issues regarding the expansion of the fishing industry, it is imperative to comprehend the circumstances facing fish farmers in the district. This essay is an effort in that direction. Using simple random selection, fifty fish farmers are selected at random from the Karimnagar district. The current study indicates that fish farmers in the area are economically disadvantaged since their average annual income is significantly lower than the district's average yearly income of Rs. 37,000. Although 75% of farmers are literate, most of them have only completed middle school, indicating a relatively low level of overall educational attainment. After examining all available data, the research concludes that the district's fish farmer stakeholders are dissatisfied with the current situation and that sufficient government action is required to bring about a change.

Keywords: Small-scale fish farmer, aquaculture, education, income, livelihood security

Introduction

The fishing industry plays a major role in the Indian economy. It contributes to the growth of the economy, the creation of jobs, increased exports, and food and nutrition security. In India, the fishing sector known as the "Sunrise Sector "provides a living for more than 30 million people, particularly those from marginalised and disadvantaged areas (DAHDF, 2004). A June 2024 study titled The State of World Fisheries and Aquaculture (SOFIA) by the Food and Agriculture Organisation (FAO) revealed that India is the world's leading producer of fish and has become the primary producer of aquatic animals through aquaculture.

The paper states that in 2023-2024, India produced a record-breaking 174.45 lakh metric tonnes of fish, or around 8% of the world's total. India is also the world leader in the production of inland fisheries, producing 1.9 million metric tonnes yearly. India is third globally in terms of fish output, contributing over 8% of global production. The country's agriculture industry generates over 6724 percent of its Gross Value Added (GVA), or 1.09% of GDP. Policies and financing should be distributed with a focus on fostering sustainable, ethical, inclusive, and fair growth because the industry has immense development potential. (DAHDF, 2024).

In terms of aquaculture, India produced 13.13 million metric tonnes of inland fish in 2022–2023. Andhra Pradesh was the leading producer in 2023 with 4.5 million metric tonnes, followed by West Bengal with 2 million metric tonnes. (Department of Fisheries, Andhra Pradesh Statistics, 2024). However, the newly formed state of Telangana is not lagging behind. Telangana is the third-most resourceful state in India for fishing, although it produces the sixth-most fish. In 2022–2023, the Fisheries and Aquaculture Sector's Gross Value Added (GVA) of Rs. 2, 17, 983 crores benefited the state of Telangana.

From 2014 to 2015, this amounts to a 14.1% compound annual growth rate (CAGR). This is greater than the 10.1% CAGR for the entire country of India during the same period. With 175.45 lakh metric tonnes of fish produced in 2022–2023, Telangana set a record. The fishing and aquaculture sectors employ 45.8% of Telangana's working population, making them important to the state's economy. Raising the standard of living for Telangana's citizens depends on its economic development (Socio-Economic Outlook, Planning Department, Government of Telangana, 2023). The government is introducing several fisheries development strategies to increase industry output, reduce post-harvest losses, promote livelihoods, and guarantee the

well-being of fishermen engaged in capture and culture (Ganesh *et al*., 2024) [7].

The fishing population of Telangana is diverse and includes people from traditional communities like the Bestas, Gangaputras, and Mudiraj. These important organisations insist that within bodies of water held by the government and panchayats, fishing is their exclusive privilege, even in the face of periodic encroachments by others. Among the castes and sub-castes that actively engage in fishing are Agnikulakshatriya, Palli, Vadabalija, Bestha, Jalari, Gangavar, Gangaputra, Goondla, and Vanyakulakshatriya (Vannekapu, Vannereddi, Pallikapu, Pallireddi, Neyyala, Pattapu, etc.). More than 7% of the state's population, or 27.14 lakh people, work as fishermen (Govt. of Telangana Fisheries Department, 2024).

An estimated four lakh individuals (more than 25%) are engaged in various fisheries-related activities both directly and indirectly throughout the state, according to the Telangana government's Base Line Survey. For both traditional fishermen and ethnic and communal groups like the Gangaputras, Bestas, and Mudiraj, fishing remains a significant source of revenue.

According to the Directorate of Economics and Statistics, Government of Telangana, 2016, the scheduled caste (SC) population of Karimnagar District is 212327, the scheduled tribal (ST) population is 14892, and the backward caste population is 611567.Karimnagar, the fourth-largest city in Telangana state, is home to 10,05,711 people as per the 2011 Indian census (Gkmc. Retrieved May 13, 2020). It is a major urban agglomeration that occupies 2,128 square kilometres.

A total of 189 fisheries cooperative societies (FCS) with 15014 members are listed by the Karimnagar District Fisheries Department, Government of Telangana (2023). Of these, 181 are fishermen cooperative societies, 7 are fisherwomen co-operative societies (FWCS) with 347 members, and 461 are fishermen marketing cooperative societies (FMCS).

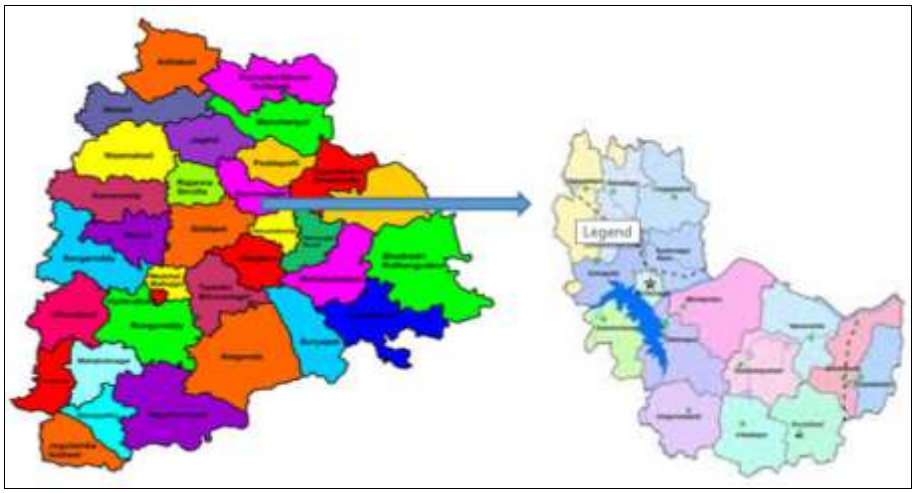

Fig 1: Telangana State Map

Table 1: Fisheries information of Karimnagar district, Telangana

Details	Telangana State	Karimnagar
Fish and prawn production (In tonnes)	452486	11471
Fish rearing tanks/ Reservoirs (Nos.)	29378	1023
Water spread area (In ha)	587054.2	21423.8
Fishermen cooperative societies	4634	189
Members	415413	15822

Source: Department of Fisheries 2023-24

Materials and Methods

Telangana state was specifically chosen for the investigation. In the southern part of India, Telangana is the 29th state to be created. According to the Department of Fisheries, Telangana (2024), the state of Telangana is third for having inland water sparing area, with 5.87 lakhs ha of tanks and ponds. It is placed eighth for fisheries productivity, with an estimated 2.2 lakhs tonnes of production. With 74 reservoirs with a water spread area of 1.77 lakh ha, 23,874 tanks with a water spread area of 5.92 lakh ha, 474 ponds with a water spread area of 781 ha, and 4818 km of rivers and canals, the state fisheries have a fishery potential (Dhenuvakonda *et al*., 2019) [4]. There are 3,930 cooperative societies for fishermen with 2, 39, 365 members, and there are 27, 14, 255 fishermen in the population. The wellbeing of fishermen as well as the security of food, nutrition, and health for rural populations are all greatly aided by the fishing industry. The State Department of Fisheries envisions the best possible use of natural resources for fish production, encouraging freshwater aquaculture and providing infrastructure and skilled labour to support it (DoF, telangana 2024).

Sampling procedure

Fifty fish farmers in all, who were active members of the Fisheries Cooperative Society, were selected at random from different villages in the Karimnagar area.

Statistical analysis

Percentage calculated by using mean statistical tool like MS- Excel was used.

Sources of data

When compiling information, primary and secondary sources are both taken into account. Primary data were collected directly from fish producers, while secondary data were acquired from department of fisheries offices.

Socioeconomic research variables

The socio-domain, or fish farmers' profile, contained a wide range of elements, such as situational, psychological, communicative, socioeconomic, and personal characteristics. A comprehensive interview schedule with all of the questions was developed in order to fulfil the study's objectives.

Results and Discussion

The socioeconomic standing of fishermen has a big impact on productive operations in the fishing industry. Socioeconomic components were included as well, such as a profile of fish farmers with demographic, situational, psychological, and communication characteristics. Socioeconomic indicators, according to research by Sarma and Irshad Ali (2005) [19], can be used to identify obstacles to realising the full potential of conventional fisheries, as well as to clarify the conditions faced by fish farmers and decide which areas should be the focus of state intervention (Ganesh *et al*., 2024) [7].

Demographic profile of the fish farmer

Age

Understanding the age distribution of fish farmers is crucial when estimating potentially productive human resources (Hossain *et al*., 2009) [12]. According to Table 2 and Figure 2, 44% of fish farmers in Karimnagar were between the ages of 31 and 45. These farmers were followed by older farmers (>45) at 39% and younger farmers (<30) at 15%. According to a survey by (Mohan *et al*., 2020) [16], farmers between the ages of 35 and 44 were found to be the most productive (46%). However, Syandri and Elfiondri (2015) [23] claim that young farmers are resourceful, prolific, and brave enough to undertake more significant expenditures.

Table 2: Age distribution of the fish farmers.

Age Groups	Percentage total (n=50)
Young (below 30 yrs.)	15%
Middle (31-45 yrs.)	46%
Old (46 yrs. & above)	39%

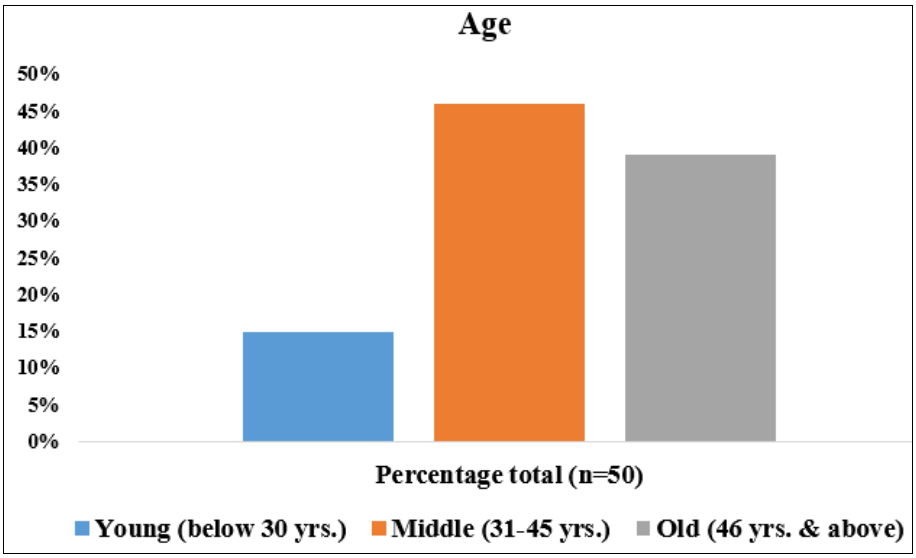

Fig 2: Age distribution of the fish farmers.

Education

Since education is a crucial socioeconomic component and fish culture can be a scientific activity, fish culturists need to become aware about a variety of fish culture techniques. If the farmers have received any previous institutional teaching, they will be able to understand the method with ease. The literacy rates of pond fish farmers can have a big impact on how well fish are produced as well as how well their companies are managed and operated. Farm productivity is positively correlated with education, while farming efficiency is strongly correlated with education. Farmers with education are more likely to embrace new technology than those without it (Meena *et al*., 2002) [15].

Based on the academic background of the respondents, it was observed that 11% had completed undergraduate study, 26% had completed middle school, 18% had completed high school, 10% had completed intermediate school, and 12% had completed primary school (Table 3 and Fig. 3). No postgraduates were found in the study area. Farmers represented a minimum level of education because they were educated up to the middle school level due to the quantity of fish. Even literate farmers are interested in fish farming, as evidenced by the small percentage of highly educated farmers.

Table 3: Educational Status of fish farmers

Educational Levels	Percentage total (n=50)
Illiterate	31%
Can read and write	2%
Primary school	12%
Middle school	26%
High school	18%
Intermediate	10%
Graduation	11%

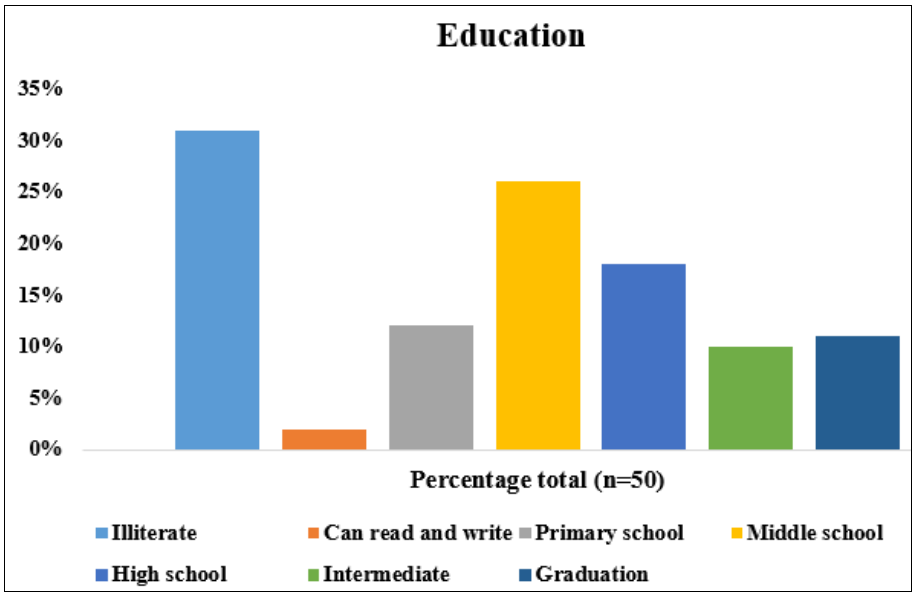

Fig 3: Educational Status of fish farmers.

Fish farming experience

It is well knowledge that fish farmers' experiences in aquaculture have a good effect on fish productivity. Figure 4 as well as Table 4. 47.27% of the respondents have 3-6 years of medium-sized fish production experience. With seven years or more of expertise, 12.54% of the participants were considered to have advanced experience. Less than two years of experience in fish cultivation was had by the remaining 40.19% of participants. This implies that there has been a recent setback for the aquaculture sector.

Table 4: Fish Farming Experience of fish farmers

Fish Farming Experience	Percentage total (n=50)
Low (2 yrs.)	40.19%
Medium (3-6 yrs.)	47.27%
High (7 yrs. & above)	12.54%

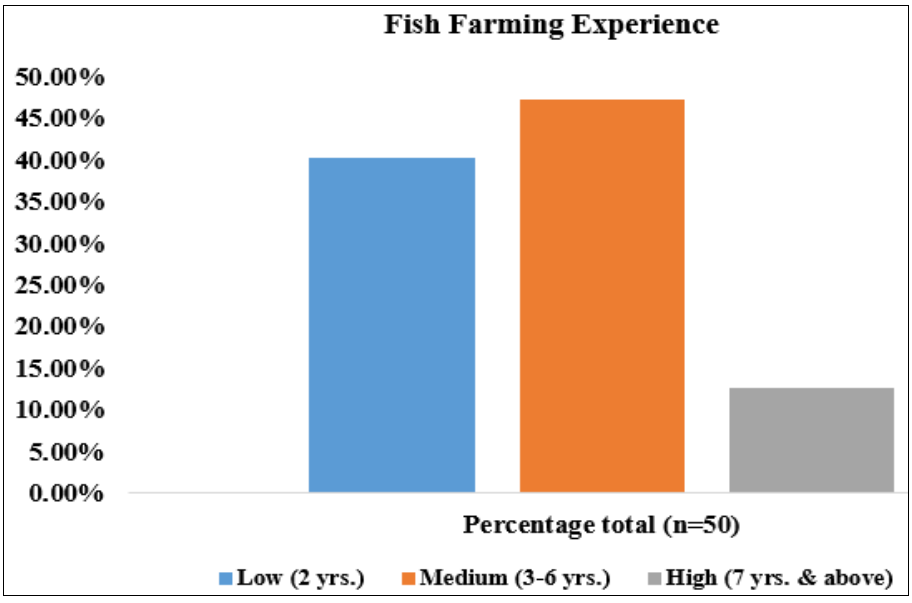

Fig 4: Fish Farming Experience of fish farmers.

Family Size

Family size is a significant socioeconomic indicator since it represents food consumption, household income, and socioeconomic well-being (Hossain *et al*., 2009) [12]. On the other hand, family size reflects the availability of relatives. The fishing sector depends heavily on workers. Fishermen in this study can be divided into three family size categories: small families (Less than four), medium families (Four to six members), and large families (Six or more members). The medium family comprises a large family (25%) and a small family (5%), with the majority of farmers (70%) belonging to this family (Table 5, Fig. 5).

Table 5: Family Size of the fish farmers.

Family Size	Percentage total (n=50)
<4 members	70%
4-6 members	25%
>6 members	5%

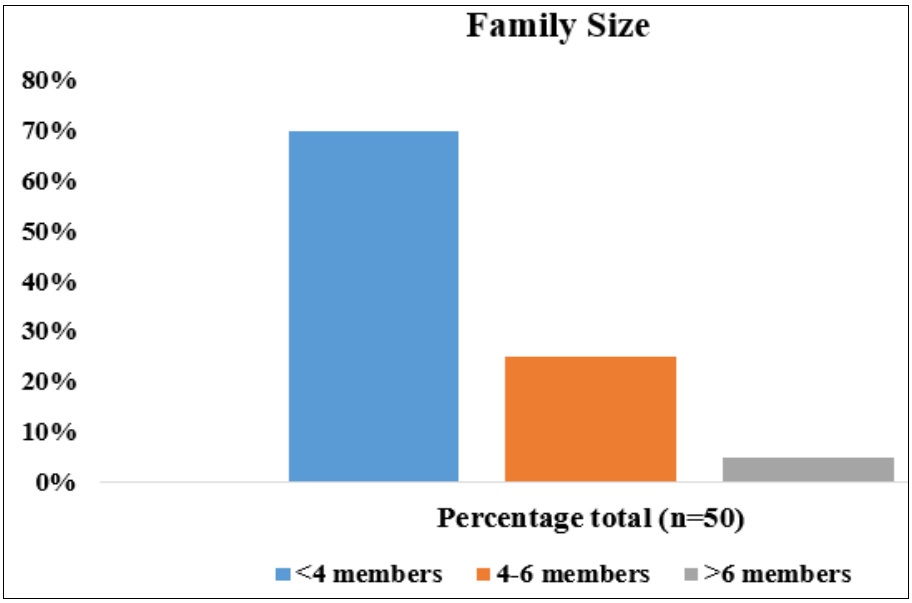

Fig 5: Family Size of the fish farmers.

Caste

Singh (2003) asserts that in many rural economic pursuits, an individual's vocation and level of aptitude are significantly influenced by their caste. According to Table 6 and Fig. 6, the bulk of farmers in the study (40%) are from BC-D, followed by the general group (30%), other BC-A (15%), BC-B (13%), and scheduled caste farmers (2%) at the bottom.

Table 6: Cast of the fish farmers

Castes	Percentage total (n=50)
Generals	30%
BC-A	15%
BC-B	14%
BC-D	40%
SC	2%

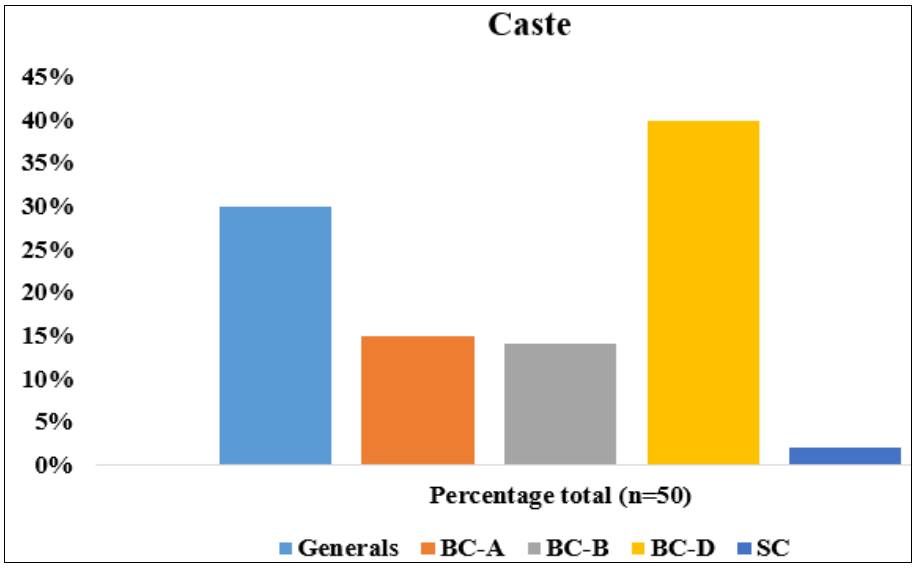

Fig 6: Cast of the fish farmers.

Family Status: For the purposes of this study, families were split into two groups: joint and nuclear families. According to estimates, 32% of farmers belonged to joint families and 68% of farmers were members of nuclear families (Table 7 and Fig. 7). The size of the family has an effect on the family's income and expenses as well.

Table 7: Family Status of the fish farmers

Family Type	Percentage total (n=50)
Nuclear Family	68%
Joint Family	32%

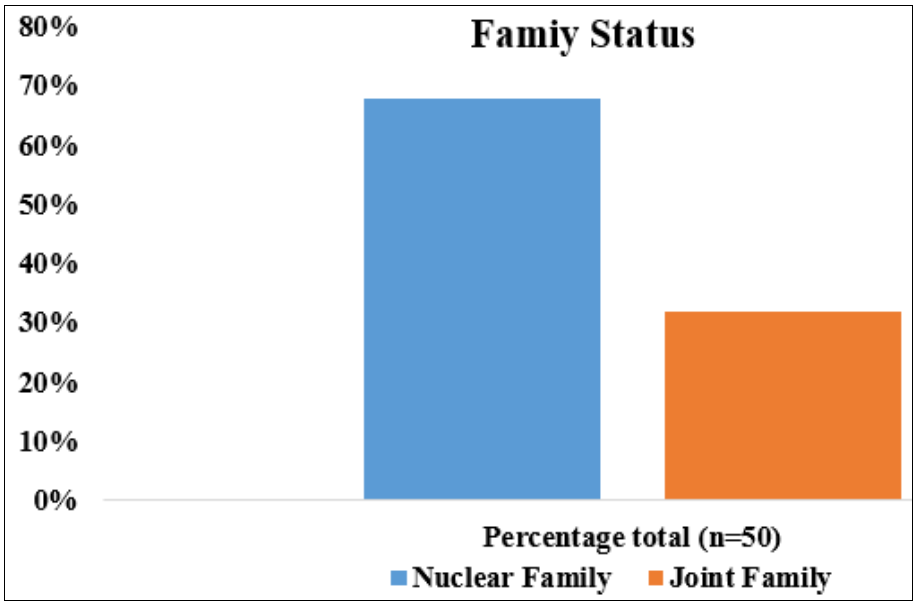

Fig 7: Family Status of the fish farmers.

Socio-Economic Variable

Social Participation

Discussions on a variety of subjects, including fish farming and marketing and sociocultural advancement, require social contact. The majority of fish farmers (52%) engage in moderate levels of social participation, as indicated by Table 8 and Fig. 8. This high level of social connection was, however, confined to a tiny part (16%) of the fish farming group. Farmers participated in clubs, schools, libraries, co-ops, and village welfare groups, among other social institutions.

Table 8: Social Participation level of the fish farmers.

Level of Social Participation	Percentage total (n=50)
High	16%
Medium	52%
Low	32%

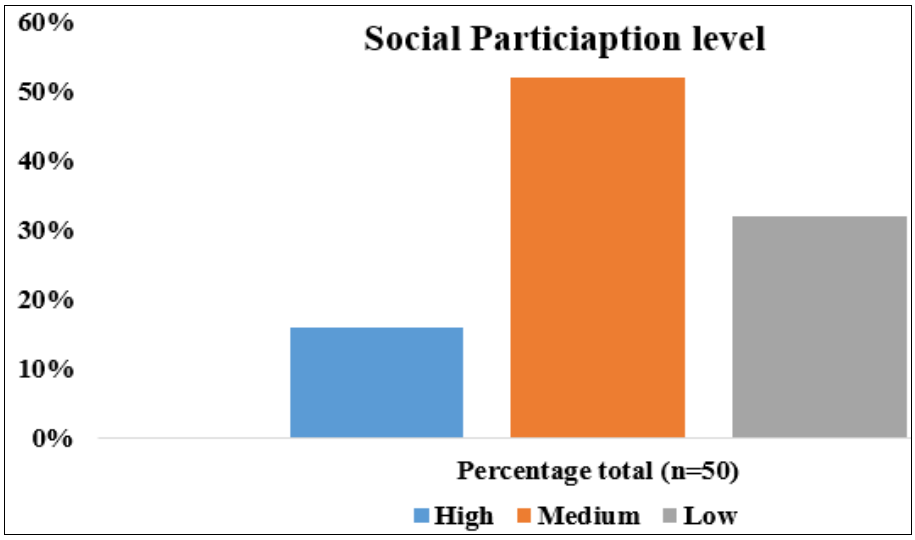

Fig 8: Social Participation level of the fish farmers.

Annual Income

Employment and income are the two primary factors that are usually taken into consideration when evaluating the quality of life in any given city or region. The chosen fish producers were split into five groups according to the amount of money they produced (Table 9 and Fig. 9). Of all the groups, the highest paid were the fish farmers who earned between Rs. 15,000 and Rs. 30,000 (or 50%). Their poor income, which was insufficient to maintain their regular way of life, can be attributed to their unfortunate status. Their resources for fish culture are limited. The fish farmers' annual revenue results are quite similar to the research conducted by Goswami *et al*. (2002) [8] and Rahman *et al*. (2012) [18].

Table 9: Annual Income level of the fish farmers

Income level (Rs)/yr.	Percentage total (n=50)
up to 15,000	37%
15,000 to 30,000	50%
30,000 to 50,000	6%
Above 50,000	2%

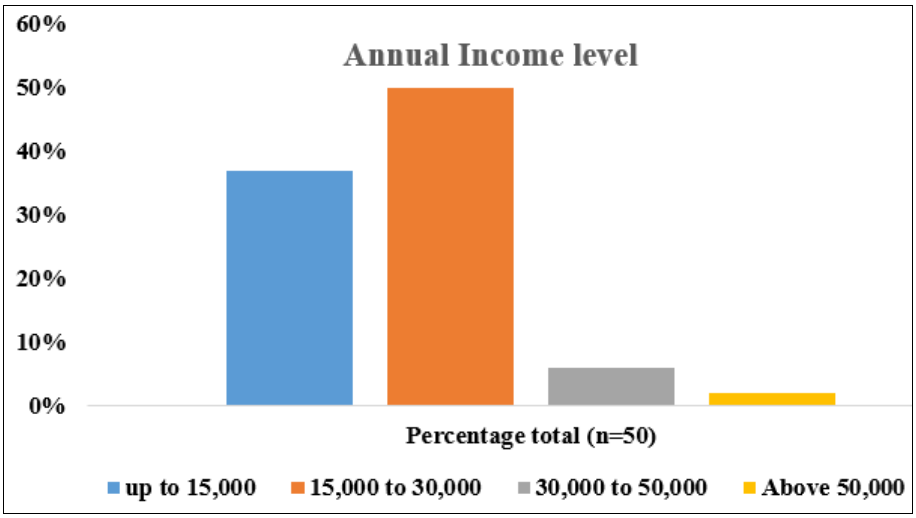

Fig 9: Annual Income level of the fish farmers.

Expenditure Pattern: Most fish growers are from low-income households who find it difficult to make ends meet. An analysis of the farmers' spending habits revealed that they spent about half of their income on food. Clothes was found to be the next most significant purchase from the farmers' perspective (Table 10 and Fig. 10).

Table 10: Expenditure Pattern (% of earnings) of fish farmer households.

Item	Percentage total (n=50)
Food	50%
Clothing	4%
Education	35%
Medical	8%
Entertainment	3%

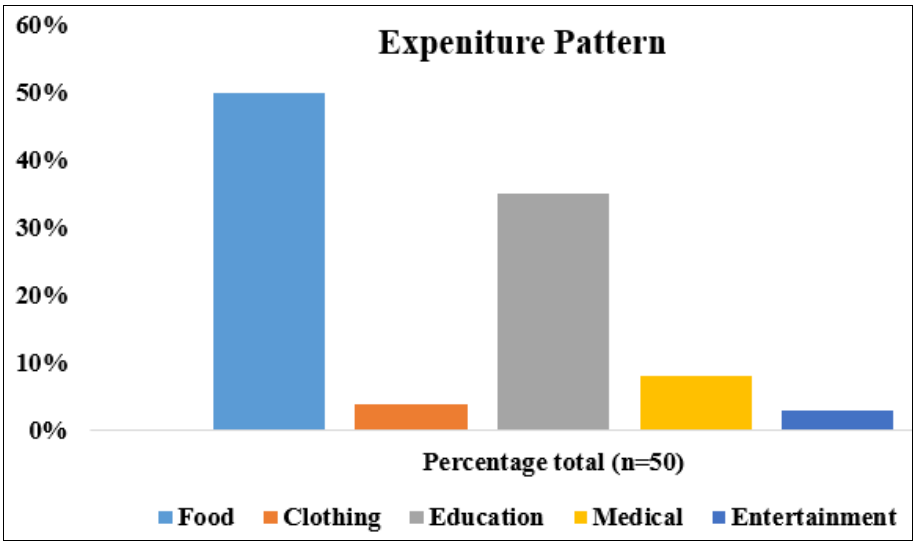

Fig 10: Expenditure Pattern (% of earnings) of fish farmer households.

Situational Variable

Area of the Pond

Since the pond provides a home for fish to reside, its size and water depth have a major impact on fish productivity. In the research region, ponds from 0.5 to 0.8 ha were held by 70% of farmers (Table 11 and Fig. 11), while ponds measuring 0.2-0.5 ha or bigger than 1 ha were owned by 25% and 5% of farmers, respectively. This is the standard size of pond that farmers in Karimnagar typically have available.

Table 11: Area of Ponds (ha)

Range (ha)	Percentage total (n=50)
0.2-0.5ha	70%
0.5 to 0.8ha	25%
>1ha	5%

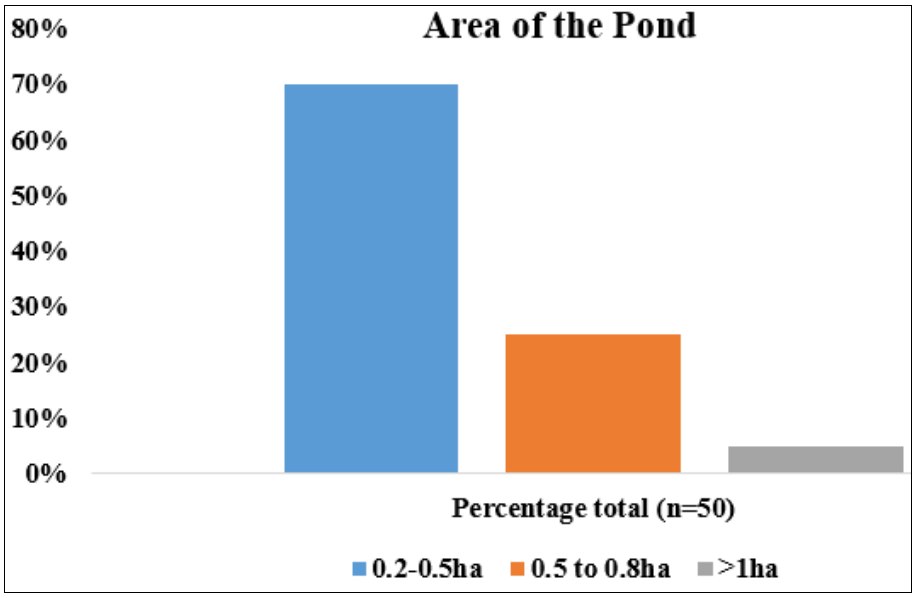

Fig 11: Area of Ponds (ha).

Pond Ownership

While only 95% of the ponds in the research region were held by a single individual, the majority (5%) of the ponds were owned by many people, as shown in Table 12 and Fig. 12. It has been discovered that pond aquaculture is significantly hampered by the ownership of numerous ponds. (Hossain and others, 2002) [11].

Table 12: Type of pond ownership.

Ownership	Percentage total (n=50)
Single	95%
Multiple	05%

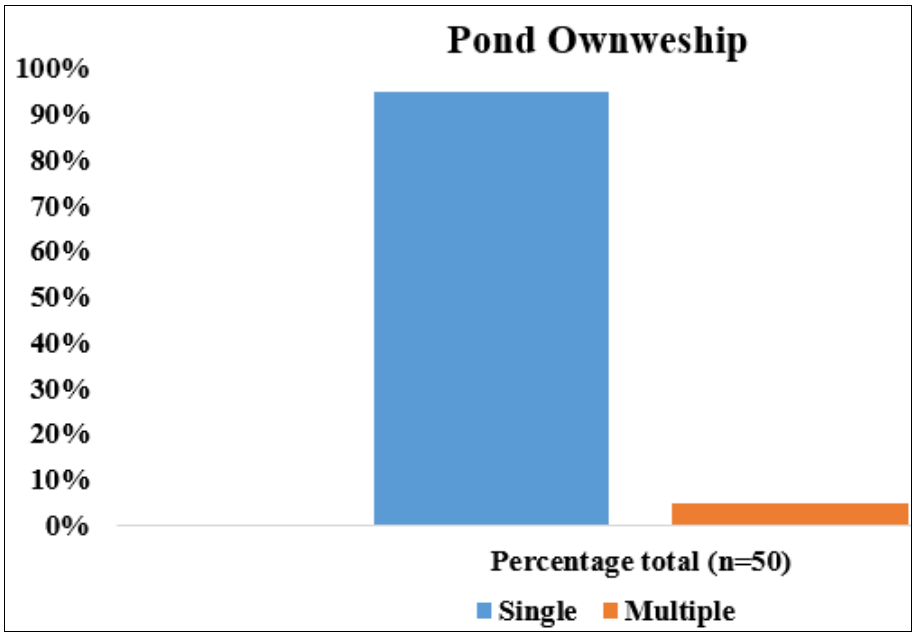

Fig 12: Type of pond ownership.

Psychological Variable

Scientific Orientation

The current study reveals that 50% of 10% had a high level of scientific orientation, 40% had a low level, and fish producers had a medium level, as indicated by Table 13 and Figure 13. Similar findings were observed in Immanuel's (2004) study, in which 71.33 percent of the subjects exhibited a medium, 21.34 percent a high, and 7.33 percent a low degree of scientific orientation.

Table 13: Scientific orientation fish farmers

Scientific Orientation	Percentage total (n=50)
Low	50%
Medium	40%
High	10%

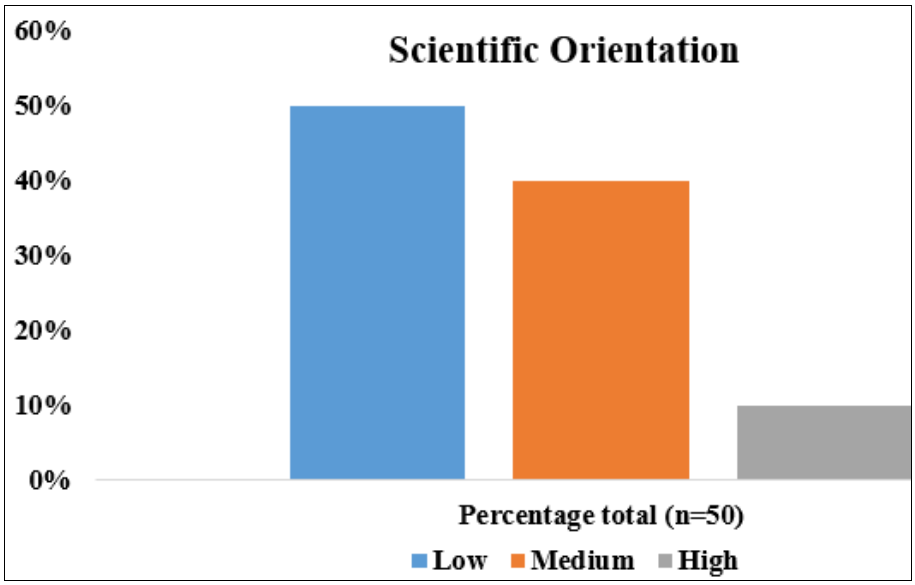

Fig 13: Scientific orientation fish farmers.

Risk Orientation

One of the essential elements influencing the decision to raise fish is risk aversion. The majority of farmers (68%), then farmers at low risk (30%) and farmers at high risk (2%), in the current study were medium risk farmers (Table 14 and Fig. 14).

Table 14: Risk Orientation Percentage.

Risk Orientation	Percentage total (n=50)
Low	30%
Medium	68%
High	2%

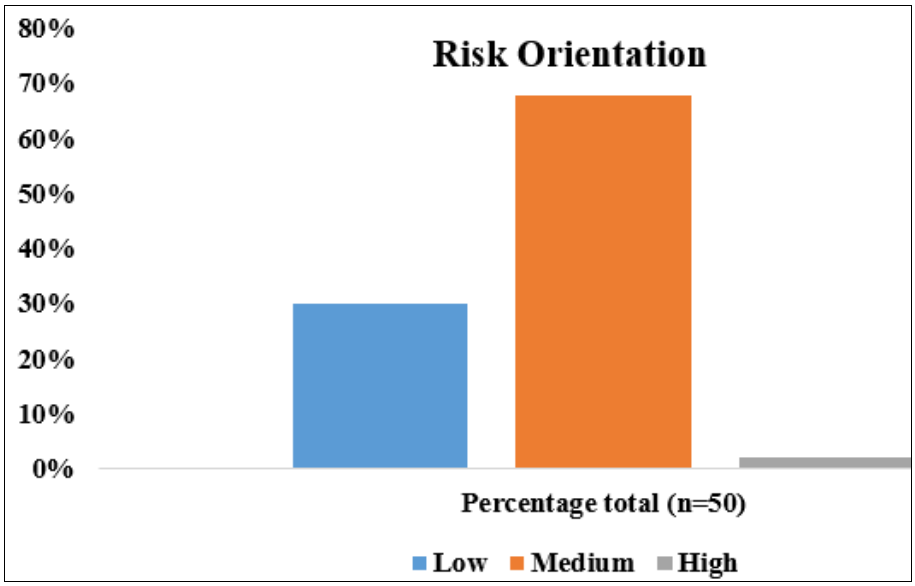

Fig 14: Risk Orientation Percentage.

Communication Variable

Mass media Participation

It was discovered that 28% of fish farmers participated in the media at a medium level, 20% at a high level, and 48% at a medium level (Table 15 and Figure 15). Nagarajaiah found similar results in 2002. There were three categories of fish farmers that were identified: medium (42.31%), low (33.85%), and high (23.84%) media participation.

Table 15: Mass media Participation of fish farmers.

Mass media Participation	Percentage total (n=50)
Low	32%
Medium	48%
High	20%

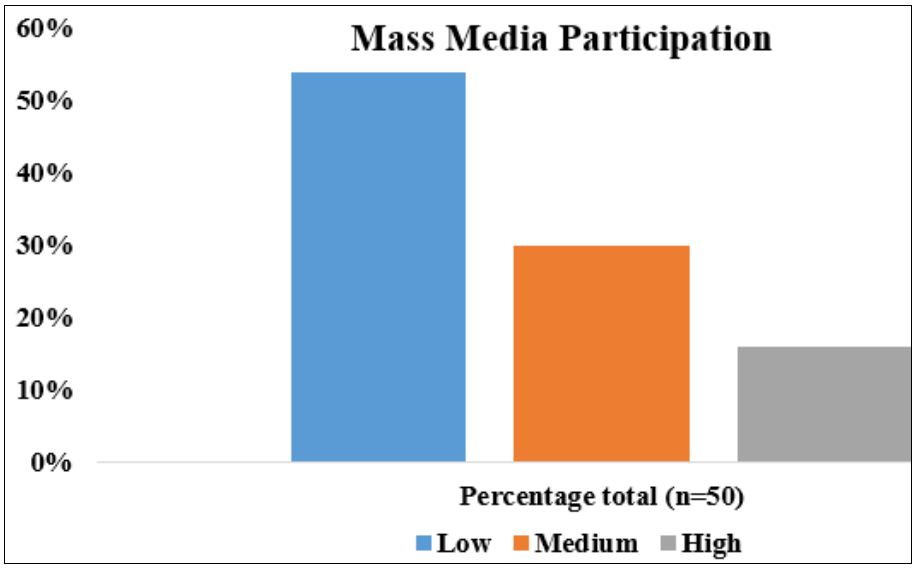

Fig 15: Mass media Participation of fish farmers.

Extension Agent Contact

The survey found that 54% of fish farmers and 30% of farmers had contact with extension agents. (Fig. 16 and Table 16) In contrast, Nagarajaiah (2002) [17] found that fish farmers engaged with low-level extension agents at a rate of 40%, followed by medium-level (30.77%) and high-level (29.33%). According to (Shankar, 2010) [20], 54% of the fishermen had medium-level extension agency interaction, compared to 16% who had high-level and 16% who had low-level contact.

Table 16: Extension Agent Contact.

Extension agent contact	Percentage of the total (n=50)
Low	54%
Medium	30%
High	16%

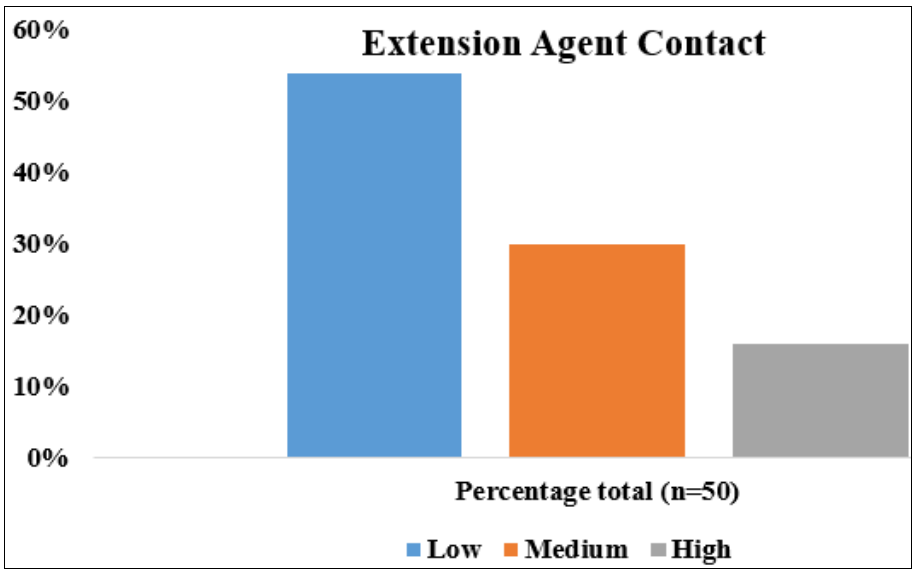

Fig 16: Extension Agent Contact.

Trainings Attended

Wetengere (2009) [24] says that training is a helpful tool for effectively disseminating fish farming technologies. According to Henley (2017) [9], training is an organised process to improve attitude, knowledge, or skill behaviour through a learning experience to reach desirable results in an activity, whereas education is an activity that aims to enhance knowledge, skills, and moral values. The results of the current study indicate that most fish farmers did not receive any instruction on fish cultivation methods. Only 7% of farmers were found to have received any official training (Table 17 and Fig. 17).

Table 17: Fish Culture Trainings of fish farmers

Training	Percentage of the total (n=50)
Trained	3%
Non- Trained	97%

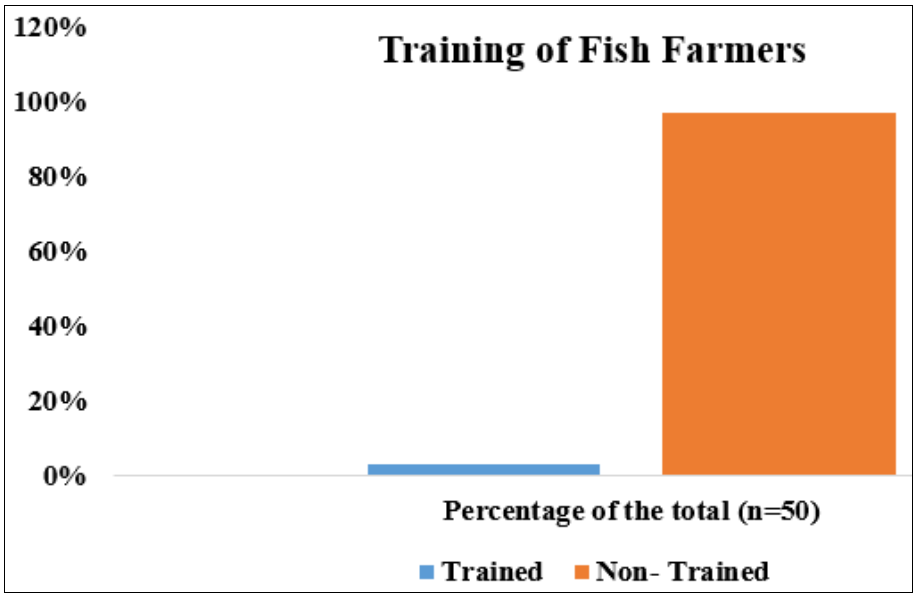

Fig 17: Fish Culture Trainings of fish farmers.

Conclusion

The purpose of the current study was to comprehend the socioeconomic traits of pond fish farmers and their role in fish production. Designing government subsidies and programs to promote aquaculture should take the socioeconomic characteristics of the fish farming community into account, since this will promote aquaculture among farmers and, consequently, the rise in fish farmers' entrepreneurial activities. Developmental projects must take into account the socioeconomic structures of fish farmers in their planning, development, and execution. The socioeconomic characteristics mentioned above, such as family size, age, social involvement, income level, education, and pond ownership type, have an impact on fishing production. In addition to elucidating the socioeconomic conditions of fish farmers and pinpointing the obstacles preventing the traditional fisheries from realising its full potential, research on these parameters is necessary to determine the appropriate domains for presidential engagement.

Conflict of Interest

The authors of the paper declare no conflict of interest

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