

Informal Education has Aided the Fisherwomen in their Fight to Survive in the Fish Market

Abstract:

Aim: Women fish sellers in Bihar, India, have extremely low literacy rates. In general, they have only received primary education, and some are illiterate. Their participation in the fish market, on the other hand, has received considerable attention. As a result, this study was carried out in the local fish market of Patna (Bihar), India.

Study design: To understand the status of the fisherwomen, as well as their expertise in selling and purchasing fish at the market, a well-structured questionnaire survey was used. An observation-based study was undertaken to assess skills for cutting fish, calculating the amount, and maintaining hygienic status.

Place and duration: The study was carried out at random during the day and evening hours in Patna Fish Market, which included local government-sanctioned, private, and street fish markets. The year 2021-2022.

Methodology: A survey-based study was conducted, with questionnaires covering criteria such as education level, age group, experience, family pattern, gender-based engagement in day-to-day activities linked to fish marketing, and common challenges experienced by fisherwomen. More than 100 fishermen and women have been interviewed.

Result: The majority of fisherwomen were either in the local market, street vendors, or door-to-door fish vendors and very few were present in the stock market. During the study, it was also observed that when buying and selling fish, the fisherwomen negotiated confidently. They had precisely calculated the amount, down to a fraction of a fish's weight.

Conclusion: Women were far more determined than men when it came to selling fish. They were also using cutting-edge technology to weigh the fish. They were able to read the digital tools. These female fish sellers were mostly between the ages of 35 and 65. As a result, they were mostly at ease when it came to dealing with stockists and customers.

Key words: Fish Market, Fisherwomen, Fishermen, Illiteracy, Stock market. Marketing

Introduction:

India is the world's second-largest producer of fish. Women make up 48.1 percent of India's total population [1] roughly half of India's population and one-third of its workforce. Gender division of labour in fishing communities takes various forms and has been described in the literature, particularly in light of the importance of women's participation in fisheries

Comment [JA1]: This paragraph is vague. When they said, "This study was carried out in the local fish market of Patna", it only shows the location; not their target (or the aim).

Comment [JA2]: Patna Fish Market is a single market! But the authors said, they interviewed people for this study in 10 fish markets or sites (government-authorized and government-unauthorized)? And when they mentioned "The year 2021-2022", it seems the study lasted for a period of two years.

processing, marketing, and trade [2,3]. With 5.4 million people employed in the fisheries industry, fishermen account for 3.8 million (70.37%) of the 5.4 million people, while fisherwomen account for 1.6 million (29.63%). In addition to the basic household responsibilities of cooking, caring for children, and meeting the family's needs, many fisherwomen work in fish markets. Women are said to be more involved in post-harvest activities than men [4, 5, 6], as well as being important in marketing as agents, auctioneers, retail, and itinerant stallholders. Women play an important role in fisheries societies, but they are frequently invisible, unsupported, or unacknowledged[7]. These fisherwomen are being boycotted for asserting fundamental rights, regardless of whether they are guardians of the community's family-affirming social culture [8]. They are constantly harassed because local markets do not provide them with well-secured, government-authorized platforms [9]. These women are overlooked because they handle market dealings with various institutions for credit in fisheries operations on behalf of their fishermen/ husbands.

Patna is the capital of Bihar, which is located on the southern bank of the Ganges and is one of India's most important states. The wholesale fish stock is located in Patna at Bazar Samiti, from which the fish were transported and supplied to other parts of the city [9]. Transportation, loading and unloading, icing of fish, establishment charges of shops, and other miscellaneous expenses all contribute to the cost of moving fish from point of production to the point of consumption [10]. The demand of a large consumer was met by importing fish from other states too [11]. Fish imported from outside the state are three to five days old, whereas locally produced fish is fresher and of higher quality. People prefer fresh fish in general, and market inputs indicate that local fish are the first choice of the majority of customers. Consumers prefer whole fish, whether in live or iced condition, and frozen fish is rarely seen, except in larger supermarkets [9]. When compared to marine fish, the demand for inland fish typically dominates the market. In Patna, there were government-designated markets, but it was also common that fish sellers sold fish from encroached roadsides and pavements within residential areas. Consumers preferred "closer to home" roadside/pavement markets over designated markets. Men have traditionally run the wholesale market system, while women have traditionally participated in retail fish vending—an activity on which they have relied for a stable livelihood [9]. In the urban area, fisherwomen play an intangible role as a link between fishermen and consumers. Fish selling or vending is a non-traditional form of occupation that provides a living for a large portion of the population in many Indian states[6]. However, the proportion of fisherwomen has decreased significantly over the last two decades in Patna [9]. The primary cause of this state of affairs is a decrease in fish catch, which has increased the pressure on those who rely on the retail fishing trade. Kumari [9] observed during her study that women were seen moving from location to location to sell their fish, halting at each location for a while. Outside of delineated market areas, this type of vending is prohibited. It exposes women to extortion and bribe demands. Women are frequently forced to rely on their menfolk to deal with these illegal systems, perpetuating their reliance on men [11]. Women with small children or those without other caregivers at home are unable to engage in fish marketing. Family members lent a hand in the fish markets in some cases. Women's participation has been declining in general. The main reason was that they were afraid of being harassed by various sources. The ability to move around while vending was a way to avoid being harassed. Another factor could be that women were hesitant to sit in a market because the majority of the other vendors were men [12]. To know the current status of fisherwomen and their skills in the Patna fish market, the study was carried out with an in-depth survey, to assess the situation of traditional fishing communities in the Patna fish market. During the survey, data were collected using a well-structured questionnaire that included questions about education level,

Comment [JA3]: It seems the authors unintentionally inserted the closed bracket or forgot to insert the other part of the bracket (i.e. the opened bracket).

Comment [JA4]: Check this closed bracket, as similarly mentioned in one of the above comments.

Comment [JA5]: The focus of these texts is really suitable when writing a paper on the role of roadside/pavement market and gender disparities. Remember: women fish traders in the market is different from fisherwomen (a fisher, whether fisherman or fisherwoman, is someone engaged in the actual fishing and other associated activities)!

Comment [JA6]: "the study was carried out with an in-depth survey to assess the situation" does not clarify what was at stake (objective: expected output!). That's to say, I got lost trying to underline the objective of this study.

age, technical ideas, price negotiation skills, and observational ability. The study interviewed male and female fishmongers at the main wholesale fish market as well as several local fish markets. A quarter of the fishermen/women from each market were randomly selected for an interview, about 100 people in total.

Comment [JA7]: These information should be moved under their appropriate sub-title in the materials and methods section.

Materials and Methods:

Our main objective in exploring Patna's various local fish markets was to learn about the social status of fisherwomen and their knowledge of selling and purchasing fish. Our investigation was limited to the major fish markets in Patna. We used a specific questionnaire to conduct a well-structured survey that covered parameters such as education level, age group, experience, family pattern, gender-based participation in day-to-day activities related to fish marketing, and common issues faced by fisherwomen. We interviewed about 100 fisherwomen from a variety of locations, including wholesale and street fish markets. We chose ten different observation sites, including both public and private fish markets. In addition to interviewing the fisherfolks, we solicited and compiled consumer feedback.

Comment [JA8]: I advised: this sentence should be moved to the introduction section above.

Comment [JA9]: They interviewed 100 fisherwomen from variety of locations, including wholesale and street fish markets. But, in the introduction, they said, "The study interviewed male and female fishmongers at the main wholesale fish market as well as several local fish markets; about 100 people in total." Which one is true (interviewed male and female about 100 people in total or interviewed about 100 fisherwomen)?

Study Sites:

Major fish marketing site of Patna:

- Site 1 : Bazaar Samiti (authorized fish wholesale market)
- Site 2 : Boring road crossing (authorized fish market)
- Site 3 : Macchua toli (authorized fish market)
- Site 4 : Hartali More fish market (authorized)
- Site 5 : Raza Bazaar fish market (authorized)
- Site 6 : Macchua toli street fish market
- Site 7 : Hanuman nagar street fish market
- Site 8 : Ashiana more street fish market
- Site 9 : Bailey road privately owned fish market
- Site 10 : Razapur bridge pavement

Comment [JA10]: The authors might have forgot to explain to readers why they chose ten different observation sites. It seems there is only one private site (i.e. Bailey road privately owned fish market); why only one private site? How many people interviewed in this private site and in the other 9 sites (also how many males vs females)? Are these sites or fish markets all under one administrative area or district or location?

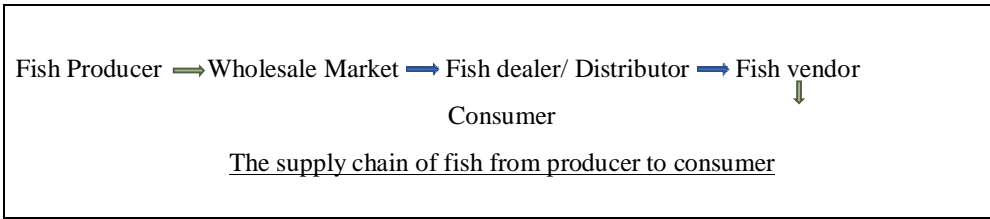
Result and Discussion:

The focus was on ten of Patna's fish markets, including the government-authorized wholesale market (Site 1-5) and the local (private/government-unauthorized) retail markets (Sites 6–10), which are either rented or occupied on the street. When compared to female fishers, the role of male fishers in the wholesale market has become more prominent and dynamic over time. Because male fish contractors, auctioneers, wholesalers, and retailers dominate the wholesale market (Site 1), there are very few females involved in a limited number of roles. Fish marketing timings in government-authorized fish markets are more flexible than in local street markets because fisher folks spend approximately 5-6 hours per day selling fish in authorized fish markets, whereas fishers in unauthorized locations spend approximately 9-10 hours per day (morning and evening).

Comment [JA11]: Similar to one of the comments above, the authors need to indicate how many males and females interviewed? Is it possible for them to show the data supporting this result?

Comment [JA12]: After answering how many females and males interviewed in site 1, then I wish the authors also underscored, how many of these females "involved in a limited number of roles" versus those females not involved?

The following is the most common pattern of the fish marketing system observed in Patna:



Moving from the wholesale market to private/local shops, the situation becomes quite contradictory, as women are seen as quite dynamic as the local street fish retailer or door-to-door fish vendors. Sites 1–5 are long-established markets, whereas Sites 6–10 are newly formed markets that arose as a result of consumer growth on a local level (Fig: 1).

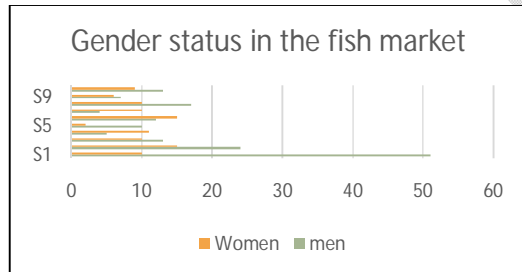


Fig 1.: Participation of Men and women in the fish marketing system in the Local fish market of Patna, (Bihar), India [in the year 2021]

Aside from gender inequality, the next parameter of analysis was education and experience in fish marketing, and the results were quite shocking, as the majority of fisherwomen were illiterate (Fig: 2). Except for the stockiest and contractors, the age distribution is nearly uniform, and the majority of people were uneducated. Illiteracy has a wide range of consequences for both men and women (Fig:3). They were, however, very good at processing and marketing [13]. Their expertise in fish marketing is the result of ancestral rituals and traditions passed down from generation to generation [8]. They are unaware of modern fish processing and preservation techniques. Even they were unaware of the benefits provided by the government. Rather than sending their children to school, the majority of fish vendors keep them in the markets with them.

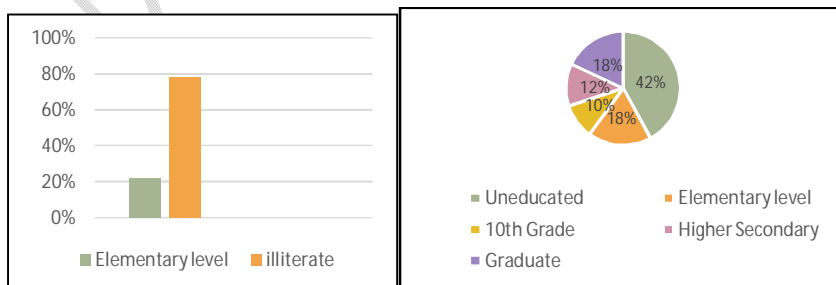


Fig 2: Literacy status of fisherwomen

Fig-3: Literacy status of fisher folks (Men)

Comment [JA13]: Was there any reasons why the authors eliminated graduate, higher secondary etc. from Figure 2 since they appeared in Figure 3?

and Women)

Another interesting finding was that in the wholesale market, males participate actively and make decisions in fish contractor ships and merchants. Local fish markets, on the other hand, had over 50% female participation and decision-making [14]. Females were observed to be more active participants in fish marketing than males. Street-side and door-to-door fish vendors followed the same pattern. It was also observed that when a well-established fish market is taken over and dominated by men, then women are displaced from that market, and women begin to look for a new place to sell fish. They attempted to locate a new location on the side of the road or street and began selling fish with apprehension due to the uncertainty of selling on the roadside. When the women have gained acceptance from the local community and have begun selling fish, the number of fish sellers will gradually increase. Female fish sellers predominated at first, but after a few months (3-4 months), males became involved and gradually covered the new areas as well. Women were shifted out once more, and she began in a new place. The most dynamic age group of fisherwomen identified in various markets ranges from 30 to 55 years of age (Fig: 4), with older age fisherwomen participating in the market less. The same situation was in Bangladesh, where the majority of fish retailers were in their forties and fifties [15]. Because of their illiteracy, the fisherwomen's marketing experience and age group become critical frames of reference for assessing their proficiency. Certain fisherwomen will bring their children to the fish markets in order to care for their children while also teaching them about fish marketing rituals. This study concentrated on underage children, primarily in the street fish market (Fig: 5). These children participate in fish markets at the age of formal education to gain early expertise in fish marketing skills. Education is important not only for earning but also for increasing community involvement and livelihood, as well as for conserving natural resources for long-term use[16]

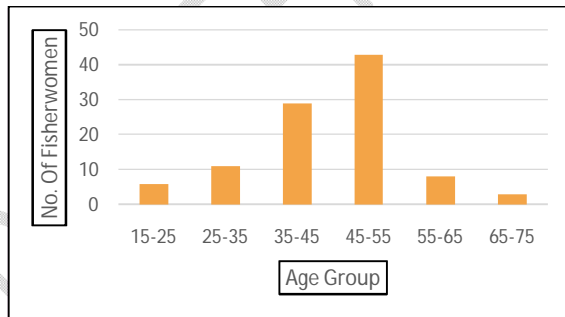


Fig. 4: Age group of fisherwomen

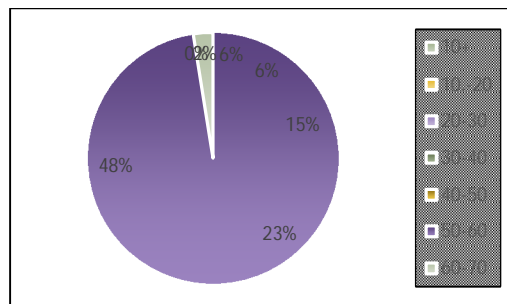


Fig 5: The percentage of fisherfolks participation according to their age distribution

Comment [JA14]: I wish the authors provided a convincing reason(s) why they did not use the same age-scale in both Figures 4 and 5 (both describing age)?

Bihar is also ranked last in the Gender Equality Index and has seen an absolute decline over the previous period [17,18]. The state has the lowest literacy rate in the country, at 63.8 percent, and the female literacy rate, at 53.3 percent, is significantly lower than the male literacy rate, at 73.5 percent. India's 2011 Census [19]. Education is an important factor in changing people's attitudes and motivation. Literacy level is critical for effective participation and operational skill in all income-generating activities. It was assumed that the education of fish retailers would help them gain better access to relevant technical information [20]. In this study, it was discovered that only a few of the male fishermen are literate, with only a high school education. There are very few graduates among fishermen. However, the majority of fish merchants in the fish wholesale market, i.e., Bazaar Samiti, are well-educated. Fisherwomen, on the other hand, were illiterate. They had never attended a single school in their lives. Bangladesh has the same problem, with a high rate of illiteracy in fishing communities [15, 21]. Because of the poor economic condition of the communities, schools are frequently inaccessible. Other barriers to children finishing school include large families and the resulting educational expenses, as well as the need for the children to work to supplement the family income [22]. Despite their low literacy level, these fisherwomen have learned fish cutting, processing, and price negotiation techniques through ancestral rituals passed down from generation to generation. Infrastructural facilities, particularly fish landing centers and wholesale and retail markets, were inadequate and unsanitary, posing serious threats to public health on a regular basis (Alam et al., 2016) [20]. In terms of hygiene, we discovered that the situation at Bazaar Samiti was the worst because there was no adequate supply of water, no dumping site for fish residue, an inadequate drainage system, and freely roaming stray dogs. However, the condition of Macchua toli was comparatively better than that of the Bazaar Samiti; here, we saw an adequate supply of water, a proper drainage system, a clean platform, and no availability of fish residues within the market area. In the case of roadside markets, we discovered a moderate situation in which fish residues are directly dumped on the open roadside. The vendors attempted to keep the area clean, but there is no water supply and an inadequate drainage system. They are also dealing with a major infestation of houseflies. Frequently, fish markets were filthy and unsanitary [23].

CONCLUSION

This study observed certain issues that have a negative impact on the social status of fisherwomen in market areas, such as:

- Females' low literacy levels in the majority of markets. Despite their low literacy level, these fisherwomen are skilled at handling fish, such as sorting, cutting, and marketing (weighing and price negotiation), as a result of ancestral rituals passed down from generation to generation.
- Fisherwomen are primarily restricted to market areas as fish retailers rather than wholesale markets due to a lack of certain major factors such as poor literacy, gender discrimination, harassment, poor sanitation, a lack of water supply, and a lack of a proper drainage system.
- Due to the limited number of government-authorized fish markets, the majority of fisherwomen lack access to secure areas, which is why most fisherwomen prefer door-to-door fish vending to avoid any unforeseeable mishaps.

A fish market is a place to buy commercially significant fish and fish products. Fish marketing is a component of the fish industry that regulates fish production and consumption by selling them. To sell more fish not only locally but also in distant and interior markets, new marketing techniques have been implemented. In these areas, literacy drive and gender equality is a requirements. It needs to be kept up all over the world.

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