

Fish consumption and socio-economic status of the rural people: a case study on Islamnagar village, Savar, Dhaka

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Abstract

The study was conducted to obtain a clarified concept about financial, educational and physiological circumstances in relation to fish consumption status as a diet of rural people of Islamnagar village next to Jahangirnagar University campus at Savar upazilla under the Dhaka district in Bangladesh from August, 2016 to February, 2017. All data were collected through a questionnaire survey. The result of this study enlightens that the people were engaged in various professions as local businessman (72%), government employee (8%), farmer (4%) and others (16%). Their monthly income varied from BDT 5,000/= to 55,000/=. In spite of their engagement in varied professions, they had awareness about fish intake. The people consumed 20 species of fishes under the order Cypriniformes (55.21%), Perciformes (22.69%), Siluriformes (13.49%), Clupeiformes (7.97%) and Osteoglossiformes (0.61%). They consumed small fish (50%), large fish (44%), and dried fish (6%) of both indigenous and exotic species. This study indicates that the people of higher income consumed both small and large fish frequently in each month, whereas, those of lower income consumed the dried and small fishes occasionally.

Key words: Fish consumption, Jahangirnagar University, diet, villagers.

INTRODUCTION

Fish has been recognized as an excellent protein source for human being and preferred as a perfect diet. It is rich in amino acids, unsaturated fatty acids, vitamins, and other trace elements (Burger *et al.*, 1999; Kızılaslan & Nalıncı, 2013; Turan *et al.*, 2006). Fish consumption helps preventing cardiovascular diseases, high blood pressure, cholesterol, Alzheimer's disease, and various types of cancer (Barberger-Gateau *et al.*, 2002; McNaughton *et al.*, 2008; Verbeke & Vackier, 2005).

Bangladesh prides itself on being very rich in fish diversity. Its numerous and diverse inland waterbodies such as rivers, haors, baors, beels, canals, ponds, ditches and many coastal paddy fields, are home to over 267 freshwater fish species (Rahman, 2005). In terms of the geographical location and centuries of social behavior, fish play a crucial role in the Bangladeshi diet, providing more than 60% of animal protein rich food and micronutrients to mitigate their every day's necessary nutrients requirement (Belton *et al.*, 2011). The culture and consumption of fishes, therefore has important implications for national food and nutrition security, poverty and growth.

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Nutritional status should be improved to arrest more importantly among the malnutrition of adolescent girls and mothers, because if mothers are malnourished, their children are much more likely to have low birth weight and to remain malnourished throughout their lives. In the past, the rural poor used to catch small fishes from ditches, canals and flood plains with no cost in between their usual activities particularly in the summer dry season and leisure days and more often preserve these excess harvested fish under sundry with traditional ways for future crisis periods. But, the fishery resources in the flood plain are declining very quickly from the last few decades along with the reduction of these fish habitats. The trend of such reduction can be depicted as 235,600 metric ton (mt) in 1980 fell to 183,796 mt in 1987 (Nuruzzaman, 1990). At present, the production of fish is approximately 2.56 million tons per year and their consumption is about 37 g per capita (Hoque *et al.*, 2014). The gender, wealth-class and locality have altogether been ignored in this process. There is likely to be a huge gap and variation among male-female, rich-poor and rural-urban people in per capita fish consumption that need to be studied for the assessment of actual protein consumption by these people to adopt an appropriate plant for ensuring their health status.

To our knowledge, there is no substantial data regarding the intake of fishes and the social status of any rural people community in Bangladesh. Therefore, the present study was conducted to identify the consumption status of fishes and the socio-economic conditions of the residents of Islamnagar village near Jahangirnagar University campus.

MATERIALS AND METHODS

Present study was conducted from August 2016 to February, 2017. The methodology as described in Hoque *et al.* (2014) was followed in this study. The description of the survey area and the methods followed in questionnaire survey, data collection, processing and statistical analysis of the data are described below.

Survey area: Name of the study area is Islamnagar which is village under Palthalia union of Savar Thana and Dhaka district. It is located at 23°53'11.1"N in longitude and 90°15'43.9"E in latitude. The northern border of the village is adjacent to Dhaka-Aricha high way, the east- and southern parts to the Jahangirnagar University Campus and the south-west- and west parts to Gokulnagar, Rulia, Sadrpur, Sandip, pandua, Mohanpur, Kasipur villages, located in different distances.

Questionnaire survey and data collection: The final questionnaire was prepared based on a trial survey at the beginning of the study. The focal points of the questionnaire included monthly income of the villagers, types of fish commonly sold for consumption, amount of fish (large, medium, small and other processed fishes) usually purchased for the consumption of family members.

The permanent local peoples, preferably the heads of each families, were interviewed to collect the authentic primary data on the intake of fish to fulfill the animal protein requirements of each family member. Sometimes, in absence of the family head, the questionnaire was provided to the responsible member of that family following necessary

interpretation and the filled up questionnaire was collected on the next visiting day. The primary data were assembled from randomly selected 50 rural people including fishermen, fish farmers, government job employees, farmers, businessmen etc. of the study area. Besides the questionnaire survey, information through personal interviewing was also recorded. Necessary secondary data were assembled from the relevant literatures, publications available in the seminar library of Zoology Department and the central library of Jahangirnagar University.

Data processing and statistical analysis: The collected data obtained from the questionnaire survey, personal interviewing and secondary sources were examined, edited and finalized carefully for analyses. The data were analyzed by MS-Excel and SPSS 16.0 version and relevant tables and graphs were prepared according to the objectives of the present.

RESULTS AND DISCUSSION

Monthly income of the family: The people of surveyed areas were involved in diversified professions, ranging from local business to farming as well as other job sectors. Based on the range of monthly income, the rural people of the study area were categorized into five groups (Fig. 1). Monthly income of these people were widely varied from BDT 5000/= to 55000/=. The monthly income of most of the villagers were below BDT 25000/= and that of only 6% of the villagers ranged from BDT35000/= to 45000 and 2% from 45000/= to 55000/= (Fig. 1). A slightly different observation on the monthly income of the indigenous people of Rangamati was recorded by Hoque *et al.* (2014). It would be pertinent to note that the households with less monthly income spend on an average over three fourths of their income on food items.

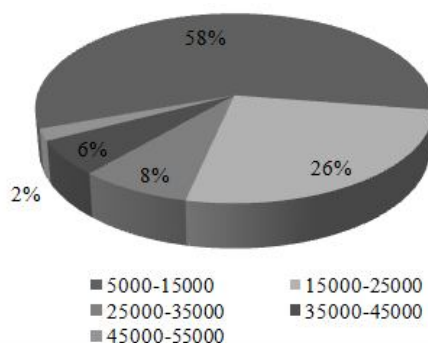


Fig. 1. Monthly income of the rural people in survey area

Age structure: Age structure of the villagers of the study area were ranged from 15 to above 45 years, which were categorized into three categories, such as young (15 to 30 years), middle aged (31 to 45 years) and old (>45 years). Among these age categories, the highest (53%) was recorded in middle age group and the lowest (15%) in young age group. According to Ali (2009) most of the fish farmers in Mymensingh district belonged

to age group 31 to 40 years, which is more or less similar with the findings of the present study.

Family type: Result on the family type of the rural people in the study area indicated that most of the family was nuclear (68%) and the rest 32% was joint family. According to Hoque *et al.*, (2014) in Rangamati district, about 53% of the people were middle aged, the lowest (15%) was young and the remaining 32% were old people.

Occupational status: Survey on occupational status revealed that most of the villagers (72%) were involved in local business. Among the others, only 8% were devoted as government service holder 4% as farmer, and the remaining 16% were involved as tailors, rickshaw pullers and wrights (Fig. 2). The involvement of most of the villagers of the study area in local business, as found during this study, is not so similar to that of Hoque *et al.* (2014).

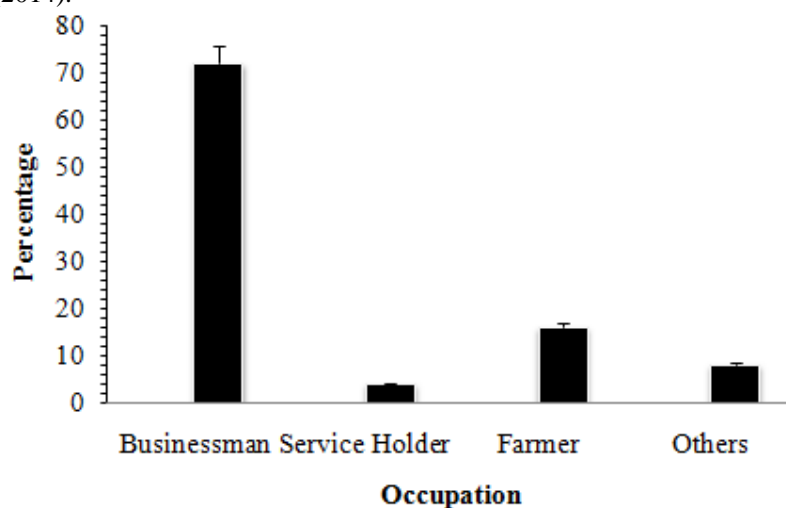


Fig. 2. Occupational status of the villagers

Educational status: The results of this study indicate that 40% of the villagers terminated their education at primary level, 26% at secondary level, 16% at higher secondary level, 8% were illiterate and only 10% were found as well-educated (Graduated). There is a strong connection between fish consumption and education. Education can help the people to know about the nutritional value of fish and fishery products and to develop their skill.

Health status: The present study revealed that the villagers were suffered from different types of diseases including cold fever (54%), diabetes (26%), asthma (10%), heart disease (6%), high pressure (4%), and other diseases (24%), which include black fever, infections, and osteoporosis. The remaining 10% were found as not suffering from any disease (Fig. 3).

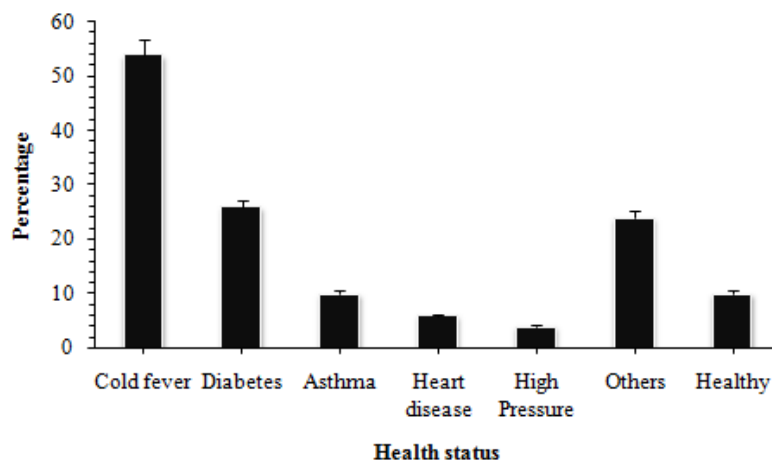


Fig. 3. Health status of family members at Islamnagar Village

Fish has always been seen as a protein source necessary for good health. Research over the past few decades has confirmed the importance of the nutritional components of fish. There is strong evidence that fish plays a major role in the prevention of illness of human.

Orders of the fish species consumed: The results of this study show that the villagers of the study area consumed 20 species of fishes (Table 1), most of which belong to two orders, *viz.* Cypriniformes (55.21%) and Perciformes (22.69%). The order Siluriformes was found to represent 13.49%, Clupeiformes 7.97% and Osteoglossiformes 0.61% only (Fig. 4). The number of fish species found to be consumed by the villagers of the study area is lower than the report of Basak *et al.* (2016) studying the fish species in fish landing centers and fish markets adjacent to Kaptai lake, Rangamati.

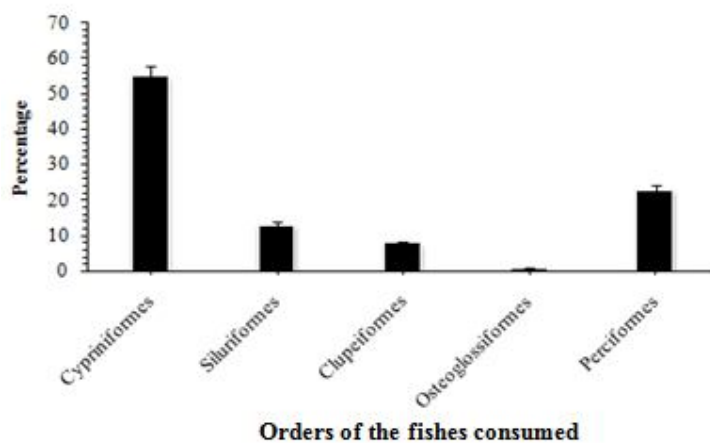


Fig. 4. Variation in consumption of fishes of different fish orders

Knowledge on beneficial effect of fish: The data of this study has revealed that only 88% of the villagers were aware about the nutritional importance of fishes and their

byproducts and the remaining 12% were unaware. In contrast to Madhabi & Kusuma's (2014) finding of alarming knowledge condition of the households of two areas of Andhra Pradesh about the nutritional importance and byproducts of fishes, this study has found that the majority of the villagers were aware on the nutritional importance of fishes and their byproducts, i.e., their knowledge on beneficial effects of fishes was satisfactory. This fact may be taken into an account to conclude that most of the villagers of the study area have good knowledge on the importance of fish consumption but all of them were not capable enough to expend money for buying their required amount of fishes regularly.

Frequency of fish consumption: This study has revealed that the people of Islamnagar village consumed mostly small fish (50%), which was followed by large fish (44%) and dried fish (6%). Any record of exotic fish consumption was not found during this study (Fig. 5). This finding is consistent with that of Hoque *et al.* (2014)). There is a lack of detail data on fish consumption patterns, size and varieties of fish consumed in the households and correlation of per capita fish consumption with the type of profession, income level, educational status and illness and health status of the villagers etc.

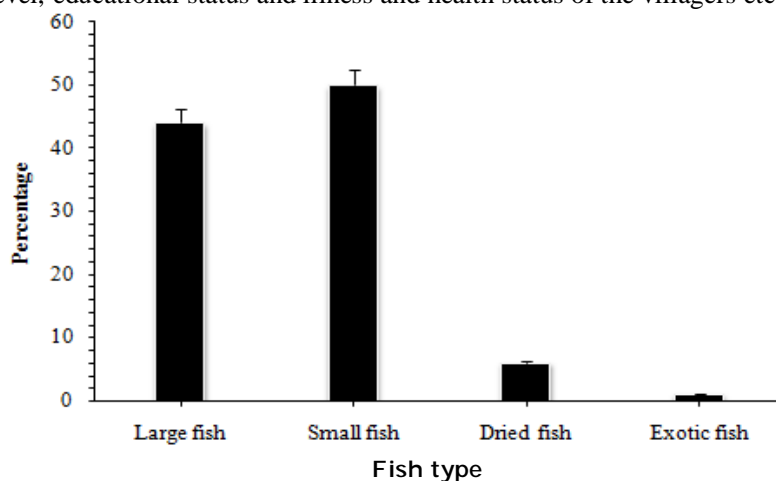


Fig. 5. Frequency of fish consumption among the villagers

Among the fish species of the study area, majority (60%) are listed as least concerned (Table 1). Only one species *Ompok pabo* is recorded as Critically Endangered (CR), *Pangasius pangasius* and *Notopterus chitala* as Endangered (EN) and *Gudusia chapra* and *Wallago attu* as vulnerable (VU). Only two species, namely *Cirrhinus mrigala* and *Systemus sarana* are recorded as not threatened (NT).

The diet preference is based on personal choice as well as tradition of the family. This survey on fish consumption by the villagers of Islamnagar village has showed a traditional trend of fish consumption in a rural area of Bangladesh. The findings of this research would be helpful for conducting further research on different issues related to fish consumption.

Table 1. Types of fishes consumed by the villagers of Islamnagar during the studied period and their IUCN category

Common Name	Scientific Name	Order	Family	IUCN Category		
1. Rohu	<i>Labeo rohita</i> (Hamilton-Buchanan, 1822)	Cypriniformes	Cyprinidae	LC		
2. Catla	<i>Catla catla</i> (Hamilton-Buchanan, 1822)			LC		
3. Mrigal Carp	<i>Cirrhinus mrigala</i> (Hamilton-Buchanan, 1822)			NT		
4. Bata Labeo	<i>Labeo bata</i> (Hamilton, 1822)			LC		
5. MolaCarplet,	<i>Amblypharyngodon mola</i> (Hamilton-Buchanan, 1822)			LC		
6. Ganges River Sprat	<i>Corica soborna</i> (Hamilton-Buchanan, 1822)			LC		
7. Olive barb	<i>Systomus sarana</i> (Hamilton 1822)			NT		
8. Puntio Barb	<i>Puntius puntio</i> (Hamilton-Buchanan, 1822)			DD		
9. Indian River Shad	<i>Gudusia chapra</i> (Hamilton-Buchanan, 1822)			VU		
10. Freshwater Shark	<i>Wallago attu</i> (Bloch and Schneider, 1801)	Siluriformes	Siluridae	VU		
11. Pabo Catfish	<i>Ompok pabo</i> (Hamilton-Buchanan, 1822)			CR		
12. Stinging Catfish	<i>Heteropneustes fossilis</i> (Bloch, 1794)			Heteropneustidae	LC	
13. Pungas Catfish	<i>Pangasius pangasius</i> (Hamilton-Buchanan, 1822)			Pangasiidae	EN	
14. Walking Catfish	<i>Clarias batrachus</i> (Linnaeus, 1758)			Clariidae	LC	
15. Striped Dwarf Catfish	<i>Mystus vittatus</i> (Bloch, 1794)			Bagridae	LC	
16. Hilsha Shad	<i>Tenualosa ilisha</i> (Hamilton-Buchanan, 1822)	Clupeiformes	Clupeidae	LC		
17. Humped Featherback	<i>Notopterus chitala</i> (Hamilton-Buchanan, 1822)			Osteoglossiformes	Notopteridae	EN
18. Striped Snakehead	<i>Channa striatus</i> (Bloch, 1801)			Perciformes	Channidae	LC
19. Mozambique Tilapia	<i>Oreochromis mossambicus</i> (Peters, 1852)		Cichlidae	LC		
20. Climbing Perch	<i>Anabas testudineus</i> (Bloch, 1795)		Anabantidae	LC		

CR = Critically Endangered; EN = Endangered; VU = Vulnerable; LC = Least Concern; DD = Data Deficient; NT = Not Threatened

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