

# Status of Fish Consumption among Selected Regions of Andhra Pradesh

D. Madhavi<sup>1</sup>, D. L. Kusuma<sup>2</sup>

<sup>1</sup>Research Scholar, Department of Home Science, S. V. University, Tirupati, Andhra Pradesh, India

<sup>2</sup>Professor, Department of Home Science, S. V. University, Tirupati, Andhra Pradesh, India

**Abstract:** *The survey was conducted at two different regions (Coastal region-Nellore, and non-coastal region – Tirupati) of urban households in Andhra Pradesh through personal interviews (1200 Households) to assess region specific consumption rates by targeting the residence of respondent. The relevant questions were asked to know knowledge of the respondents of a particular population. The purpose of the study respondent's attitudes towards fish consumption that can currently determined by parameters such as income of the family, price, variety of fish availability, and knowledge about beneficial effects of fish in human health and disease conditions. Results reveal that the low cost, frequency and availability of fish consumption higher among coastal region representing Nellore urban population. Although a number of differences between coastal and non coastal region urban households with respect to their frequency of fish intake are covered, the findings suggest that fish consumption tradition and habits account for large differences between the regions, particularly in fatty fish consumption. This study exemplifies the need for nutrition education and more effective communication about fish, particularly to the people facing chronic diseases.*

**Keywords:** Urban households, fish consumption, coastal, non-coastal, region, availability

## 1. Introduction

Fish has been recognized as an excellent food source for human beings for centuries and is preferred as a perfect diet. Fish has always been seen as a food 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 protecting against heart disease and may also play a role in the prevention of other illnesses. In 2006, the American Heart Association published Recommendations for Cardiovascular Disease Risk Reduction that included "Consume fish, especially oily fish, at least twice a week". The fact is, various fats from both seawater and freshwater fish are high in Omega-3 fatty acids, monounsaturated fats, and Omega-6 fatty acids, all of which we need in our diets. Understanding the science behind all this may help both fish sellers and fish consumers. Recent studies suggest that eating 0.5 to 1 gram of fish oil daily reduces the risk of heart disease death in middle-aged men by a whopping 40 percent. The star of the show is Omega 3-fatty acids because of its significant role in reducing the risk of heart disease. Contrary to popular belief, not only saltwater fish offer these benefits. Fish lipids are good source of polyunsaturated fatty acids and contain high levels of long chain polyunsaturated fatty acids, particularly linoleic acid (18:2n6) and arachidonic acid (20:4n6) Ozogul et al. (2007) reported that fresh water fish species from Lake Seyhan consisted of 10.7-22.7 % monosaturated and 23.2-43.7 % of polyunsaturated fatty acids.

Though the reports say so, conditions for Aquaculture in India is not satisfactory as it is necessary to know the extent at which fish is being consumed. The survey of fish consumption plays significant role which reveals the nutritional and economic status. Fish is a major potential source for rich protein in India (UNEP 2005). As being rich in protein, essential amino acids and vitamins, play an important role in human diet. Mojaffarian et al. (2006)

stated that increasing consumption of either would be advantageous compared to little on consumption.

There is no research conducted on fish consumption by the urban people in Andhra Pradesh. The purpose of this study was to explore the cross-cultural differences in the frequency of fish consumption between households from the two different regions. There is a lack of detailed data on fish consumption patterns, portion sizes and varieties of fish consumed in households. Thus the present investigation was conducted to reveal the status of urban people in terms of fish consumption and the findings of this research would be helpful for commencing further research efforts on related issues.

## 2. Materials and Methods

### 2.1 Study Area

The present investigation is carried out in Tirupati and Nellore of the state of Andhra Pradesh (AP). The two areas were purposively chosen in order to focus on the variations in fish consumption pattern between the Rayalaseema and Coastal region of AP. Tirupati was chosen representing the Rayalaseema region having less rainfall, high temperature and access to fish from ponds and tanks and the urban socio-economic backgrounds and also Nellore was chosen representing the coastal areas which have similar rainfall, access to fish etc., are compared with both areas.

The two urban areas were divided into as per the income categories, a represent sample households were selected randomly. The survey was conducted in 2008 to 2009 at Tirupati and Nellore a total of 1200 no of households. There are various methods for conducting consumption surveys; of this personal interview method was applied. Interviews were conducted across the Nellore and Tirupati urban area including all categories of households. The respondent was interviewed to determine the incidence of fish consumption in

households by face to face interview method. The total number of households selected from each of the wards was determined on the basis of the response from the residents of that locality. Households were interviewed with a selected questionnaire. Pollock(1994 )suggested creating a data requirement by asking questions for the questionnaire to confirm that each questions is relevant to study the objectives. Therefore questions asked to the respondents were in regional language that specifies on information and requirements necessary to adequately describe the consumption patterns for the target households. Interactions between income, religion and personal liking were significant and extremely important in a fish consumption evaluation(West E lamp C, et al. 1999).

**2.2 Data Analysis**

Analysis of fish consumption was done by income, category of household. Throughout the report an attempt has been made to include data which clearly demonstrates significant trends and differences. All the collected data were tabulated and subjected to descriptive analyses using the computer software SPSS (Statistical Package for Social Sciences, version 20.00) and Microsoft Office Excel 2007 to understand the differences of the variables.

**3. Results and Discussion**

The research has shown that fish consumption is moderately regarded by the majority of Tirupati urban households and highly Nellore urban households, across all income groups. The households where classified in each urban area depending upon their consumption strategies. Followings results were obtained after compilation and analysis of data collected from door to door interviews.

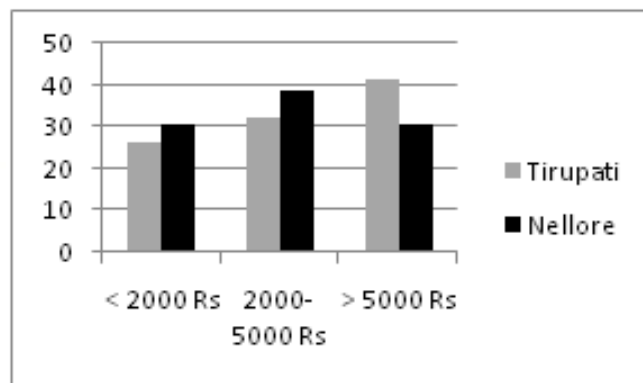
**3.1 Households According to their Diet Preferences**

**Table 1:** Distribution of households according to their diets

Regions	Vegetarian	Non-vegetarian
Coastal Nellore	9.4 %	90.6%
Non-coastal Tirupati	10.4%	89.6%

Table 1 shows the results regarding that the households according to their diets. It was seen that number of non-vegetarian households were highest of about 90.6% in Nellore urban, where non-coastal Tirupati show less consumption non-vegetarian food of 89.6%. The diet preference is based on personal choice as well as tradition of the family. The Fish Consumption Survey of the Umatilla, Nez Perce, Yakama and Warm Springs showed traditional fish consumption among the individuals of the family (CRITFC project, 1994).

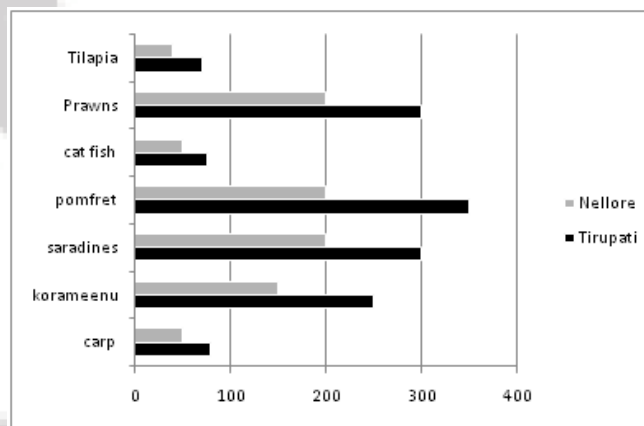
**3.2 Monthly Per Capita Income of the Family**



**Figure 1:** Monthly per Capita Income of the Two Urban Areas

The survey reveals that the majority of subpopulation was studied according to their per capita income range (Fig. 1). The findings from the figure above indicate that a majority of the Tirupati households are in the higher income when compared with the Nellore. Income of the family plays a key role by price in the consumption of food items. In the light of this, it would be pertinent to note that households with less monthly incomes spend, on an average, over three-fourths of their income on food items.

**3.3 Price and Availability of the Fish**



**Figure 2:** Available fish varieties and price variations

The survey reveals that the majority of households was study in each region according to fish price range ( Figure 1). The findings from the figure above indicate that a major role is laid by price in the consumption of fish. In the light of this it would to pertinent to note that the price is less in the coastal region compared to the non coastal. The fish plays crucial rolein the diet of Nellore, whereas sardine, prawns and also many other varieties are much available in the Nellore and the rates are cheaper when compared to the Tirupati urban area. This also indicates the availability of a variety of fish to suit individual household budgets.

All these fishes were not the aquaculture species and harvested in natural water bodies. However, the respondents have also mentioned that availability of these fishes became rare at present which indirectly indicating the loss of fish diversity and abundance in water bodies nearby. Loss of fishes in natural waters due to degradation of natural habitats,

excess exploitation, use of illegal fishing gears, expansion of aquaculture into natural waters etc. was reported by Amin et al. (2008), Byomkeshet al. (2009), Mohsinet al. (2009) and Galibet al. (2009,2010).

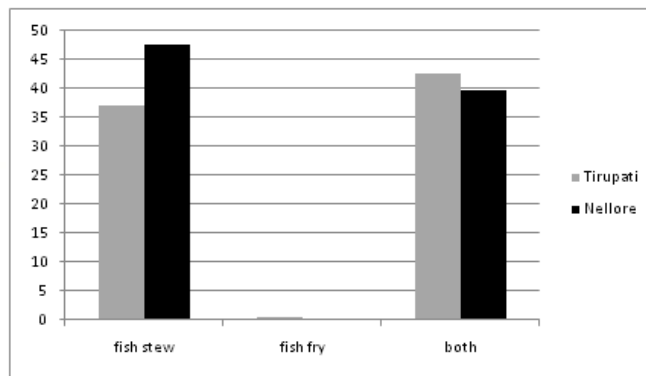
**3.4 Frequency of Fish Consumption**

**Table: 2** Frequency of fish consumption among the Households

Frequency	Tirupati(700 Households)				Nellore(700 Households)			
	Fresh water fish		Sea fish		Fresh water fish		Sea fish	
	No	%	No	%	No	%	No	%
Never	140	20.0	477	68.1	66	13.2	57	11.4
Weekly	227	32.4	16	2.3	104	20.8	125	25.0
Fortnightly	130	18.6	29	4.1	123	24.6	147	29.4
Monthly	151	21.6	38	5.4	190	38.0	134	26.8
Seldom	52	7.4	140	20	17	3.4	37	7.4

Among the fish consumers interesting data was obtained regarding preference between fresh water and sea water fish (Table 2). In case of fish most of the coastal region households preferred marine fish, crabs, prawns than fresh water. In case of Tirupati households were mostly preferred fresh water fish, crabs and prawns availability is very less. Maximum 80 and 88.6% respondents prefer fishes rather than meat as an animal protein source, in the Tirupati and Nellore urban households respectively. HHs in the studied areas did not give priority on nutrient content of fishes. Majority of the HHs purchased and consumed those fishes which were cheap in their locality, aquaculture based productions. Similar results also reported by Hossainet al. (1994). Only 4.88% HHs members purchased small indigenous species (SIS) of fishes keeping nutritional content on their mind. This may pose a serious threat to the health of the people. Because SIS are the only source of protein and most of the fat soluble vitamins for the people (Hossainet al., 2002; Amin et al., 2009).Maximum 88.6% respondents wished to have sea fish in Nellore compared with Tirupati it is only 32%, were as sea fish reflecting the choice of Nellore people because the trend is closely associated to the culture, and tradition. Small number of respondents did not prefer any fish to eat in the both areas because the prime reason was religious ethics and some cases personal dislikes due to odor and taste. This result clearly indicating that the urban people of Tirupati are far behind from urban people of the Nellore in terms of fish consumption and thus make them more susceptible to nutritional disorders. This may severely affects women, especially pregnant one, and children (Kawarazuka and Bene, 2010; Rooset al., 2003).

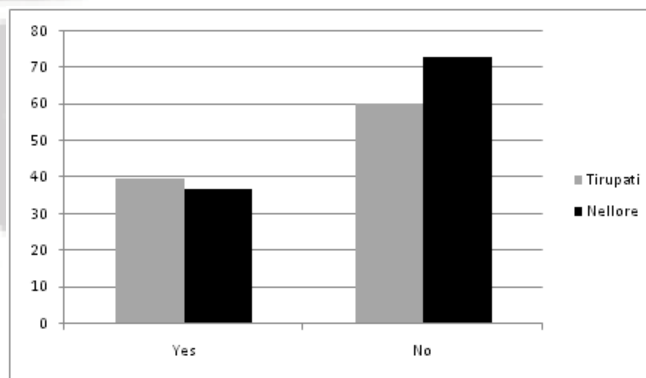
**3.5 Methods of Fish Preparation**



**Figure 3:** Methods of fish preparation

About fish preparation (fig. 3) there was seen a clear demarcation like fried, gravy or both. Among fish consumers in Nellore about 47.6% and 37% in Tirupati prefers fish in as stew dish, followed by 39.8%and 42.6% were prefers fish as dryas well as gravy.The results reveal that the largest part of households in both urban areas like fish in both fry and gravy form.

**3.6 Knowledge about Beneficial Effects of Fish**



**Figure 4:** knowledge about beneficial effect of fish

The alarming condition was observed in each region regarding knowledge regarding beneficial effects of fish fig 4). The data reveal that only 36.8% of the households in Nellore and 39.7% of the households in Tirupati are aware about fish byproducts and their nutritional importance.

The finding of research concludes regarding that fish consumption, price, and availability of variety, frequency of fish inthe coastal region of Nellore urban are likely to be more consumption of fish may be because of low price, availability of variety of sea fish is more than the non coastal region of theTirupati urban households. This may be taken into an account of availability, as well as social, economic and cultural factors influences the consumption of fish. The knowledge about beneficial effect of fish is very low in both areas, thus, there is a need for nutrition education programmes focusing on the increase the frequency of fish consumption, particularly to the people facing chronic diseases.

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**Dr. D. L. Kusuma** received the Ph.D. degree in Home Science (Specialization: Food Science and Nutrition) from Sri Venkateswara University. She served as Head of Home Science Department and working as Professor in the Dept. of Home Science, Sri Venkateswara University, Tirupati.

## Author Profile



**D. Madhavi** received the B.Sc. and M.Sc. degrees in Home Science (Specialization: Food Science and Nutrition) from Sri Venkateswara University in 2003 and 2005, respectively. Now, she is