

## HOUSEHOLD FISH CONSUMPTION TENDENCY IN ANTALYA PROVINCE

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### ABSTRACT

The objective of this study was to analyze the fish consumption and choices of consumers living in Antalya province. The data were obtained by a survey method with 312 families whose socio-economic structures were different. Simple descriptive statistical methods were used in order to determine the preferred consumption of fishery products. According to the results, household size, average monthly income, expenditure for food and meat of the families were 3.85, ₺1 725, ₺425 and ₺93 respectively. Household living in the province center mostly preferred chicken meat and fish consumption was below Turkey average. The most consumed fish was tuna whereas the least one was anchovy. Among the seafood other than fish, the most consumed one was squid while the least one was octopus. The reasons behind the low fish consumption were reported by the respondents as smell and dirtiness occurred in the kitchen during cooking. Conversely, the main reason for consuming fish was that the fishery products are considered healthier than other products. Families consuming fish paid more attention to freshness and hygiene.

**Key words:** Fish, consumption, Antalya

## ANTALYA İLİ HANEHALKI SU ÜRÜNLERİ TÜKETİM EĞİLİMİ

### ÖZET

Bu çalışmanın amacı Antalya ilinde tüketicilerin su ürünleri tüketim ve tercihlerini analiz etmektir. Bu amaçla çalışmada, Antalya ili merkez ilçelerde ikamet eden sosyo-ekonomik yapısı farklı 312 ailelerden anket yöntemi ile elde edilen veriler kullanılmıştır. İnsan beslenmesi açısından önemli bir protein kaynağı olan su ürünlerinin tüketim tercihlerini saptamak amacıyla çalışmada basit tanımlayıcı istatistik yöntemleri kullanılmıştır. Buna göre hanehalkı genişliği 3,85 kişi, ailelerin ortalama geliri 1 725₺/ay, ortalama gıda harcaması 425₺/ay ve et tüketim harcaması ise 93₺/ay olarak hesaplanmıştır. İl merkezinde aileler en fazla tavuk eti tüketirken su ürünleri tüketimi ise Türkiye ortalamasının altında çıkmıştır. İl merkezinde aileler balık olarak en fazla ton balığı tüketirken en az hamsiyi, balık dışındaki su ürünlerinde ise en fazla kalamarı en az ise ahtapotu tüketmeyi tercih etmişlerdir. Ayrıca ailelerin daha fazla su ürünü tüketmeme nedeni mutfakta koku ve kirlilik yapması, tüketme nedeni diğer ürünlere göre daha sağlıklı olması ve hanehalkının su ürünlerini tüketirken en fazla tazeliğe ve hijyene dikkat ettiği görülmüştür.

**Anahtar kelimeler:** Su ürünleri, tüketim, Antalya

### INTRODUCTION

The fishery is one of the most important branches of agriculture in terms of contribution to the national economy. Fishery sector has a different economic sense due to its direct and indirect relationships with other sectors. The importance of the fisheries sector

is steadily increasing due to creation of employment in various fields from production to marketing, being a unique food and increasing possibilities for exportation when processed to create an added value (BAKA 2012). In many countries, the contribution of fishery to the national economies is high and certain developing

countries give importance to aquaculture and fisheries. Indeed, it's known that fishery products and red meat have equal protein contents. Furthermore, fishery products are more valuable in terms of minerals and fats. A balanced diet of a person should include 60% of vegetable based proteins and 40% of animal based proteins. In Turkey, food consumption composition is mostly based on vegetable and consumers meet their protein demands with 55% grain and 10% meat (Ergun 2009). Today, an increasing importance of balanced diet accompanied with growing population has led to an escalation of the consumption of animal origin foods like meat, milk, egg and fish. Especially, the demand for fish and fish products has increased due to their high protein levels. Fish consumption in Turkey has not reached a desired level yet. In 1990, an annual per capita fish consumption of 5.8 kg increased to 9.2 kg in 1995 with a noticeable increase. In the following years, a decreasing trend started with 8.0 kg in 2000, 7.2 kg in 2005, 6.9 kg in 2010 and 7.1 kg in 2012 with fluctuations (TÜİK 2013). Within the same periods the annual fish consumptions per capita in Turkey were much lower compared with those of developed countries and world average. For instance, the world average consumption was 18.5 kg in 2009 (FAO 2013). Nevertheless, it should be underlined that while the fish consumption per person in developed countries and the world displays a constant trend, an always growing trend is a case in developing countries. Interestingly, Turkey has a consumption amount for fish on a par with half of developing countries and a decreasing trend (Özkan et al. 2006). So far, many studies have dealt with determination of fish consumption per person in the world as well as Turkey (Albayrak 1999, Sayılı et al. 1999, Şengül and Emeksiz 1999, Al-Mazrooei et al. 2003, Jenkins 1991 and Herrmann et al. 1994). This study aimed to determine the consumption choices of fishery products as an important protein resource in terms of human health and nutrition. For this purpose, socio-economic factors that were affecting the consumption of households living in the central districts of Antalya Province were identified.

## MATERIALS AND METHODS

The main material of the research was the horizontal cross-sectional data collected by a survey with the families living in the central districts of Antalya

Province. The data belonging to the research field was taken from Turkey Statistical Institute (TÜİK) and previous studies in the same direction. In the research, the method "Nonclustered Single Stage Simple Random Sampling" was used to determine the sample size. In consumer researches, this method is used in situations where there's no information about the population and the theoretical meaning is explained by Collins (1986) and Koç et al. (1995). Accordingly;

$$n = \frac{Z^2 [1 + (0.02) * (b - 1)] * P * Q}{(S)^2}$$

In the formula;

Z: z table value

B: Sampling stage

P: Event's probability of happening (The ratio of the families consuming fish)

Q: Event's probability of not happening (The ratio of the families not consuming fish)

S: Acceptable margin of error in sampling

In the formula above, "b" used in "Nonclustered Single Stage Simple Random Sampling" will be 1, then the formula will turn into the following figure.

$$n = \frac{(S)^2 * P * Q}{(S)^2}$$

At the first stage of the study, to determine the ratio (P value) of families who were consuming fish in the central districts of Antalya province, a sufficient number of preliminary survey was conducted. The ratio of families consuming fishery product was determined according to the findings obtained. Then, the sample number that had to be used in the survey by the sampling formula was determined as 312. In the study, the data obtained from households were evaluated using a statistical software (SPSS ver. 13.0, SPSS Inc, Chicago, IL). The findings were summarized using the frequency and cross tables. Likert Scale was used for the evaluation of customer behaviours at a statistical significance level of P=0.05.

## RESULTS

Fish consumption survey in the central districts of Antalya province in 2009 was made by the face-to-face interview method with 337 persons. Of the

respondents who enrolled in the survey 45.4% were women and 55.6% were men (ages of the respondents were concentrated between 31-40 years 45.40 %) with an average of 38.75 years old (Figure 1). Additionally, nearly 3/4 of respondents were married. The average size of households was 3.85.

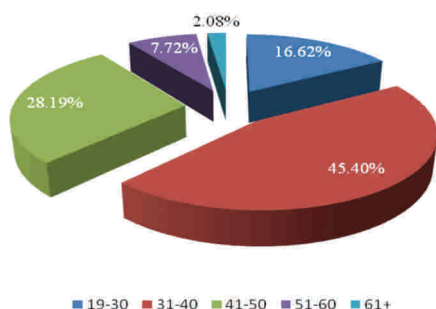


Figure 1. Age groups of the respondents in the study

When the educational level of the individuals were examined, it was found that 26.41% of them were graduates and 20.18% primary school graduates (Figure 2). People, who have different occupations, are participated in the survey. Educational status of the individuals surveyed were relatively high (Figure 3).

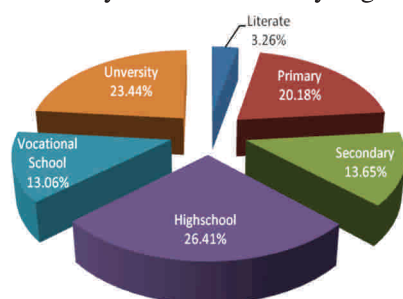


Figure 2. Education levels of the respondents

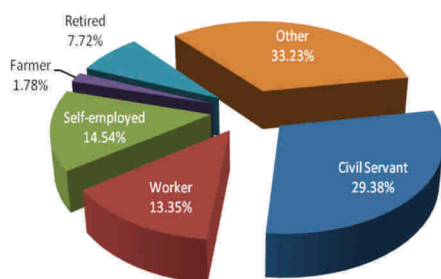


Figure 3. Professional status of the respondents

The average monthly income of the families was found to be ₺1 725 and more than a half of families had an income above ₺2 001 (Figure 4).

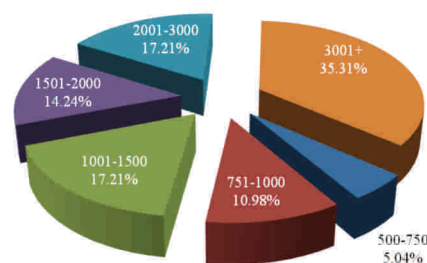


Figure 4. Household monthly total income (₺)

It was calculated that the average spending for food of an household was 425 ₺/month (Figure 5). In other words, a household spent 25% of its income to food expenses. Besides, it was determined that food expense of households in the highest income group (3001+ and 2001-3000 ₺/month) had a smaller share (701+ and 601-700 ₺/month) in the total income. Briefly, when the income increased, the ratio of food expenses in the total income reduced.

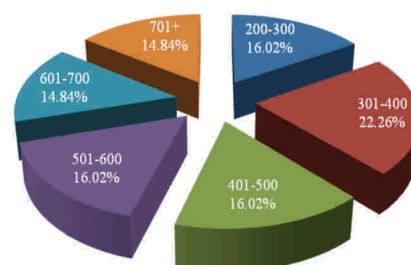


Figure 5. Household Monthly Food Expenditure (₺)

The household's average meat consumption was 93 ₺/month with a percentage of 21.88 in total food expenses of the families. In the province, more than a half of the families spent 50-100 ₺/month to meat and meat products (Figure 6). Additionally, the spendings of households to meat and meat products represented 5.4% of total average income.

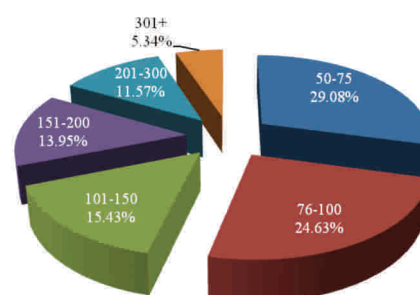


Figure 6. Household monthly meat and meat products expenditure (₺)

The amounts of monthly average meat and meat products consumption of households in Antalya are given in Figure 7. According to this, average monthly chicken, veal, goat meat and mutton consumptions of households were 4.02, 2.96, 2.77 and 2.18 kg respectively. Annual total consumptions of these items in the same order per person were 12.53, 9.23, 8.63 and 6.79 kg. Average monthly fish consumption of families and annual average consumption per capita were 1.85 kg and 5.77 kg respectively. This consumption ratio was below the Turkey and the world averages.

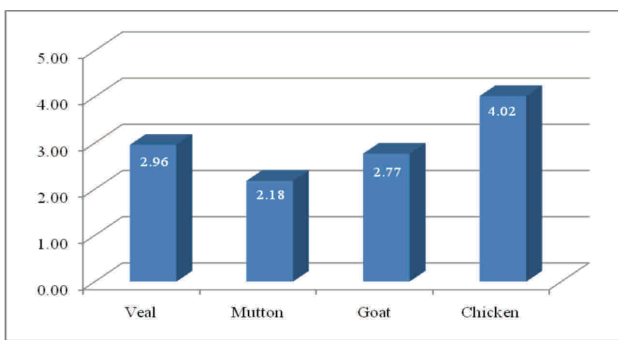


Figure 7. Household average meat consumption

When a question of “Why do not households consume fish and fish products much?” was asked, the first answer was that the smell and dirtiness occurred in the kitchen during cooking. The other reasons were a suspicion about the freshness of fish, preference for red meat and chicken to seafood, higher prices of seafood, lack of palatability and the cleaning problem of fishery products before cooking (Figure 8).

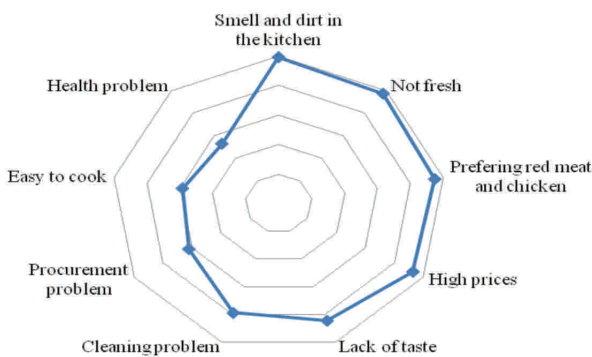


Figure 8. Reasons of avoidance of household from fishery product consumption

The reasons of preference of households for fish products were an opinion of fish being healthier and more nutritious than other meat products (Figure 9).

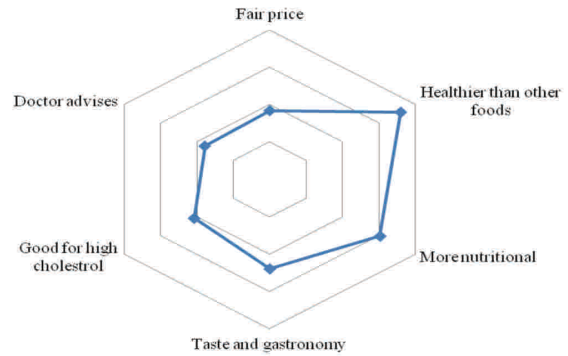


Figure 9. Reasons of preference of household for fish products

A household member paid attention mostly to the freshness when buying fishery products. Whether the product was hygienic or not, cleanliness of inner organs and outer surfaces followed by the safeness of place where it was caught. Because fishery products have short shelf-life and are perishable, consumers appeared to pay more attention to freshness, hygiene, cleanliness and safety (Figure 10).

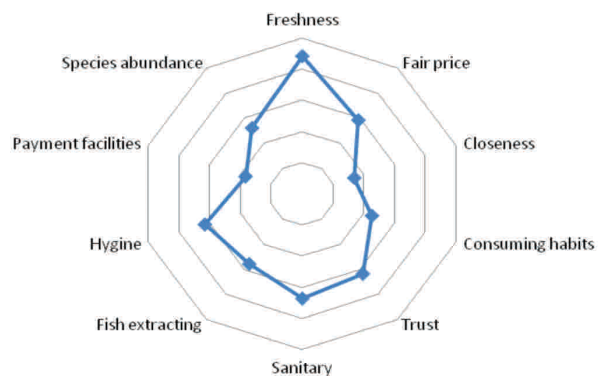


Figure 10. Factors effecting household fish product purchasing

Antalya households fish consumption status by species is given in Figure 11. As opposed to tuna fish which was the most consumed (4.23 kg/monthly) species, anchovy which is hunted only in the Black Sea and Marmara Sea, was the least consumed (0.68) species.

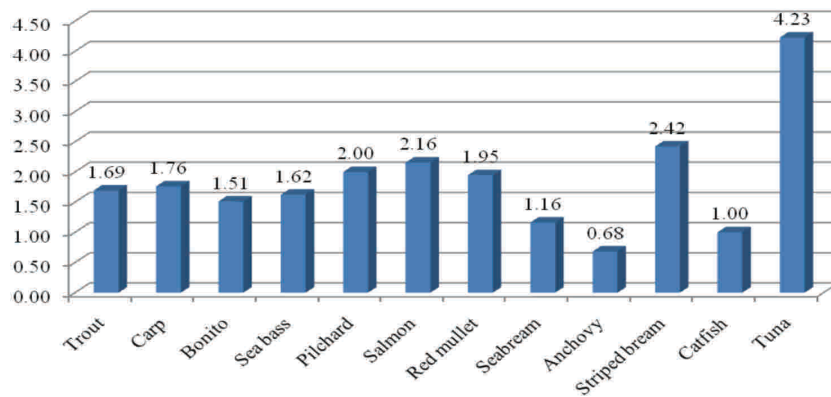


Figure 11. Households fish consumption status by species (kg)

In Antalya, the most consumed species was squid (Kalamar) with a 3.61 kg/month followed by lobster (1.50 kg/month), shrimp (1.45 kg/month), mussel (1.33 kg/month) and octopus (1 kg/month) (Figure 12).

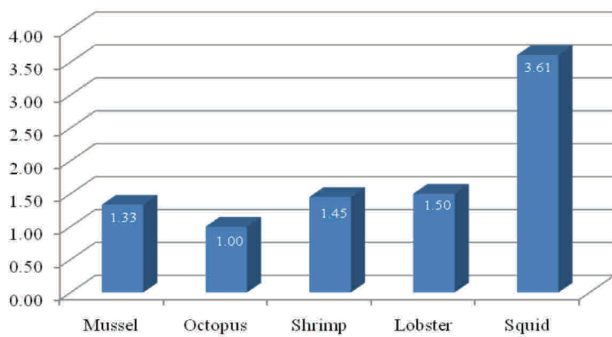


Figure 12. Monthly consumption fish products by the households

Most of the households members (75%) in the central districts of Antalya province preferred consuming fishery products as fresh, followed by frozen and canned consumption (Figure 13). The latter methods were mostly preferred for species that cannot be hunted in the Mediterranean Sea and Turkey.

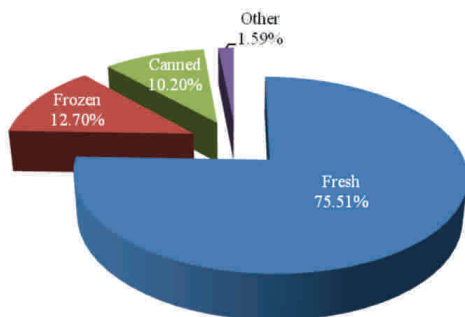


Figure 13. Preferences of the households for seafood consumption

Frying was a cooking choice of Antalya households to consume the fish products they bought especially the fish, (56.90%) followed by baking (28.81%) and barbecue (14.29%) (Figure 14).

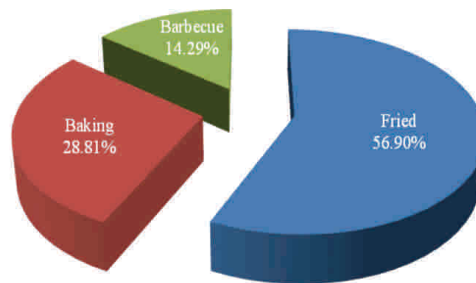


Figure 14. Household cooking preferences

The respondents in the province bought the fish products from different places. The most preferred place was supermarket (30.48%) because the consumers consider them as safe and fresh. The others were local markets (28.19%) and fish markets (27.62%) (Figure 15). As a hobby activity, angling was also present in the region.

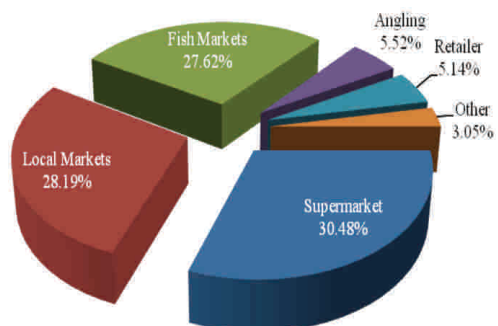


Figure 15. Preference of places for fish product purchasing

## CONCLUSION

In this study, status of fishery product consumption of families living in urban areas of Antalya, and socio-economic factors effecting the consumption were analyzed. According to the results of study, average fish consumption of families was 1.85 kg/month and average annual consumption per person was 5.77 kg, meaning that fish consumption per person in Antalya province is less than that of Turkey. The research results show that there is an opposite relationship with income level and the expenses for food consumption, meat and meat products. It appears that the most consumed fish species are tuna, coral, salmon and sardine in a descending order, while the most consumed fishery products are squid and lobster. Considering that the fish products consumption of households in Antalya is below the Turkey's average, some precautions should be taken into consideration to increase this level. To gain fish consumption habits to the families, educational activities can be organized to explain the importance of fish and fish products for nutrition and human health. Among these activities, increasing public awareness with advertising campaigns may come first. Beside establishing a well organized marketing network and providing fresh products can increase the per person consumption. This may also allow the fish products to reduce the costs and indirectly increase the consumption.

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