

Research Article

## Poultry meat consumption and consumer trends in Turkey

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### Abstract

This study was conducted by Poultry Research Institute to determine the poultry meat consumption and consumer trends in Turkey. With this aim questionnaire forms composed of 26 questions were prepared. This questionnaire study was conducted with 2.241 families, which represent the consumer profile of Turkey, supplied by Turkish Statistical Institute. Data obtained from the questionnaire were evaluated by using SPSS programme (SPSS 17). 98.26% of the participants were determined to consume poultry meat. Yearly poultry meat consumption was found as 16.67 kg although it differed between regions. There was a positive correlation ( $r=0.222$ ) between the people income level and the poultry meat consumption. 44.55% of the families preferred whole poultry meat carcass. Expiration date was taken into consideration by the 67.35% of the participants. Boiling was preferred by consumers as a cooking method with a rate of 44.73%. Halal slaughter has been considered important by 68.08% of people and these persons mentioned that it should be signified on the package. Avian influenza disease affected consumption negatively with a rate of 41.01%. 67.11% of the participants believing that the poultry meat production is not inspected adequately. As a result of the research, it was understood that poultry meat and products were widely consumed in different ways in Turkey.

**Keywords:** Consumer preferences, poultry meat and meat products in Turkey, survey

### 1. Introduction

There were nearly 8.908 broiler enterprises in Turkey according to the 2010 year data (YUM-BIR 2011). Total 1.515.500 tonnes poultry meat (1.420.000 tonnes broiler meat, 35.500 tonnes Turkey meat and 60.000 tonnes other poultry meat) was produced in these enterprises according to the unascertained 2010 year data. It is expected 19.12 kg/year poultry meat to be consumed per capita in 2011 (BESD-BIR 2011).

Total world poultry meat production was reported as 91.307.582 tonnes according to the 2009 data of FAO. The most poultry meat producing countries are USA (18.982.752 tonnes), China (16.437.587 tonnes) and Brazil (10.385.331 tonnes). In Turkey, poultry meat and red meat (cattle, sheep, goat) productions are amounted to 1.308.009 tonnes and 624.286 tonnes. Yearly poultry meat consumptions per capita were 50.59, 31.66, 11.84 and 20.78 kg in USA, Brazil, China and EU countries, respectively. In Turkey, red meat and poultry meat consumptions (14.12 and 10.73 kg) are lower than developed countries. But, drastic increases have been seen in poultry meat consumptions during recent years (FAO 2011).

Many studies related to breeding, raising and feeding techniques in poultry production were conducted by universities and other research institutes. As the research results were put in practice the production level per animal raised and production costs decreased. No study was carried out to determine the trends related to poultry consumption throughout the country up to now.

Only some local studies were present about this subject. A study in Aydın in 2003 has found yearly poultry meat consumption to be 23.7 kg per capita. Nearly 25.8% of the people were aware of ecological agriculture and this percentage was found to increase with parallel to increases in education and income levels (Armagan & Ozdogan 2005). The other survey in Ankara (Çankaya) it was found that poultry meat consumption increased as the income level increased. While the pieced meat was found to be preferred by high income level groups, the low-educated people preferred whole carcass (Tatlıdil et al. 1993).

Avian influenza disease was found to decrease the yearly consumption from 4.27 to 3.19 kg in a study conducted in Tokat (42.86%) (Sayılı 2006). The consumptions and eating frequencies related to poultry meat, egg and other products were determined in various studies conducted with university students (Sarıözkan et al. 2007; Gevger et al. 2008; Önay 2010). Yearly turkey meat production in Turkey and yearly turkey meat consumption per capita were found as 12.200 tonnes and 136-176 g, in 2007, respectively (Koyubenbe & Konca 2010). About 71.43% and 17.62% of the participants purchased poultry meat from the markets and points of sale, respectively (Sayılı 2006).

Although there is no problem in terms of total protein consumption, animal protein consumption is not adequate in Turkey. For this reason, egg, milk, milk products and meat consumption should be reconsidered

in order to increase the animal protein consumption (Yagmur & Gunes 2010).

In this study, countrywide poultry meat and products consumption and related habits were investigated through selected families in a way to reflect Turkey's consumer profile.

## 2. Material and Method

The research material was composed of questionnaires aimed at determination of the consumer preferences for poultry meat. The questionnaires were composed of 26 questions. Sample size and household for the survey were determined by the Turkish Statistical Institute by using a random sampling method (Yamane 1967). Totally 2.244 family addresses in 61 provinces of 7 regions (Mediterranean Region, Black-Sea Region, Central Anatolia Region, Marmara Region, East Anatolia Region, Southeast Anatolia Region, Eagean Region) were determined according to various factors such as education and income. Questionnaires were carried out by using face to face interviews. Three questionnaires were not taken into consideration due to the signing faults. Data obtained through the questionnaires were analyzed using the descriptive statistics and frequency tables in the Statistical Package for the Social Sciences (SPSS 17).

## 3. Results

The data related to the age groups, genders, income and education levels, average family sizes and family incomes were shown in Table 1. Average family member numbers and monthly incomes were 3.5 and 1.561.14 TL, respectively. The monthly income per family member was found as 446.04 TL.

**Table 1. General information related to the families**

Age groups of family members	Member count (number)
0-6	688
7-14	1.012
15-17	523
18-25	1.110
26-40	1.959
41-64	2.099
65->	454
<b>Total</b>	<b>7.845</b>
<b>Average family size</b>	<b>3.50</b>
Genders of family members	
Female	3.945
Male	3.900
Education levels of family members	
Illiterate	767
Elementary	2.849
Middle-school	1.194
High-school	1.771
University	1.264
<b>Average monthly income (TL)</b>	<b>1.561.14</b>

A 98.26% (2.202 families) of the total participants (2.241 families) have consumed poultry meat and products (Table 2). The reasons for not consuming poultry meat (1.74%) were shown in Table 3. Among these reasons, the dislike for poultry meat (33.33%) and the concern related to the slaughter and feather removing methods (28.21%) were ranked as first and second reasons respectively.

**Table 2. Poultry meat and products consumption of families**

Do you consume poultry meat and products?	N	%
Yes	2.202	98.26
No	39	1.74
<b>TOTAL</b>	<b>2.241</b>	<b>100</b>

N: Number of participants

Yearly poultry meat consumption per capita was found as 16.67 kg in Turkey though it varied according to the different regions. The distribution of poultry meat consumption according to the regions was given in Table 4. The regions consuming the highest level of poultry meat were the Mediterranean Region followed by the Central Anatolia Region. There was a positive correlation ( $r=0.222$ ) between people income level and poultry meat consumption ( $P<0.05$ ) despite there was no correlation between poultry meat consumption and education level ( $P>0.05$ ).

**Table 3. Reasons for not unconsuming poultry meat and products**

Why do you not consume poultry meat and products?	N	%
I do not like slaughter and feather pecking methods	11	28.21
I do not like the taste of poultry meat	13	33.33
I am vegetarian	3	7.69
I consume only red meat	2	5.13
Other	10	25.64
<b>TOTAL</b>	<b>39</b>	<b>100</b>

N: Number of participants

Consumption frequencies for poultry meat were once a week (43.64%), twice a week (34.79%), three times a week (16.67%), four times a week (3.58) and five times a week (1.32). Nearly half of the families consumed poultry meat at least once a week.

**Table 4. Poultry meat consumptions according to the region**

Regions	Yearly consumption per capita (kg)
Mediterranean Region	20.94
Black-Sea Region	13.54
Central Anatolia Region	18.12
Marmara Region	16.20
East Anatolia Region	16.74
Southeast Anatolia Region	12.33
Eagean Region	12.69

Consumption ratios of various poultry carcass parts were found as 44.55, 33.65, 11.40, 6.53, 3.32, 0.41 and 0.14% for whole carcass, rump-baget, chest, wing, chop, liver and gizzard (Table 5).

**Table 5. Preference ratios for poultry carcass parts**

Which carcass parts do you prefer most?	N	%
Whole carcass	981	44.55
Rump-baget	741	33.65
Chest	251	11.40
Wing	144	6.53
Chop	73	3.32
Liver	9	0.41
Gizzard	3	0.14
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

**Table 6. Preference ratios for processed poultry meat products**

Which processed poultry meat products do you prefer?	N	%
Schnitzel	115	19.30
Nugget	45	7.55
Chicken doner	217	36.41
Patty-hamburger	61	10.23
Salami-hotdog-sausage	158	26.51
<b>TOTAL</b>	<b>596</b>	<b>100</b>

N: Number of participants

Consumption ratio for processed poultry meat products was found as 27.07%. The preference ratios for various processed meat products were shown in Table 6. Nearly 5.63 kg processed meat product was determined to be consumed in a year per participant. A majority of the participants (94.55%) mentioned that they did not consume the meats of other poultry species (duck, quail, goose and partridge). The participants, who consumed these poultry species meats, supplied them by purchasing, hunting or self producing. The low counts of these species limited their consumption ratio (Table 7).

**Table 7. The consumption ratios of some poultry species**

Which poultry meat apart from hen and turkey do you consume?	N	%
Duck	28	1.27
Partridge	20	0.91
Quail	32	1.45
Goose	39	1.77
All species	1	0.05
None	2.082	94.55
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

While the 67.35% of the participants take into consideration the expiration date, the 22.88% of those prioritise the brand. The other factors rank as follows: price (5.77%), skin colour (2.91%) and package shape (1.05%). The data related to the consumer preferences were given in Table 8. On the other hand, the price of the poultry meat and products affected the preferences of the 25.84 % of the participants who preferred cheap products.

**Table 8. Factors affecting the preferences of consumers**

Which factors do you take into consideration when you purchase poultry meat products?	N	%
Brand	504	22.88
Price	127	5.77
Packaging	24	1.09
Expiration date	1.483	67.35
Skin colour	64	2.91
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

Poultry meat was consumed as boiled form (44.73%), baked form (23.30%), barbecue form (17.26%) and in dishes (14.62%) in home preparation (0.09%) (Table 9).

**Table 9. Consuming types of poultry meat**

Which consuming type do you prefer?	N	%
In boiled form	985	44.73
In barbecue form	380	17.26
In baked form	513	23.30
In dishes	322	14.62
All	2	0.09
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

However, consuming preferences for different poultry meat products serviced at restaurants were found as 44.28% for chicken doner, 29.56% for barbecue, 12.58% for roast chicken, 12.17% for stew and 1.41% for fast-food (Table 10).

**Table 10. Consuming preferences of some poultry meat dishes at restaurants**

Which poultry meat dishes do you prefer at restaurants?	N	%
Chicken doner	975	44.28
Roast chicken	277	12.58
Stew	268	12.17
Fast food	31	1.41
Barbecue	651	29.56
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

The preferences of the consumers about the production systems were also asked to them. Village chicken was mostly preferred by consumers (66.39%), commercial and organic poultry meat followed this system (15.53% and 18.07%, respectively see Table 11).

**Table 11. Preferences for some poultry products raised in different systems**

Which one of them do you prefer? Village chicken, commercial chicken or organic chicken?	N	%
Commercial chicken	342	15.53
Village chicken	1.462	66.39
Organic chicken	398	18.08
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

Village chickens were more preferred compared to other chickens raised in different systems. The main reasons for this preference: natural (51.71%), flavour (44.66%) and manual slaughter (3.21%). While 68.08% of the participants care about halal slaughter, 15.21% of those do not care about it (Table 12).

**Table 12. Preferences for halal slaughter**

What do you think about halal slaughter?	N	%
I am not doubtful about this subject.	350	15.89
I care about it. It should be mentioned on the packages.	1.499	68.08
I do not care about it.	335	15.21
Other	18	0.82
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

In case of the slow growing broilers present in the market, the 64.58% and 20.48% of the families mentioned that they would prefer slow growing broilers and fast growing broilers, respectively. The remaining 13.26% mentioned that they would prefer to decide according to the price. About 1.68% of the participants did not reply this question. Slow growing broilers which are slaughtered at 80-90 days are more expensive than the fast growing broilers (commercial chicken) due to their higher production costs.

Nearly 40.62, 36.05 and 9.21% of the participants mentioned that they could pay more i.e. 20, 10 and 50% more money for slow growing broilers (Table 13). It is supposed that the preference of the families (14.14%), who don't want to pay more money for slow growing broilers, might change.

**Table 13. The extra payment for slow growing broilers**

How much extra money do you pay for slow growing broilers	N	%
I pay 10% more	513	36.05
I pay 20% more	579	40.62
I pay 50% more	131	9.21
I do not pay more.	201	14.14
<b>TOTAL</b>	<b>1.424</b>	<b>100</b>

N: Number of participants

Frozen poultry meat was consumed by only 19.16% of the participants. The main reasons for not consuming frozen poultry meat were disliking (44.37%) and lack of knowledge about this product (14.94%).

The second important poultry meat product in Turkey was found to be Turkey meat. Nearly 74.70% of the participants did not consume Turkey meat. Eating frequencies of Turkey meat were found as once a year especially at Christmas (59.61%), once a month (21.36%), twice a month (6.82%), three times a month (5.03%) and more than three times a month (7.18%) (Table 14). Turkey meat is consumed as whole (41.29%), as piece meat (55.48%) and as processed meat (3.23%).

**Table 14. Eating frequency for turkey meat**

How often do you consume Turkey meat?	N	%
Once a month	119	21.36
Twice a month	38	6.82
Three times a month	28	5.03
More than three times a month	40	7.18
Once a year	332	59.61
<b>TOTAL</b>	<b>557</b>	<b>100</b>

N: Number of participants

While avian influenza bird disease, which was seen in Turkey in the past, was understood to have affected the poultry meat consumptions negatively in 41.01% of the participants. Nearly 48.05% of the participants were not affected (Table 15).

**Table 15. Poultry meat consumptions in case of Avian influenza disease outbreak**

Do the diseases such as Avian influenza affect your poultry meat consumption?	N	%
Yes. I do not purchase poultry meat during outbreak of disease and even for a long time after that time ?	903	41.01
I purchase poultry meat and products from marked producers?	124	5.63
No. I continue to consume?	1.058	48.05
Other	117	5.31
<b>TOTAL</b>	<b>2.202</b>	<b>100</b>

N: Number of participants

While public inspection on poultry meat production was found inadequate by the 67.11% of the participants, the 23.87% of the participants found inspection level adequate. About 9.01% of the participants did not reply to this question.

#### 4. Discussion

Poultry meat consumption rate is 98.26% in Turkey. This rate is quite high. The confidence on food safety increased due to the advances in poultry meat production. Depending on this fact, it may be possible to increase the poultry meat consumption of people who do not consume poultry meat due to the various reasons in

Table 3. These people are supposed to have started consuming poultry meat due to the problems in red meat production.

Poultry meat consumption in Turkey is higher compared to that in China and lower compared to that in developed countries (FAO 2011). Poultry meat consumption level in the Mediterranean Region of Turkey has reached the level of EU countries. Poultry meat consumption per capita in Aydın was reported to be 23.7 kg (Armağan & Özdoğan 2005). Poultry meat consumption per capita was found to be differing among other regions. These regional differences might be aroused from the differences in local consumption habits and also in income levels. Nearly half of the people in Turkey consume poultry meat at least once a week. This consumption level means that poultry meat has a large place in nutrition habits of people.

Both poultry meat production and poultry meat consumption per capita were found to be two times higher compared to red meat during last years. Poultry meat is mostly consumed as whole (44.55%) and this consumption type was followed by rump-baget consumption (33.65%). Researches showed that poultry pieces were more preferred compared to whole poultry carcass in parallel to the increase in education and income levels (Tatlıdil et al. 1993). It was reported that chicken meat is less expensive than fish meat and red meat, and also the consumer preferences were not affected by the price differences between the meat types in the USA (Koizumi et al. 2001). But, red meat is 5 times more expensive than chicken meat in Turkey. Because of this reason, chicken meat is preferred more by the consumers in Turkey.

Processed poultry products are consumed in low rate (27.07%). The most consumed processed poultry products are chicken doner (36.41%), salami-hotdog-sausage (26.51%), schnitzel (19.30%), patty-hamburger (10.23%) and nugget (7.55%). Putting of these products on the market led to an increase in poultry meat consumption. The higher consumption of processed chicken products in the EU countries was reported to be a result of the fact that these products can be prepared in a shorter period of time and also because outdoor eating is more common in the EU countries (Magdelaine et al. 2008).

The consumptions of other poultry meats (duck, partridge, quail and goose) are quite low in Turkey (5.45%). This is because there is not enough consumption habit and also these meat products cannot be found in the market commonly.

The shelf life of fresh chicken meat is very short. Therefore, the most important factor affecting the preference for fresh poultry meat is the expiration date (67.35%) which is followed by the brand (22.88%). Prominence of these factors means an increase in public awareness. The poultry meat is mostly consumed in the boiled form (44.73%) followed by the baked form (23.30%), charcoal-boiled (17.26%), and in dishes form (14.62%). In restaurants poultry meat is mostly consumed in the chicken doner form which was followed by the barbecue form, roasted form and the stew form.

In case all 3 products were found together at the aisle, village chicken is more preferred (66.39%) compared to organic chicken (18.08%), while commercial chicken is least preferred (15.53%) when these chicken types are present in the aisle. This means that people is interested

in organic products. But, this study also shows that there is a lack of confidence about the village chicken and organic chicken products and this disbelief affects production variability negatively. Some efforts should be made by the relevant institutions in order to overcome this problem of confidence. It was reported that 58,5% of the consumers in Hungary were aware of farm chicken and that the consumers preferred the farm chicken due to the healthiness and high quality of this product (Tikasız et al. 2009).

Halal slaughter has been considered important by a large part of people and these persons mentioned that it should be signified on the package (68.08%). It is essential to implement required regulations in order to satisfy expectations related to halal slaughter. This might lead to increases in poultry meat consumption. The demand for halal slaughter was reported to increase progressively (Nunes 2009).

A range of studies are being conducted on slow growing broilers in Turkey. These broilers, which are slaughtered at 80-90 days age, are expected to be preferred by a large part of the people. But, production costs of these broilers are high due to the long raising period. Preference ratios related to these products determined in questionnaires are expected to change according to the prices of them.

The consumption level of frozen poultry meat is quite low in Turkey. There is lack of knowledge about these products. The results of this study showed that there was a prejudice against frozen products and that the people should be informed about these products.

Nearly 25% of the people consume turkey meat. Turkey meat consumption is increase especially at Christmas and piece turkey meat (55.48%) is more preferred compared to whole carcass (41.29%).

Avian influenza disease, which outbreaked in Turkey in 2005, affected the consumption of poultry meat and products negatively. Nearly 41.01% of the people in Turkey stopped consuming poultry meat due to the avian influenza disease in 2005. Both production sector and consumers has been suffered from the decrease in consumption which arose from such diseases. Some untrue and malicious news during those days led to a decrease in poultry meat consumption by misleading the people. But, avian influenza was determined not to have affected the poultry meat consumption in EU countries (Magdelaine et al. 2008).

There is a common belief that the production of poultry meat and products is not adequately inspected by official bodies (67.11%). Some informative efforts are needed to remove this public distrust.

It can be concluded that it will be possible to increase poultry meat consumption if the consumer trends, which are determined by this study of the poultry meat producers, are taken into consideration. Annual poultry meat consumption in Turkey (16.67 kg) is not enough. However, it is thought that poultry meat will hold its own place in Turkish cuisine if the problems in red meat production continue. Adequate publicity campaigns and advertisements related to poultry meat and products are essential in order to form a health-conscious consumer mass.

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