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YILMAZ ARAL

EROL AYDIN

PINAR DEMİR

AHMET CUMHUR AKIN

YAVUZ CEVGER

See next page for additional authors

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Authors

YILMAZ ARAL, EROL AYDIN, PINAR DEMİR, AHMET CUMHUR AKIN, YAVUZ CEVGER, ÇAĞLA YÜKSEL KAYA KUYULULU, and MEHMET SALTUK ARIKAN

Consumer preferences and consumption situation of chicken meat in Ankara Province, Turkey

Yılmaz ARAL^{1,*}, Erol AYDIN², Pınar DEMİR², Ahmet Cumhur AKIN¹,
Yavuz CEVGER¹, Çağla Yüksel KAYA KUYULULU¹, Mehmet Saltuk ARIKAN¹

¹Department of Animal Health Economics and Management, Faculty of Veterinary Medicine, Ankara University, Dışkapı, Ankara, Turkey

²Department of Livestock Economics and Management, Faculty of Veterinary Medicine, Kafkas University, Paşayağı, Kars, Turkey

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Abstract: This study was carried out to create a chicken meat consumption profile, including factors that influenced buying habits and consumer preferences. Data were obtained from surveys conducted face-to-face with 450 household heads in the city center of Ankara. In the study, the average size of the household and the total monthly household consumption of chicken meat were determined to be 3.9 persons and 3.31 kg, respectively. The majority of participants claimed that their average chicken meat consumption would increase by 82.0% if their total real household income increased by 100%. Of those surveyed, 32.9% preferred chicken as a first choice among meats, 28.7% preferred it as a second choice, and 24.4% preferred it as a third choice. In households that prefer chicken as a first option, the most important factors that affect the preferences of chicken meat consumption are price suitability, taste, nutritional value, health circumstances, fat rates, and ease of preparation, respectively. Considering the outcome of the research related to consumer demands and preferences, it is possible to increase market shares by supplying products of suitable amount, quality, and properties. From the view of using marketing tools more effectively and defining new strategies, determination of consumer preferences and the factors affecting them have great importance.

Key words: Chicken meat, household, consumption, consumer preferences

1. Introduction

The necessity of securing the food supply in terms of quality and quantity for the increasing population, as well as the need for animal proteins, health problems due to nutrition, and consumers' awareness and tendency to maintain a healthy and balanced diet, have all made the poultry sector a significant industry throughout the world.

Despite the contraction in demand and abrupt fall in prices due to reasons such as the recent economic crises, various sensational comments, and the last bird flu epidemic, the poultry sector in Turkey keeps growing and maintains its development in line with the increasing export opportunities.

Although the poultry sector in Turkey has made progress in production, processing, productivity, use of technology, maintenance and feeding conditions, standardization, etc., a great majority of the current problems remain unsolved. These include the minimization of production costs, establishment of the equilibrium between supply and demand, efficiency in marketing, and attaining a competitive position in exporting (1).

It was found that some factors related to the sex, age, body weight, place of residence (rural, urban), eating

habits, and social status of consumers generally have an effect on meat consumption preferences and amount of consumption (2). In a questionnaire survey conducted with 625 household managers consuming meat in Belgium, it was found that 57.1% of the participants consumed meat daily; 51.1% purchased meat from butcher shops, whereas 30.7% purchased from supermarkets and 18.2% purchased through other marketing channels (3).

There are numerous factors affecting the amount of chicken consumption, which has an important place in human nutrition. Regional development differences, consumer income level, socioeconomic and demographic factors, seasons, food safety and quality, personal tastes and habits, product price, and opinions regarding human health are generally thought to be the major factors that have an effect on the demand for chicken meat in Turkey. The number of scientific studies researching the consumption structure, including consumption level of chicken meat, consumption habits, factors affecting the consumption of chicken meat, and consumer preferences on the basis of regions and cities, is not sufficient.

Recently, chicken consumption in EU countries has been changing in terms of quality and nutritional

* Correspondence: yaral@veterinary.ankara.edu.tr

characteristics, production methods (feeding, animal welfare, etc.), country origin of the product, frozen/fresh meat preference, risk perception towards diseases (mainly bird flu), etc. Furthermore, it is reported that chicken meat consumption in EU countries is increasing due to the time-saving features of chicken meat while preparing a meal at home and its diversified use by catering companies (4).

In a study conducted with 1407 consumers in 45 provinces in Turkey, it was found that the bird flu epidemics and the accompanying crisis had substantially reduced the consumption of chicken in 52% of the participants, and 8% ceased consumption entirely. In the period following the bird flu crisis, the resumption of chicken consumption and the increase of demand were reported to extend to 3–9 months as a result of promotion efforts in the media. Moreover, the study also reported that the percentage of the purchase of branded and packaged chicken meat, which had been around 51% prior to the bird flu epidemic, rose to 78% in the period after the crisis (5).

According to the results of a questionnaire survey conducted to reveal general consumer tendency in Germany, while consuming meat, consumers take into account factors that are thought to affect food safety, such as country of origin, product brand, and label details, in addition to characteristics that are hard to measure, such as smell, flavor, and taste (6). Results of another survey conducted with 600 chicken meat consumers in Slovenia suggested that country of origin plays a key role in the consumers' purchasing process; particularly, the label details (country of origin, nutritional qualities, low fat, vitamin and mineral supplementation, lack of preservatives or additives, etc.) are taken into consideration (7).

This study provides the results, as they relate to chicken meat consumption, of a questionnaire survey conducted to reveal the consumption structure of animal products in Ankara as of 2008 and aims to determine the factors affecting chicken meat consumption, purchasing habits, and consumer preferences.

2. Materials and methods

The material of this study consists of the data obtained from questionnaire surveys taken face-to-face with household managers selected by a stratified sampling method based on the population density in the province of Ankara in 2008. Sampling size in the research was calculated by accepting the power of the test as 0.90 and $\alpha = 0.05$ (type 1 error) in the package software G-Power 3.1.2, and the n -value was found to be 354 (8).

In sampling, the number of questionnaires to be conducted in each stratum was determined according to the share of these strata, namely 8 central Ankara districts (Altındağ, Çankaya, Etimesgut, Gölbaşı, Keçiören, Mamak, Sincan, and Yenimahalle), in the total population of the province of Ankara. The share of population of these

districts in the total population of the province is given as 85.66% in the Address-Based Population Registration System of the Turkish Statistical Institute.

When the minimum sample size (354 questionnaires) determined within this research was distributed among the selected districts in direct proportion with their populations, it was calculated that 33 questionnaires should have been filled out in the district of Altındağ, 72 in Çankaya, 29 in Etimesgut, 8 in Gölbaşı, 71 in Keçiören, 47 in Mamak, 39 in Sincan, and 55 in Yenimahalle.

However, the questionnaire survey was conducted with a total of 482 household managers in case data to be obtained in the survey were erroneous or incomplete. Thirty-two surveys were excluded from the study as they contained incomplete data and were found to be unreliable. Thus, the data analysis was carried out with 450 surveys.

As a result, the number of questionnaires taken by household managers within this survey study was 45 in Altındağ, 95 in Çankaya, 47 in Etimesgut, 9 in Gölbaşı, 91 in Keçiören, 54 in Mamak, 44 in Sincan, and 65 in Yenimahalle.

In the survey form, household managers were asked to answer questions such as monthly consumption of chicken meat, consumption preferences in order, and which factors have priority while deciding to purchase meat.

The data obtained through survey forms were recorded and processed in a database formed in MS Excel 2007 and SPSS 11.5 for Windows by the researchers. In the analysis of the data, descriptive statistics were used and weighted scoring was performed regarding the priority ranking of answers relating to consumer preferences. Furthermore, the Mann–Whitney U test was employed for the statistical comparison of 2 groups, and the Kruskal–Wallis test was used for the comparison of 3 groups in terms of the parameters determined (9).

3. Results

Some descriptive statistics regarding the households surveyed within the scope of the study are given in Table 1.

The average age of the 450 household managers surveyed was 40.7. The average total household monthly income was 1641.09 Turkish lira (TL) and average food expenditure for the household was 414.58 TL (25.3%). The average size of the households was 3.9 persons, and the monthly average chicken consumption was 3.31 kg.

The order of preferences by the consumers in the province of Ankara for different types of meat, as revealed by the survey, is given in Table 2.

In terms of consumption preference, the percentages of preferring chicken meat in the first, second, and third rank among other types of meat was found to be 32.9%, 28.7%, and 24.4%, respectively. On the other hand, chicken meat ranks the first (86%) in the first 3 preferences of the households regarding the purchase of different types of meat.

Table 1. Some descriptive statistics related to households.

Household	n	Min	Max	$\bar{X} \pm S$	Q1–Q3	Skewness	Kurtosis
Age (of household manager)		23	73	40.7 \pm 9.66	34–46	0.52	0.24
Size (persons)	450	2	9	3.9 \pm 1.28	3–5	0.57	1.39
Total monthly income (TL)		300	6000	1641.09 \pm 950.12	900– 2200	1088.00	1742.00
Total monthly food expenditure (TL)		70	2000	414.58 \pm 249.70	250–500	1.45	4.34
Total monthly chicken meat consumption (kg)		0.5	10.00	3.31 \pm 1.93	2–4	1.41	2.59
Increase in the amount of chicken consumption when total real income increases by 100% (%)	315	10	200	82.0 \pm 4.62	50–120	0.38	–0.91
Decrease in the amount of chicken consumption when total real income increases by 100% (%)	2	60	80	70.0 \pm 14.14	-	-	-
No change in the amount of chicken consumption when total real income increases by 100% (persons)	133	-	-	-	-	-	-
Increase in chicken meat consumption in spring and summer (%)	215	10	100	36.3 \pm 16.84	20–50	1.13	2.34
Decrease in chicken meat consumption in spring and summer (%)	41	10	50	32.9 \pm 14.83	20–50	0.09	–1.67
No change in chicken meat consumption in spring and summer (persons)	191	-	-	-	-	-	-

Table 2. Ranking of consumer preference for purchasing meat types.

Type of meat*	Those who prefer it in the first rank		Those who prefer it in the second rank		Those who prefer it in the third rank		Inclusion in the first 3 preferences (persons)	Percentage (%)
	Persons	Percentage (%)	Persons	Percentage (%)	Persons	Percentage (%)		
Chicken meat	148	32.9	129	28.7	110	24.4	387	86.0
Cattle meat	210	46.7	72	16.0	69	15.3	351	78.0
Mutton/lamb meat	36	8.0	38	8.4	45	10.0	119	26.4

*: Consumption preferences of the consumers regarding other poultry, fish, goat, and buffalo meat were included in “other meats” category.

Findings of the study dealing with reasons for preferring different types of meat in the first rank are presented in Table 3.

Among 450 households surveyed within the scope of the study, 206 (45.8%) had a monthly income of 1499 TL and below, whereas 244 (54.2%) had 1500 TL and above. Among 148 households preferring chicken meat in the first rank, 107 (72.3%) were included in the income group of 1499 TL and below, whereas the remaining 41 households (27.7%) were in the income group of 1500 TL and above.

Reasons for preferring chicken meat in the first rank according to income group are given in Table 4.

4. Discussion

The most significant factors affecting the consumption preference for chicken meat by households surveyed, and

for preferring to purchase chicken meat in the first rank among different types of meat, are found to be affordable price, taste, nutritional quality, health conditions, fat content percentage, and ease of preparation, respectively. On the other hand, the major factors affecting consumption preference for cattle meat are taste, nutritional quality, muscle and fat distribution, appearance, and price, respectively, whereas the factors affecting consumption preference for mutton and lamb are taste, nutritional quality, health conditions, price, and appearance, respectively.

Demand for organic food in the United States and European Union is rapidly increasing. In this context, companies have become more sensitive towards consumer expectations and concerns regarding traceability of the food chain, production methods, environmental

Table 3. Reasons for the first choice of the meat types.

Reason of preference	Chicken meat (I)		Cattle meat (II)		Mutton/lamb meat (III)		I-II	I-III	I-II-III
	A		A		A				
	B	C	B	C	B	C	P	P	P
Price of meat	1247	1	768	5	108	4	**0.000	**0.000	**0.000
Taste of meat	781	2	1718	1	222	1	**0.000	**0.000	**0.000
Nutritional quality	730	3	1347	2	139	2	0.348	0.428	0.568
Conditions relating to health	630	4	652	6	113	3	0.912	0.470	0.763
Fat content	405	5	1006	3	98	6	0.069	0.360	0.184
Ease of preparation*	404	6	451	8	46	9	0.417	*	*
Appearance of meat	318	7	962	4	106	5	0.287	0.262	0.441
Brand-quality characteristics*	284	8	507	7	68	7	0.671	*	*
Digestibility*	248	9	279	11	57	8	0.608	*	*
Low waste ratio (shrinkage)*	202	10	389	9	13	11	0.843	*	*
Elegance when served to guests*	142	11	294	10	40	10	0.526	*	*

A: Assessment, B: total assessment score, C: order of preference.

*: As the quantity of data relating to mutton/lamb meat was insufficient, the statistical analysis was conducted on chicken meat and cattle meat.

**: The difference between the groups is statistically significant ($P < 0.001$).

impacts, food quality and reliability, origin, animal welfare practices, etc. (10). Presence of markings and logos relating to production characteristics specified in the labeling system affect the purchasing behavior in different consumer segments.

Chicken meat production in Turkey increased by 142% between 1990 and 2010 and reached 1,420,000 t as of 2010. Accordingly, annual chicken meat consumption per capita in 2008 was 15.52 kg and this rose to 18.07 kg in 2010 (11).

In a questionnaire survey conducted by Durmuş et al. (12) with 2241 families in 61 provinces of Turkey, the average annual chicken consumption per capita for the Central Anatolia Region and all of Turkey were 16.67 kg and 18.12 kg, respectively. In the aforementioned study, the percentage of families stating that they did not consume chicken meat and products was 1.74%, and the major reasons for nonconsumption of chicken meat were dislike of its taste (33.33%), slaughtering and plucking methods (28.21%), and other factors such as mere consumption of red meat or being vegetarian (61.54%). In this study, the percentages of the consumption of different parts of chicken were found to be 44.55% for whole chicken, 33.65% for drumsticks, 11.40% for breast, 6.54% for wings, 3.32% for chopped steak, 0.41% for liver, and 0.14% for gizzards (12).

In a study conducted in 384 households in Aydın, Turkey, it was emphasized that those who were included in the group with high income and educational background

had knowledge about ecological or organic animal production, and that approximately half of the participants were ready to purchase organic chicken meat at an average 30.4% higher price (13).

In another study conducted to reveal the fresh chicken meat consumption habits of the households in the urban and rural parts of the province of Van, it was found that income level and urbanization had an effect on the chicken meat consumption level and habits. This study revealed that on average, 3.9% of the annual household income was spent on chicken meat and that purchase of chicken meat once or more in a week by households in urban and rural areas was 53.7% and 48.4%, respectively (14). Furthermore, this study noted that 66.0% of the households in urban areas preferred purchasing chicken meat cut in parts, whereas 52.6% of the rural households preferred purchasing whole chicken.

In this study conducted in Ankara, the reasons stated by households for preferring chicken meat in the first rank by their income groups were price, nutritional quality, taste, health conditions, and ease of preparation, respectively, for the households with an income of 1499 TL or below, and taste, health conditions, nutritional quality, price, and fat content, respectively, for the households with an income of 1500 TL or above.

When the households preferring chicken meat in the first rank among different types of meat are classified by their incomes, the difference between price, taste and

Table 4. Reasons for the first choice of chicken meat according to income groups.

Reason of preference	<1500 (TL) ^a (I)		≥1500 (TL) (II)		I-II
	Assessment		Assessment		
	Score	Ranking	Score	Ranking	
Price of meat	1005	1	205	4	*0.000
Taste of meat	520	3	261	1	**0.041
Nutritional quality	525	2	242	3	**0.032
Conditions relating to health	373	4	257	2	**0.045
Fat content	225	7	180	5	0.857
Ease of preparation	264	5	140	6	0.076
Appearance of meat	254	6	64	9	0.804
Brand-quality characteristics	211	8	73	8	0.337
Digestibility	162	10	86	7	0.932
Low waste ratio (shrinkage)	163	9	39	11	0.155
Elegance when served to guests	102	11	40	10	0.664

*: The difference between the groups is statistically significant at $P < 0.001$.

** : The difference between the groups is statistically significant at $P < 0.05$.

α: At time of printing, 1 TL = US\$ 0.51.

nutritional quality of chicken meat, and health conditions among reasons for preference were found to be statistically significant.

In his study, Richardson (15) reported that habits, taste qualities, opinions and risks regarding health (cholesterol, fat, etc.), determinants such as label and brand, and factors such as advertisement, promotion, and advice (of physicians, family, and friends) played a role on meat consumptions. A questionnaire conducted online with 1312 consumers in Finland found that 60% of the participants ate chicken meat at home once or twice a week, and their habit of eating chicken meat at a restaurant was less than once a month (10). Moreover, it was reported that local products have a positive effect on consumer preferences; as for chicken meat products from other countries, the consumer inclination was toward products of Danish origin due to geographical and ethnic proximity. In the same study, it was noted that chicken meat imported from Brazil was preferred to products of Thai origin, due to the possible repercussions of consumer concerns relating to bird flu.

In the study carried out by Lazaridis (16) to reveal the meat consumption of households by using data of family budget surveys conducted on 6756 randomly selected households throughout Greece, it was concluded that meat

consumption level and preferences could not be explained merely by income and price factors. Sociodemographic variables, such as educational background, place of residence, age, and habits of eating out, affect meat consumption, as well.

One should bear in mind that studies and surveys to be conducted in detail on a sufficient number of samples for chicken meat consumption, consumer profiles, and purchasing behaviors are of great importance for enterprises engaged in broiler integrations and the retail food sector (hypermarkets, supermarkets, butchers, etc.) in terms of determining optimum marketing strategies and increasing sales volume. The findings to be obtained in consequence of these studies will also guide the white-meat industrial enterprises engaged in activities in the sector to develop products in line with consumer preferences and expectations, and to carry out differentiation practices.

In conclusion, it is possible for processing companies to increase their market shares by selling products at amounts and with qualities in line with consumer preferences in domestic consumption and foreign trade, and to use advertisement, promotions, and other marketing tools more effectively towards consumer demand only if the consumer preferences, purchasing habits, and factors affecting them can be revealed and presented.

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