

THE IMPACT OF INFORMATION POLLUTION IN THE POULTRY SECTOR ON CONSUMERS: THE CASE OF TURKEY

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Abstract

The poultry sector provides numerous benefits in the social, economic, and health domains, but is currently facing a major issue: information pollution. It is among the sectors most affected by information pollution globally, a phenomenon fueled by the rapid advancement of communication technologies. Information pollution has become a major challenge of our time, causing harm to the consumer market through its negative impact on consumer perceptions and behaviors. Turkey is an interesting case for studying the impact of information pollution on poultry consumers, as it is among the top 10 countries in poultry production and exports, and experiences intense information pollution in the sector. The primary objective of this study is to examine the impact of information pollution on Turkish poultry consumers and to explore potential solutions to this problem. The study surveyed 384 consumers from Ankara and İzmir and found that consumer perceptions and views of poultry differ significantly from those of the producer companies and the Turkish Ministry of Agriculture and Forestry. A significant proportion of respondents reported reducing their poultry consumption after hearing negative news. The groups most likely to reduce their consumption are women, housewives, and people over the age of 55. Given its significant and serious impact on consumers, efforts must be made to address this issue.

Key words: information pollution, misinformation, poultry, chicken, consumer

INTRODUCTION

The poultry sector contributes to food security [49], helps rural development [1, 38], plays a role in diminishing poverty in rural areas thanks to the income it creates for small-scale farmers [30], helps increase quality of life by ensuring the production of a generous amount of food at a low price [26], meets several needs, including energy, high-quality protein and basic micronutrients [33], contributes considerably to employment, both directly and together with its sub-sectors [34], and serves as the fastest-growing agricultural sub-sector, especially in developing countries [33], all of which make it a highly significant sector. The lower prices when compared to most other types of meat, short production cycles and high feed conversion ratio make both chicken meat and the poultry sector even more valuable [43]. All of these factors in combination ensure the poultry sector provides countries with highly significant social, economic and healthy-diet-related opportunities.

That said, the poultry sector is today facing the significant problem of information pollution, and can be counted among the sectors that have been most affected by the information pollution phenomenon around the world [8, 12, 35, 41, 42], nurtured by the rapid developments in information and communication technologies. As a result, information pollution has become one of the leading problems of the age in which we live [28]. In general terms, information pollution is defined as “the presence of useless, harmful, malicious or unwanted messages and the spread of these messages to the extent that they have significant negative impacts on society” [10], and it is a significant area of study in literature.

In addition to “information pollution,” other terms such as “information overload” [21, 36], and “infollution” [14, 39] are also used to refer to the phenomenon, while terms commonly found in literature include “misconception” [8, 12] “misperception” [25], “misinformation” [3] “disinformation” [18] and “fake news” [41], among others. As these

concepts have similar meanings and are frequently used interchangeably, it has been suggested that “problematic information” be used as an umbrella term to cover all [32].

Information pollution is a significant problem that can have a negative impact on the individual given the wealth of unregulated information to which they are subjected, leading them to experience stress and anxiety [17], to suffer from attention deficit and impatience [7], as well as mental exhaustion. As a result, people may start avoiding information as a reaction [27]. The widespread use of the Internet and social media has increased the prevalence of information pollution, which has now permeated almost every field. In information pollution, information may be shared in the belief that it is true, or spread intentionally to trick other people as a source of fun. It has been determined that consumers are less satisfied with their decisions and experience more complicated emotions when making their decisions if they are exposed to information overload and pollution while making a purchase [11]. The COVID-19 pandemic has proven once again how significant a problem information pollution is, with information pollution having a negative impact on individuals in several aspects [6, 48]. One of the areas most affected by information pollution is the consumer market, given how consumers’ perceptions and behaviors can be negatively affected by it. Fake news and information pollution are significant problems that misguide consumers, harming both marketing activities and brands [13, 19].

Turkey is considered an interesting case for an investigation of the impact of information pollution on poultry consumers, being among the top 10 countries in terms of poultry production and exports [24], and the intense information pollution in the poultry sector that has a significant impact on the country’s poultry sector [2, 4, 22, 37, 50]. Print and visual media in Turkey, in particular, frequently run negative stories about chicken and poultry production. Such stories have made various claims, including “consuming poultry is bad for health,” “eating poultry

leads to cancer,” “there is an excessive use of hormones and antibiotics in poultry production,” “chickens are fed drugs to make them grow faster” and “poultry consumption leads to early-onset puberty in children” [9]. The Ministry of Agriculture and Forestry, as well as poultry producers, have stated that these stories have no scientific basis, and are simply not true [9, 45]. Fighting the problem of information pollution related to the poultry sector in Turkey is a priority issue for the Ministry of Agriculture and Forestry, and various strategic plans have been drawn up to address the issue as an important problem that needs to be resolved [44, 46].

The potential for the rapid spread of fake news makes it a highly pertinent issue that should be subject to further study [40]. It has been emphasized that such sensitive groups as children, teenagers and older adults, in particular, should be protected from the impacts of information pollution and misinformation [6]. The impact of the perceptions and knowledge of consumers about poultry on their poultry consumption habits and behaviors is yet to be fully understood, given the lack of research in the field [23]. Furthermore, literature contains very few studies investigating the impact of the negative news about poultry that appear in the media, and the effect of people’s perceptions and ideas about poultry on consumption [5, 22]. The main objective of this study is to investigate the impact of information pollution, a significant problem in the poultry sector, on Turkish consumers, and to discuss what needs to be done to resolve this information pollution problem. As secondary objectives of the study, it is intended to determine the problem areas in the perception of consumers regarding the consumption of poultry, and to identify their sources of information and how much trust they place in them. The study will clarify the areas of concern related to the poultry sector among consumers, will present their thoughts on some of the more common perceptions, and will determine the groups affected by information pollution. The study will thus serve as a valuable source of information for

future studies in this field, which are currently lacking.

MATERIALS AND METHODS

The Turkish poultry sector is mostly concentrated in regions with numerous poultry houses and in areas close to the largest markets. From a geographical point of view, the Aegean and Central Anatolian regions record the greatest per capita consumption in Turkey [20], due to the respective presence of İzmir and the capital city Ankara, both of which are densely populated cities. As two of the three largest cities in Turkey, İzmir and Ankara record significant production and consumption through the many poultry producers in their vicinity. It is for this reason that İzmir and Ankara were selected for the consumer survey devised for this study, with the main study material comprising the data collected from consumers living in the two cities.

In cases where p and q probability values are not known and no data is available to determine the sample volume, a p value of 0.50 is recommended to ensure the largest sample size, as was the case in the present study [16, 31]. Proportional sampling methods

are commonly used in consumer and market surveys, especially when there is no information about the characteristics of the population (variance) [15, 31]. Accordingly, the following approach was adopted for the calculation of the sample volume, based on the formula:

$$n = \frac{t^2 pq}{d^2}$$

where:

n= Sample volume

t: value corresponding to a 95% confidence interval

p: probability of the event in question occurring

q: probability of the event in question not occurring

d: acceptable margin of error

The p value was taken as 0.50 to reach the maximum sample volume, and the sample volume was found to be 384 with 95% confidence and a 5% margin of error.

The consumer surveys were proportionally distributed based on Ankara and İzmir's populations over the age of 18 years. Accordingly, surveys were conducted with 211 and 173 consumers in Ankara and İzmir, respectively (Table 1).

Table 1. City Populations and Surveys' Proportional Distribution

City	Population	Population over 18 years old	%	Sample Volume
Ankara	5,445,026	3,895,027	54.96	211
İzmir	4,279,677	3,192,114	45.04	173
Total	9,724,703	7,087,141	100.00	384

Source: Turkish Statistical Institute, 2017 [47].

A logistic regression model was developed for the consumers who accessed news from the media or from other resources regarding the harmful effects of poultry consumption (GMO, use of hormones etc.). In the model, consumption status after seeing negative news about poultry (whether or not consumption has decreased) was defined as a dependent variable, and a Binary Logistic Regression model was used, with the aim being to identify the factors that led to a decrease in poultry consumption after seeing negative news about poultry. The aim was thus to determine the factors leading to a decrease in

consumption, to identify the bodies of consumers who are affected by negative news about poultry, and to detect which consumer type is more likely to consume less poultry after hearing such negative news. Basic statistical techniques and procedures, such as frequency distributions, arithmetic means and percentage calculations, were used for the descriptive statistical analyses.

RESULTS AND DISCUSSIONS

A total of 384 consumers participated in the study, of which 51.8 percent were female and the remaining 48.2 were male. When grouped according to geographical region, it was found that most of the respondents were born in the Aegean and Central Anatolia regions, accounting for 70.6 percent of the total. Furthermore, 54.7 percent were born in cities, 31 percent in district centers and 14.3 percent in villages. Of the consumers, 48.7 percent

were between the ages of 18 and 35, while the ratios of single and married participants were similar (50.8 percent single and 49.2 percent married). In terms of education level, 57.3 percent had a bachelor's degree, and 32.3 percent were high school graduates. Of the total, 54.9 percent were employed, while students and the retired accounted for 19 percent and 15.4 percent, respectively (Table 2).

Table 2. Socio-demographic Characteristics of Consumers

	Count	%
Gender		
Male	185	48.2
Female	199	51.8
Place of Birth (Geographical Region)		
Central Anatolia Region	137	35.7
Aegean Region	134	34.9
Mediterranean Region	14	3.6
Black Sea Region	25	6.5
Eastern Anatolia Region	20	5.2
South Eastern Anatolia Region	25	6.5
Marmara Region	20	5.2
Overseas	9	2.4
Place of Birth (Administrative Unit)		
Village	55	14.3
District Center	119	31.0
City Center	210	54.7
City of Residence		
Ankara	211	54.9
İzmir	173	45.1
Age		
18-35	187	48.7
36-55	119	31.0
55 and above	78	20.3
Marital status		
Single	195	50.8
Married	189	49.2
Education		
Lower than high school	40	10.4
High school graduate	124	32.3
Bachelor's degree and above	220	57.3
Occupations		
Student	73	19.0
Housewife	33	8.6
Employed	211	54.9
Retired	59	15.4
Unemployed	8	2.1
Personal Monthly Income		
<700 \$	267	69.5
≥700 \$	117	30.5
Monthly Income of the Household		
<700 \$	137	35.7
≥700 \$	247	64.3

Source: Author's survey data.

The ratio of consumers with a monthly personal income of < 700 \$ was 69.5 percent,

while 64.3 percent had a monthly household income of ≥ 700 \$ (Table 2).

Of the consumers, 76.3 percent defined their health status as good; and 20.6 percent stated that they followed a healthy diet, while 56.5 percent stated that they followed a healthy diet to a reasonable extent. Of the total, 86.5 percent stated that they had no food allergy; 79.9 percent said that they exercised regularly; 63.3 percent said that they read labels and product info when purchasing a food product; and 66.9 percent were non-

smokers. Those who lacked trust in the poultry sector accounted for 54.4 percent of the total, while 35.4 percent said they trusted the sector to a reasonable extent. When asked about how much they thought they knew about the breeding, sheltering and feeding conditions of industrial chickens, 49.2 percent stated that they had no knowledge of these issues, while 44.3 percent stated that they had a moderate level of knowledge (Table 3).

Table 3. Characteristics of the attitude and behavior of consumers on various issues

	Count	%
Health status		
Poor	7	1.8
Moderate	84	21.9
Good	293	76.3
Healthy diet		
I do not follow a healthy diet	88	22.9
I follow a healthy diet to some extent	217	56.5
I follow a healthy diet	79	20.6
Food allergy		
I have a food allergy	52	13.5
I have no food allergies	332	86.5
Regular exercise		
I exercise regularly	77	20.1
I do not exercise regularly	307	79.9
Reading labels while purchasing food products		
I read labels	243	63.3
I do not read labels	141	36.7
Smoking status		
I smoke	127	33.1
I do not smoke	257	66.9
Trust in the poultry sector		
I do not trust	209	54.4
I moderately trust	136	35.4
I trust	39	10.2
Level of knowledge about the breeding, sheltering and feeding conditions of industrial poultry		
I have no knowledge	189	49.2
I have a moderate level of knowledge	170	44.3
I am knowledgeable	25	6.5

Source: Author's survey data.

When asked whether they had been exposed to any news in the media or from other resources about the possible harm associated with the consumption of poultry due to such factors as hormones, antibiotics, GMOs, etc., 93.8 percent stated that they had, while only 6.2 percent said that they had not. These findings indicate that such news reaches a significant proportion of consumers (Table 4).

An analysis of consumption rates after having seen news about the possible harm associated with the consumption of poultry revealed that for 35 percent of the consumers, their consumption habits did not change, while 65 percent stated that they consumed less poultry. The fact that almost two-thirds of consumers consumed less poultry after seeing such news indicates the extent to which negative news affects consumer choice (Table 5).

Table 4. Consumer access to news in the media or from other sources reporting on the harm associated with poultry consumption

Consumer access to news on the harm associated with poultry consumption	Count	%
Yes, I had been exposed	360	93.8
No, I had not been exposed	24	6.2
Total	384	100.0

Source: Author's survey data.

Table 5. Change in consumption habits after having seen news in the media or from other sources about the harm associated with poultry consumption

Consumption habits	Count	%
My consumption habits did not change	126	35.0
I consumed less poultry	234	65.0
Total	360	100.0

Source: Author's survey data.

When asked whether they would consume more poultry if they were absolutely certain that poultry is bred in healthy conditions and that the consumption of poultry was not harmful to health, 78.1 percent of the respondents stated that they would consume

more poultry, while 21.9 percent stated that they would not. These figures suggest that there is a large group of people who may start consuming greater amounts of poultry if their health-related concerns about poultry were to be eliminated (Table 6).

Table 6. Changes in consumption habits if poultry was confirmed to be healthy

Consumption habits	Count	%
I would consume more poultry	300	78.1
I would not consume more poultry	84	21.9
Total	384	100.0

Source: Author's survey data.

The respondents were presented with a series of common perceptions and problematic information related to the consumption of poultry, and were asked whether they agreed with the statements or not, with the additional options of "I do not know" or "I am not sure". Accordingly, a significant proportion of the consumers were of the opinion that feeding poultry with feed based on GMOs was harmful to those consuming poultry (79.2%), that chickens are given drugs to make them grow faster (75%), that hormones were used in the breeding of poultry (74.2%), and that the reason why it is possible to breed and slaughter poultry within 45 days is due to the use of antibiotics and hormones (70.1%). Such institutions and organizations as the Ministry of Agriculture and Forestry, and BESD-BİR – Association of Poultry Meat Producers and Breeders – claim that such statements are not true. They state that poultry

is not given drugs that induce growth, claiming that rapid growth is achieved through breeding, broilers being high-yield hybrid species that have been produced through natural hybridization [9, 45]. It was thus concluded that most consumers either do not agree with, or are unaware of the statements made by the Ministry of Agriculture and Forestry and BESD-BİR. The consumers agreed with other presented statements, though to a lesser extent, including the suggestion that eating poultry can increase the risk of cancer (34.4%), can lead to early puberty in children (39%) and can change the hormonal structure of humans (39.3%). As another significant finding, 85.4 percent of the consumers were of the opinion that more studies are needed to investigate the harms/benefits of consuming poultry, meaning that a substantial proportion of

consumers want to see more research into these subjects (Figure 1).

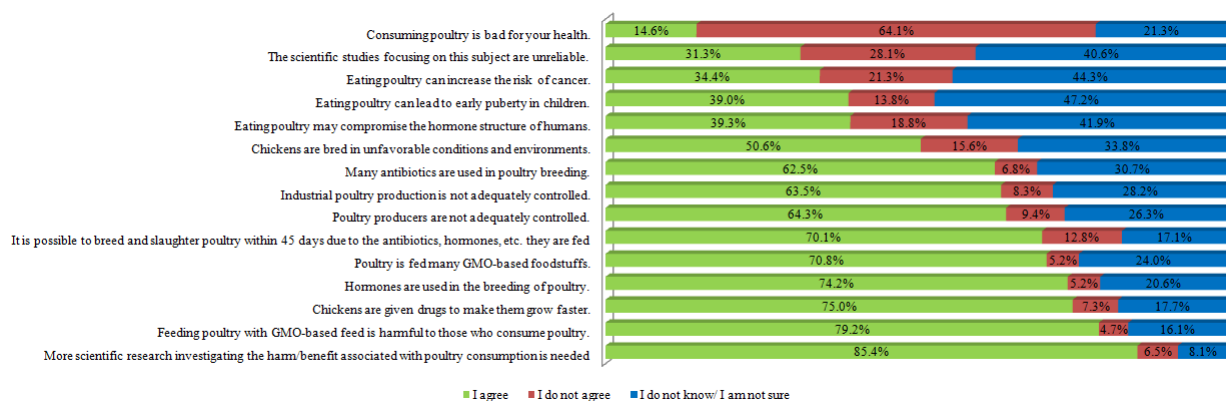


Fig. 1. Consumers' opinion about some common perceptions related to the consumption of poultry
 Source: Author's survey data.

An analysis of the sources of information about poultry and poultry consumption revealed the top three sources for consumers to be television (88%), websites (73.7%) and social media (61.2%). Only 27.1 percent of the consumers said that their sources of information were medical

doctors, while the rate of those who cited academicians as their sources of information was 21.4 percent. The Ministry of Agriculture and Forestry (13.8%) and the Ministry of Health (13%), on the other hand, ranked very low on the list of information sources (Table 7).

Table 7. Information sources about poultry and poultry consumption

Information sources	Count	%
Television	338	88.0
Websites	283	73.7
Social Media (Facebook, Twitter, Instagram etc.)	235	61.2
Friends	164	42.7
Newspapers	155	40.4
Family	127	33.1
Medical doctors	104	27.1
Academicians	82	21.4
Radio	70	18.2
Poultry producer firms	56	14.6
The Ministry of Agriculture and Forestry	53	13.8
The Ministry of Health	50	13.0
Magazines	50	13.0
Farmers producing poultry in the villages	50	13.0
Books	41	10.7
Farmers producing poultry for the sector	21	5.5

Source: Author's survey data.

The top three sources of information in which the consumers placed their trust on the issue of poultry were academicians (3.58), medical doctors (3.58) and family (3.36). Their level of trust in contracted farmers producing poultry for the sector (2.50) and

poultry producer firms (2.30), on the other hand, was found to be extremely low. The fact that the level of trust towards all sources of information varies between 2.30 and 3.58 indicates that the level of trust placed by consumers in all sources of information is generally low (Table 8).

Table 8. Levels of trust in information sources

Information Sources	1	2	3	4	5	Likert scale mean
Academics	17	24	112	178	53	3.58
Medical doctors	13	37	106	169	59	3.58
Family	14	42	147	152	29	3.36
Books	21	37	169	136	21	3.25
Farmers producing poultry in the villages	32	56	162	108	26	3.10
Friends	23	63	175	112	11	3.06
Ministry of Health	74	56	108	117	29	2.92
Ministry of Agriculture and Forestry	81	52	125	99	27	2.84
Magazines	43	70	196	68	7	2.80
Newspapers	50	68	189	68	9	2.78
Websites	53	110	146	63	12	2.66
Television	64	106	139	67	8	2.60
Social Media (Facebook, Twitter, Instagram etc.)	68	118	133	55	10	2.53
Radio	71	107	150	49	7	2.51
Farmers producing poultry for the sector	87	89	145	52	11	2.50
Poultry producer firms	111	102	118	47	6	2.30

1=I do not trust at all, 5=I trust completely

Source: Author's survey data.

Table 9. Variables in logistic regression model, and characteristics thereof

Variables	Variable Characteristics
Dependent Variable	
Changes in consumption after seeing negative news about poultry	Nominal Scale: My consumption did not change I started consuming less poultry
Independent Variables	Variable Characteristics
Gender	Male, Female
Place of Birth (Geographical Region)	Central Anatolia, Aegean, Mediterranean, Black Sea, Eastern Anatolia, Southeastern Anatolia, Marmara, Overseas
Place of Birth (Administrative Unit)	Village, District Center, City Center
City of Residence	Ankara, İzmir
Age	18–35, 36–55, 55 and above
Marital status	Single, Married
Education	Lower than high school, High school graduate, Bachelor's degree and above
Occupations	Student, Housewife, Employed, Retired, Unemployed
Personal monthly income	< 700\$, ≥ 700\$
Monthly income of the household	<700\$, ≥ 700\$
Health status	Poor, Moderate, Good
Healthy diet	I do not follow a healthy diet, I follow a healthy diet to some extent, I follow a healthy diet
Food allergy	I have a food allergy, I have no food allergies
Regular exercise	I exercise regularly I do not exercise regularly
Reading labels while purchasing food products	I read labels, I do not read labels
Smoking	I smoke, I do not smoke
Trust in the poultry sector	I do not trust I moderately trust I trust
Level of knowledge about the breeding, sheltering and feeding conditions of industrial poultry	I have no knowledge I have a moderate level of knowledge I am knowledgeable

Source: Author's survey data.

A logistic regression model was developed for consumers who have seen news in the media or from other sources regarding the harmful effects of poultry consumption (GMO, use of hormones etc.). In the model, consumption status after seeing negative news about poultry (whether consumption decreased or not) was defined as a dependent variable. A Binary Logistic Regression model was then applied identify define the factors that led to a decrease in consumption of poultry after the exposure of consumers to negative news about

poultry. Table 9 presents the model variables and their characteristics.

In the logistic regression model presented in Table 9, the first category of each variable was taken as the reference category of the categorical independent variables. Similarly, in the dependent variable, the reference category is the first category, i.e. no change in consumption. The results of the model created based on a binary logistic regression analysis are presented in Table 10.

Table 10. The results of the model created based on a binary logistic regression analysis

Variables	B	S.E.	Wald	Sig.	Exp(B)
Gender (Female)***	.959	.315	9.291	0.002	2.610
Place of Birth (Geographical Region)			3.565	0.828	
Place of Birth (Aegean)	.128	.387	.109	0.742	1.136
Place of Birth (Mediterranean)	-.786	.791	.987	0.320	.456
Place of Birth (Black Sea)	-.132	.557	.056	0.812	.876
Place of Birth (Eastern Anatolia)	-.873	.630	1.916	0.166	.418
Place of Birth (Southeastern Anatolia)	-.114	.527	.047	0.829	.892
Place of Birth (Marmara)	-.028	.696	.002	0.968	.973
Place of Birth (Overseas)	.285	1.001	.081	0.776	1.330
Place of Birth (Administrative Unit)			1.115	0.573	
Place of Birth (District Center)	.420	.444	.892	0.345	1.521
Place of Birth (City Center)	.157	.421	.140	0.709	1.170
City of Residence (İzmir)	-.043	.346	.016	0.901	.958
Age*			4.707	0.095	
Age (36-55)	.252	.363	.482	0.488	1.287
Age (55 and above)**	1.568	.726	4.671	0.031	4.799
Marital Status (Married)	.391	.352	1.231	0.267	1.478
Education			1.211	0.546	
Education (High School Graduate)	.101	.543	.035	0.852	1.107
Education (Bachelor's Degree and Above)	.470	.560	.704	0.401	1.600
Occupations			6.690	0.153	
Occupations (Housewife)*	1.222	.718	2.901	0.089	3.395
Occupations (Employed)**	1.087	.469	5.381	0.020	2.966
Occupations (Retired)	1.144	.833	1.885	0.170	3.138
Occupations (Unemployed)	-.109	.901	.015	0.904	.897
Personal Monthly Income (≥ 700 \$)	-.300	.396	.574	0.449	.741
Monthly Income of the Household (≥ 700 \$)	.127	.347	.134	0.715	1.135
Health Status			4.263	0.119	
Health Status (Moderate)	1.600	1.053	2.307	0.129	4.954
Health Status (Good)	.987	1.048	.888	0.346	2.684
Healthy Diet*			5.189	0.075	
Healthy Diet (I follow a healthy diet to some extent)	.576	.350	2.697	0.101	1.778
Healthy Diet (I follow a healthy diet)**	1.068	.476	5.039	0.025	2.908
Food Allergy (I have no food allergies)	-.172	.429	.160	0.689	.842
Regular exercise (I do not exercise regularly)	-.149	.374	.159	0.690	.861
Reading Labels While Purchasing Food Products (I do not read labels)	-.070	.307	.051	0.821	.933
Smoking (I do not smoke)*	-.507	.300	2.861	0.091	.602
Trust In the Poultry Sector***			18.536	0.000	
Trust In the Poultry Sector (I moderately trust)	-.372	.311	1.431	0.232	.689
Trust In the Poultry Sector (I trust)***	-2.091	.486	18.535	0.000	.124
Level of knowledge about industrial poultry ***			16.237	0.000	
Level of knowledge about industrial poultry (I have a moderate level of knowledge)***	1.245	.310	16.135	0.000	3.474
Level of knowledge about industrial poultry (I am knowledgeable)	.348	.603	.333	0.564	1.416
Constant	-2.813	1.288	4.766	0.029	.060
Model prediction success	74.4%				
-2 log likelihood	353.418				
Cox & Snell-R Square	0.269				
Nagelkerke-R Square	0.370				
Hosmer & Lemeshow test	4.822; p=0.776				

Source: Author's survey data.

The results of the analysis reveal that such variables as gender, age, healthy diet, smoking, trust in the poultry sector, and the level of knowledge about industrial poultry are all statistically significant.

It should be noted that not every sub-category of a variable may necessarily be statistically significant. Furthermore, variables with some statistically significant sub-categories compared to the reference category may not be statistically significant when considered from the perspective of the whole variable. Accordingly, even though the occupation category was found not to be statistically significant as a whole, such sub-categories as housewife and employed were statistically significant when compared to the reference category of students.

With a 0.01 percent significance level, gender is a significant variable. After seeing negative news about poultry, more female participants started consuming less poultry than the male reference category, to a statistically significant degree. To be more specific, after seeing negative news about poultry, women are 2.61 times more likely to reduce their consumption of poultry than the reference category, i.e. males.

The age variable was also found to be statistically significant in the model. It was determined that people over the age of 55 reduced their consumption of poultry more than the participants in the reference age category, i.e. 18-35 years of age, to a statistically significant degree, after seeing negative news about poultry. More specifically, when compared to those aged 18-35, people over the age of 55 are 4.79 times more likely to consume less poultry after seeing negative news.

When considered as a whole, the occupation variable provided no statistically significant results in terms of the changes in consumption of poultry after seeing negative news. In the individual sub-categories, however, such sub-categories as housewife and employed provided statistically significant results when compared to the reference sub-category, i.e. student. According to the results of the analysis, after seeing negative news about poultry, housewives and employed people are

respectively 3.39 and 2.96 times more likely to consume less poultry when compared to students.

The healthy diet variable is also statistically significant in terms of reducing the consumption of poultry. Accordingly, after hearing negative news, people who follow a healthy diet are 2.90 times more likely to reduce their consumption of poultry than those who do not follow a healthy diet.

In the model, smoking has a 10 percent significance level. After hearing negative news, non-smokers are 1.66 times more likely not to change their poultry consumption habits than smokers. This is an interesting finding, which can be associated with the perception among non-smokers that they are less likely to get sick since they do not smoke, and so are less concerned about consuming poultry. In other words, compared to non-smokers, smokers reduced their consumption of poultry after seeing negative news, to a statistically significant degree, which can be associated with concerns about their health due to smoking.

A negative correlation is identified between trust in the poultry sector and reducing poultry consumption after hearing negative news. After hearing negative news, those who trust the poultry sector were found to be 8.06 times more likely not to reduce their consumption of poultry than those who do not trust the sector. The level of knowledge about industrial poultry has a statistically significant impact on the reduction in consumption of poultry after hearing negative news about poultry. Accordingly, when compared to those with no knowledge of the issue, those with a moderate level of knowledge about poultry are 3.47 times more likely to reduce their consumption of poultry. This is a striking result, suggesting that the group of people with a moderate level of knowledge, after seeing negative information about poultry, choose to reduce their consumption. This finding highlights the significance of information sources, and through which sources consumers obtain their information.

CONCLUSIONS

One of the most prominent findings of the present study is that the perception and thoughts of consumers about poultry differ from those is reflected by the producer companies and the Ministry of Agriculture and Forestry in general.

Of the participating consumers, 93.8 percent reported seeing news on the media or from other sources about the possible harm associated with the consumption of poultry due to such factors as hormones, antibiotics, GMOs, etc. Both this rate and the level of influence on consumers are pretty high. Accordingly, 65 percent of the consumers reported consuming less poultry after seeing such news stories. On the other hand, 78.1 percent stated that they would consume more poultry if they were sure that it was safe, meaning that there is a large consumer group who would be willing to consume more poultry if their trust in the poultry sector and its production methods could be secured.

Even though both producer companies and the Ministry of Agriculture and Forestry deny that poultry are given hormones to help them grow faster, and despite statements confirming that hormones are not used in Turkish poultry farming, 74.2 percent of the respondents believe that hormones are used in poultry breeding. Similarly, even though the Ministry of Agriculture and Forestry and producer firms claim that the rapid growth of poultry is achieved through breeding, and that the broilers are a high-yield hybrid species that have been produced through natural hybridization, 75 percent of consumers were of the opinion that chickens are given drugs that make them grow faster, and that those medications were the main reason behind their rapid growth. It is clear that the beliefs of consumers about the use of antibiotics, hormones, rapid growth methods and GMOs in the poultry sector differ considerably from the views and reports of company representatives and the Ministry of Agriculture and Forestry. A significant proportion of consumers have concerns about the possible negative impacts of the consumption of poultry on human health.

Accordingly, some consumers are of the opinion that negative impacts can be seen, while a significant number state that they are unsure of the potential for negative impacts, or claimed they had no idea about the subject. For consumers, the top three sources of information about poultry were television (88%), websites (73.7%) and social media (61.2%). Only 27.1 percent of consumers claimed that their primary sources of information were medical doctors, while the rate of those who gave academicians as their sources of information was 21.4 percent. This may be due to the limited access of consumers to academicians and medical doctors as sources of information, the lack of access to platforms where these two groups share information, or the lack of effort among these two groups in providing sufficient and frequent information about the subject. The trust placed by consumers in their sources of information varies between 2.30 and 3.58, which is not that high in general. Accordingly, the top three sources of information in regards to consumer trust were academicians (3.58), medical doctors (3.58) and family (3.36). In the light of these findings, it is obvious that there is a need for academicians and medical doctors to carry out scientific studies into poultry, the effects of consuming poultry, and other subjects that are of concern to consumers. The resulting data should then be shared with the public, given that 85.4 percent of the respondents were of the opinion that more studies were needed to investigate the harm/benefit associated with poultry consumption. The elimination of information pollution in the sector could be achieved if academicians and medical doctors more frequently shared scientifically supported, proven, and accurate information with consumers on such platforms as television, websites and social media.

The logistic regression analysis revealed that women, housewives and people over the age of 55 are more likely to consume less poultry after hearing negative news, being the groups most affected by such news stories. As such, any scientific studies and comprehensive research carried out should be shared with these specific groups as a priority. It should

not, however, be a one-way transfer of information, but should rather take the form of mutual communication. In cases where it is obvious that consumers have been misinformed, it is important to make sure that competent people convey accurate information to consumers. When it comes to issues in which consumers have high concerns and doubt the information they are given, and the long-term impacts of which have not been demonstrated scientifically, the industry needs to take consumers' concerns into consideration and consider switching to another production system that can meet consumer demands.

The findings of the present study suggest that a large number of consumers are moving away from poultry consumption, meaning that the sector will suffer in economic terms. Conducting long-term scientific studies and increasing the number of studies focusing on controversial areas will provide many benefits to consumers, producers and the poultry sector alike. Furthermore, the creation of large working groups with the involvement of consumer representatives, researchers, academicians and sectoral shareholders for discussions of controversial issues, and the announcement of their activities on different media may be beneficial in eliminating information pollution and correcting false information, and may support the comprehensive investigation of controversial subjects.

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