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Consumer Segmentation Based on Food-Related Lifestyles and Perception of Chicken Breast

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Abstract: The aim of this study was to disseminate knowledge regarding the perceptions of Spanish consumers of chicken breast and their related lifestyles and to classify different consumer groups according to their food-related lifestyles. Nearly all Spanish consumers consume chicken breast once or twice per week. The preference for white or yellow chicken appears to be divided evenly, although the preferred is white chicken. Chicken breast is perceived as a product of convenience. Seventy percent of consumers buy chicken breast because it is easy to cook whereas only 27% prefer to buy the entire chicken. Four groups of consumers based on their lifestyles and their perceptions of chicken breast were identified: "Urban single", "Traditional", "Innovative precariat" and "Gourmet". These types of consumers are consistent with types other studies have identified in terms of the lifestyles associated with other foods. Defining groups of consumers with differentiated perceptions of chicken breast is useful in managing marketing strategies to satisfy the various consumption needs associated with chicken breast.

Key words: Convenience, cooking habits, eating situations, quality cues, psychographic

INTRODUCTION

Throughout human history, the consumption of animal source foods has had important nutritional and cultural effects and within this broad group of food, poultry has played a major role. The consumption of poultry has increased with the industrialization and urbanization of society and because of the economic and social developments of recent decades. Chicken consumption before 1950 was associated with social celebrations because chicken was more expensive than lamb, beef or pork (Carbajal, 2005). However, the intensification of production systems and the introduction of technically advanced systems in chicken production has dramatically increased chicken meat offer. This increase in production was followed by a reduction in chicken prices.

Meat production and consumption have been controversial. Traditionally, meat has been perceived as an important component of Western culture and has been considered an essential nutrient for good health. In addition, red meat has been associated with strength, power and masculinity (Twigg, 1983). Historically, meat has been a scarce and highly valued food that provides many nutrients; is a major source of high-value biological proteins, amino acids and essential fatty acids (Carreras, 2005) and is an important source of energy. However, during the last decade of the twentieth century, lifestyle-related diseases have increased in Western countries. A clear relation was identified between diet and health, especially focusing on obesity and the relation between saturated fats from animal

products and certain diseases (Kubberod *et al.*, 2002a). Chicken is considered healthier than red meat because of lower levels of fat and cholesterol. In addition, chicken is inexpensive, is often sold in convenience packs and has no religious restrictions regarding consumption (Bilgili, 2002). According to Hernandez (2002), chicken safety was the attribute considered most valuable by Spanish consumers (SADA, 2002). However, Verbeke *et al.* (2010) observed that people seek healthy meat and health is a more important reason than food safety concerns for reducing red meat consumption. Hence, 9.1% of Spanish consumers were replacing the consumption of other meats with chicken SADA (2002). From 2011 to 2012, the consumption of chicken increased by 1.8% at the expense of lamb, beef and pork, whose consumption decreased (MARM, 2013). These changes in the consumption of chicken are largely a result of the perceived quality of the food by the consumer. A few decades ago, food quality was related to safety, food's sensory aspects and shelf life. However, food quality has recently been linked to nutrition, wellness and health (Troy and Kerry, 2010). In fact, chicken plays an important role in the diet of the general population, especially among groups such as the elderly, adolescents, pregnant women and people following low-energy diets (Campbell *et al.*, 1999). This is because consumers consider chicken different from beef and pork, a perception that is enhanced by circumstances such as different outlets for buying chicken and different statistics and information for meat and poultry.

Foods are products of experience and at the time of purchase, the consumer uses quality cues to make decisions. Generally, extrinsic quality cues include price, product presentation format, origin and brand. Convenience is an important factor; an increase in the value of leisure time reduces the time spent preparing food. For these reasons, purchasing patterns of chicken have been shifting from buying whole chickens to purchasing boneless meat such as chicken breast. In 2009 and 2010, just 36% of the chicken sold was whole chickens whereas 58% was sold in pieces and 6% in other formats (Martin, 2010; 2011). One of the strongest motivations of US consumers to consume boneless chicken was the ease of use. The importance of ease of use becomes greater as the age of the consumer grows younger (NCC, 2012a). Important intrinsic quality cues are color, visible fat and tenderness; however, some cues, such as tenderness, cannot be evaluated by the consumer at the time of purchase (Troy and Kerry, 2010).

Because marketing seeks to satisfy the needs, or sometimes even generate new needs, of the consumer, consumer behavior is a basic area of field marketing. Thus, the study of consumer behavior, including the factors that influence that behavior and the origin of these factors are quite important in the marketing of products. According to Cotes (2010), consumption decisions are affected by many factors that can be grouped into demographic and psychographic areas. The first group includes all variables that identify the individual within a society such as age, gender, social class and marital status. In psychographic, variables include all perceptions or beliefs, such as beliefs regarding the quality of a brand and a propensity to value natural products. Thus, every consumer's view of the nutritional characteristics or composition of a product, its safety, brand or price can change the consumer's choice at the time of purchase and even the degree of consumer pleasure when the food is ingested (Arcia, 2012). This consumer behavior is strongly influenced by the psychological factor called perception. Ultimately, consumers associate a product group with a group of values through a system based on cognitive categories and actions that define a lifestyle (Brunso and Grunert, 1995). Within this framework, a lifestyle comprises five interrelated aspects: ways to buy, quality cues used in the evaluation of foods, cooking methods, consumption situations and buying motives. The study of food-related lifestyles is important because such studies may detect trends in consumption (Grunert, 2006), analyze differences and similarities between markets and countries (Brunso *et al.*, 2004; Scholderer *et al.*, 2004) or identify customer segments for new products (de Boer *et al.*, 2004; Hoek *et al.*, 2004; Buckley *et al.*, 2007). Thus, the main aim of market segmentation is the increased accuracy of marketing strategies.

This consumer classification improves the knowledge of the market and detects possible trends, providing the basis for market segmentation strategies so that marketing strategies designed for different target groups will satisfy the desires of consumers better than a marketing strategy designed for the average consumer (Von Alvensleben, 1997). Bernues *et al.* (2012) studied two of the main dimensions of the framework of food-related lifestyles, specifically manners of cooking and eating, to identify four groups of consumers in relation to lamb meat. As the competition in the retail market increases, there is an increasing need for tools to achieve more precise segmentation because demographic variables provide a limited perspective of consumer behavior (Boedeker and Marjanen, 1993). However, purchasing motivations are more accurate in classifying buyers than socio-demographic information (Chettamrongchai and Davies, 2000).

The objectives of this study were to study the purchasing habits and consumption of chicken breast in Spain utilizing an online survey and classifying Spanish groups of consumers of chicken according to their lifestyles as those lifestyles relate to the consumption of chicken breast.

MATERIALS AND METHODS

Area of study and sampling procedure: Data were collected by an online survey using the www.e-encuesta.com service in Spain in 2013. The access link to the survey was disseminated via e-mail both to individuals (friends, family and professionals) and groups (housewives, consumers, cultural associations). Social networks and personal blogs were also utilized. In all cases, the respondent was requested to disseminate the link to access the survey. In this manner, we attempted to reach the widest range of people; a problem arising from the snowball technique is that only people with similar profiles fill out the survey. We obtained 1540 respondents, of which 1237 were valid after the validation phase. This number of responses ensures a margin of error of $\pm 3\%$ whereas the Spanish population is largely greater than 100,000, with a confidence level of 95% and $p = q = 0.5$.

Questionnaire and variables: The survey comprised questions related to socio-economic variables (gender, age, population size, educational level and family income level) and to food-related lifestyle, specifically consumption habits, cooking and eating habits, food purchasing habits and consumer perception of chicken breast. The closed-response questionnaire comprised different types of scales to measure responses. Questions regarding food-related lifestyles and chicken perception were dichotomic true/false statements. The variable age was divided into 4 segments: young (<26 years), adult (from 26 to 45 years), mature (from 46 to 65 years) and senior (>65 years).

Data analysis: The study of the sample was conducted using relative frequencies. The analysis of the variables was performed using the Chi-Square test and a significant probability of less than 0.10. When more than 20% of boxes had expected frequencies lower than five, the likelihood ratio was used at the same level of probability. To interpret the pattern of association between the studied variables, the adjusted standardized residuals between observed and expected cases in each box are considered at [1.96].

A hierarchical cluster analysis (using Ward's method for aggregation and Euclidian distance) using the variables related to lifestyle and perception of chicken breast was performed to identify homogeneous groups of respondents according to their lifestyles. The number of clusters was obtained on the basis of the R2 obtained and of a strong increment produced in the Cubic Criterion of Clustering and Pseudo F values (SAS, 1994). Then, the relations between the different groups were analyzed using the chi-square test or the likelihood ratio under the conditions presented above.

RESULTS AND DISCUSSION

Sample characterization: Table 1 shows the description of the sample by socio-demographic economic variables. Online surveys are becoming quite popular in research because of their relatively low cost and speed of completion (Canavari *et al.*, 2005; Devkota *et al.*, 2007; Nielsen, 2011). In addition, some studies show no differences in responses between mail surveys and web-based surveys (Fleming and Bowden, 2009; Kuttappan *et al.*, 2012). Comparing the data from the sample with data from the population provided by the National Statistics Institute (INE) of Spain (INE, 2012) shows that the percentage of women and the percentage of mature adults are slightly overestimated. The percentage of young people is lower because the survey was only filled out by people older than 16 years. For those over 65 years, the low response rate is likely because of the difficulty of access to a computer or the Internet. In fact, although 73% of the Spanish population has access to the Internet, when people over 65 years are included, this percentage decreases to 21% (ONTSI, 2013). Seventy-five percent of the sample is concentrated in cities and the rest are distributed among people who live in communities of various sizes. Although it is true that the majority of Spaniards live in cities (INE, 2012), the people who live in towns are slightly under represented. Regarding the level of education, the middle level of education is well represented whereas the upper level is somewhat over-represented at the expense of the population with no education or only a basic education. This may be because Internet access is largely influenced by educational level. The higher the educational level, the greater the use of the Internet (ONTSI, 2013). The

Table 1: Socio-demographic variables of the sample

Variable	Level	Percent
Gender	Men	40.0
	Women	60.0
Age	Young (<26 years)	6.5
	Adults (26-45 years)	56.3
	Mature (46-65 years)	35.6
	Senior (>65 years)	1.7
Place of residence	Large city	75.4
	City	9.8
	Town	6.3
	Village	7.2
	Small village	7.3
Educational level	Primary/no education	3.5
	Intermediate	25.6
	Advanced studies	70.9
Family incomes	Low (<1,000 Euro)	7.0
	Medium (1,000 - 3,000 Euro)	60.2
	High (3,000 - 5,000 Euro)	28.3
	Very high (>5,000 Euro)	4.4
People living in home	One	6.5
	Two	28.6
	Three	26.4
	Four	29.5
	Five	4.8
	Six	0.7
	>6	0.5
Households with children	Yes	28.9
	No	71.1
Households with people >65 years	Yes	10.8
	No	89.2

Table 2: Consumer groups in terms of socio-demographic variables

Variable	G1 (32.7%)	G2 (26.1%)	G3 (26.9%)	G4 (14.3%)	P
Gender					0.883
Men	44.3	41.9	41.2	42.1	
Women	55.7	58.1	58.8	57.9	
Age ¹					<0.001
Young	7.3	5.3	2.6	6.3	
Adult	68.4	60.1	54.5	62.5	
Mature	23.7	34.2	41.0	29.9	
Senior	0.6	0.4	1.9	1.4	
Place of residence					<0.001
Large city	70.1	77.5	74.5	65.1	
City	11.7	7.9	9.5	11.0	
Town	7.5	5.6	5.5	8.9	
Village	7.5	5.6	8.0	10.3	
Small village	3.3	3.4	2.5	4.8	
Level of education					0.427
Primary/no education	3.0	1.9	4.8	2.8	
Intermediate	26.3	21.9	25.3	23.4	
Advanced	70.7	76.2	70.0	73.8	
Family income level ²					0.058
Low	9.1	8.3	3.7	6.3	
Medium	63.0	56.6	59.0	58.3	
High	24.8	30.9	32.1	27.8	
Very High	3.0	4.2	5.2	7.6	
People living in the family home					0.066
One	8.1	12.1	6.9	11.0	
Two	32.7	28.8	25.2	26.2	
Three	23.1	29.2	29.6	28.3	
Four	30.3	24.2	33.2	26.9	
Five	3.6	5.3	4.7	5.5	
Six	1.5	0.4	0.0	0.7	
>6	0.6	0.0	0.4	1.4	
Children under 6 years	33.3	27.2	28.4	33.1	0.327
People over 65 years	9.1	6.9	10.2	13.3	0.239

¹Young, <26; Adults, 26-45; Mature, 46-65; Senior, >65

²Low, <1000 Euro; Medium, 1000 - 3000 Euro; High, 3000 - 5000 Euro; Very high, >5000 Euro

Table 3: Chicken consumption habits

	Total	G1	G2	G3	G4	P
Percentage	100	32.7	26.1	26.9	14.3	
Generally buy meat when at home by myself	77.7	81.0	77.0	72.2	74.7	0.073
Generally consume chicken breast	91.2	94.0	92.5	89.0	89.0	0.095
How do you most like chicken?						0.600
Yellow	40.8	39.4	37.5	42.4	43.0	
White	59.2	60.6	62.5	57.6	57.0	
How many times a week do you eat chicken?						0.685
Not every week	13.8	12.0	13.1	13.8	13.7	
One	22.6	20.7	24.0	25.5	21.9	
Two	38.3	36.2	39.0	39.3	38.4	
Three	17.9	21.9	15.4	16.4	20.5	
Four	5.6	6.6	6.7	3.6	4.8	
Five	1.1	1.2	1.5	1.1	0.0	
Six	0.2	0.6	0.0	0.4	0.0	
More than 6	0.4	0.9	0.4	0.0	0.7	

Table 4: Cooking and eating habits

	Total	G1	G2	G3	G4	P
Percentage	100	32.7	26.1	26.9	14.3	
I cook almost every day of the week	65.8	73.7	52.1	66.2	65.8	<0.001
I like eating out	67.7	81.4	61.4	51.6	78.1	<0.001
I like when I cook innovatively	64.7	82.9	45.7	44.4	92.5	<0.001
I like more traditional recipes	76.5	72.8	82.0	90.2	45.2	<0.001
I like to try exotic foods	61.1	77.8	52.4	37.5	88.4	<0.001
I like dinners/meals with friends or family	93.1	96.1	88.0	93.8	93.2	0.002
I like cooking	75.1	88.3	53.2	73.5	80.8	<0.001

distribution of persons per home in the Spanish population was established in 2010, according to the INE. Approximately 85% of respondents live in a household of 2-4 people, with a small minority living in households of six or more people. According to the INE, the average monthly household income in 2012 was approximately 2,000 Euro. That is consistent with the 60% of the sample who fall in the segment of 1,000 to 3,000 Euro.

Chicken consumption habits: Most respondents personally buy the meat for the home and more than 90% of respondents consume chicken breast (Table 3). The Spanish consumer clearly prefers white meat (59.2%; $p < 0.001$). Other studies have also observed the importance of color in determining a consumer's choice of chicken (Barbut, 2001). Color preferences of chicken vary by region and culture and are also time dependent. European consumers generally prefer much less pigmented meat than consumers in the United States (Fletcher, 1999). Studies over more than a decade show that the color is currently interpreted differently (Sunde, 1992). For example, yellow skin is considered an indication of poultry good health because it is associated with birds free of diseases, such as avian coccidiosis (Kennedy *et al.*, 2005). Similar studies in the US indicate that the yellow color of the skin and meat are perceived as an indication of freshness and as having come from healthy animals (Sunde, 1992). When Northern Irish consumers were recently asked they said color was the most important factor in selecting chicken. However, they perceived the yellow, corn-fed color as

"unfamiliar", "unnatural", "greasy" and "unpleasant," indicating a lack of freshness. Thus, these consumers require an explanation on the packaging of the reason for the yellow meat (Kennedy *et al.*, 2005). According to Cotes (2010), the Spanish consumer prefers white meat (46.1%) rather than yellow (28.8%). White meat is chosen because of habit, the appearance (associated with size and freshness) and previous eating experiences (what looks like lean and tasty meat). Curiously, buyers of yellow chicken cite similar reasons for their choice (SADA, 2002). In our study, there were no significant relations among gender, population size, family income, educational level and preference for the color of chicken ($p > 0.05$); however, the study did observe that 70% of elderly people prefer yellow chicken ($p < 0.001$). Clearly, the preference for the color of chicken is a cultural phenomenon that should be considered when introducing chicken into a particular market.

Approximately 60% of respondents to our survey ate chicken once or twice a week and 13.8% ate chicken less than once a week. Less than 2% consumed chicken more than four times a week. These results on the frequency of consumption are consistent with the results of Briz and De Felipe (2001) in a study on the consumption of meat. The most frequently consumed meat was chicken: two-thirds of respondents ate chicken at least twice a week and only 3% do not ever consume chicken. We observed that the lower the income and educational level, the more chicken is consumed ($p < 0.001$). However, people with the highest incomes also indicated a high frequency of consumption. Several consumers were disgusted by

Table 5: Purchasing habits

	Total	G1	G2	G3	G4	P
Percentage	100	32.7	26.1	26.9	14.3	
Price is very important	72.8	82.9	78.7	57.5	65.1	<0.001
I like to buy food	79.8	91.0	65.5	80.0	80.8	<0.001
I often buy precooked products	14.4	17.4	20.6	8.4	8.2	<0.001
I read labels to decide what to buy	86.5	91.0	80.1	87.6	89.7	<0.001
I generally buy meat in trays	52.6	77.8	83.5	15.3	16.4	<0.001
I always prepare a shopping list	78.0	71.0	80.5	82.9	75.3	0.002
I only buy food that I am familiar with	65.1	55.7	73.0	81.5	29.5	<0.001
I generally buy well-known brands	58.3	51.8	50.6	73.5	50.0	<0.001
I like to buy food in supermarkets	54.4	76.0	74.5	24.7	28.1	<0.001

Table 6: Chicken breast perception

	Total	G1	G2	G3	G4	P
Percentage	100	32.7	26.1	26.9	14.3	
I buy the entire breast	58.2	80.5	34.1	54.2	60.3	<0.001
Chicken meat is cheaper than other meats	83.4	85.3	86.1	82.2	76.7	0.061
I buy chicken breast because it is easy to cook	70.0	67.4	79.8	70.2	60.3	<0.001
I prefer to buy the entire chicken	27.4	28.1	11.6	34.9	31.5	<0.001
I buy sliced breast	69.4	60.8	80.1	73.8	56.2	<0.001
I like the breast because it has no fat	77.0	76.0	84.3	71.6	76.7	0.005
Chicken breasts contain hormones	43.2	46.4	36.3	45.1	38.4	0.046
Chicken breast is healthier than other meats	66.9	63.2	78.7	59.6	68.5	<0.001
I buy chicken breast in trays	72.9	93.4	94.8	39.6	45.2	<0.001
I like other parts of the chicken more than the breast	50.1	50.6	53.6	50.2	42.5	0.194
I buy chicken breast from a butcher	58.2	46.1	27.7	87.3	79.5	<0.001

the presence of blood or fat in raw meat and therefore expressed a preference for chicken over red meat, increasing poultry consumption (Kubberod *et al.*, 2002b). Gender also influenced the frequency of consumption ($p = 0.022$): men consumed chicken an average of once a week whereas women consumed chicken an average of 4 times a week. Low consumption of meat is, generally, a feminine phenomenon (Worsley and Skrzypiec, 1998). In fact, women indicate a greater number of dietary restrictions, especially concerning the consumption of red meat (Forestell *et al.*, 2012). In a survey conducted in Norway and Sweden, 72.5% of the people who ate small amounts of meat were women (Larsson *et al.*, 2002). However, chicken is perceived as "feminine" and this perception was expressed by both genders in a focus group of Irish consumers (Kennedy *et al.*, 2004). This explains the increased consumption of chicken by women.

Cooking and eating habits: The majority of the respondents agreed with the proposed statements (Table 4). Specifically, 93.1% reported liking dinners or meals with friends or family. More women (73.4%; $p < 0.001$) than men reported cooking every day and men prefer more traditional recipes. Nevertheless, men also like exotic food. Women ($p = 0.026$) reported disliking exotic foods, which is consistent with females being prone to ethnocentrism (Good and Huddleston, 1995; Sharma *et al.*, 1995). Ethnocentric tendencies are also related to low educational levels (Good and Huddleston, 1995; Grunert *et al.*, 2011). In our study, respondents with no education or only a primary education like to cook but do not like eating out or trying exotic foods. Respondents living in households with low income

levels reported cooking nearly every day, which was much greater than respondents with higher income levels. Innovative cooking appears to be preferred by 82.4% of the households with high incomes. Regarding the preference for eating outside the home, there was no relation to the level of income although Rama (1997) observed that in Spain, the level of income is a major factor in the decision to eat out. However, a person may have a high income level in a job that requires eating out although the person does not like that requirement. People who live alone reported that they do not cook daily.

Purchasing habits: Respondents reached a strong consensus (Table 5) on some statements. Most respondents read the food labels (86%), a great majority likes to shop for food and many consumers make a list before grocery shopping. However, according to Consumer (2013), only 50% of Spanish people always read the product labeling. However, information such as logos and dietary information can affect consumers' beliefs, change their perception of a product and affect their purchase intentions (Hoogland *et al.*, 2007). Approximately half of the sample buy name brands and meat trays and like to shop in supermarkets. Only 14.4% often buy convenience products. Price is an important factor regardless of socio-demographic factors such as gender. Men enjoy buying food more than women and frequently buy precooked foods and meat trays, demonstrating a pursuit of comfort and convenience. However, women prepare lists before shopping and generally buy known brands. Younger people are more sensitive to price and buy trays, preferably in

supermarkets. They make impulse purchases because they do not prepare a shopping list. Younger consumers also have a marked tendency toward new experiences because they are not prone to buying known foods or brands. Conversely, mature people have lower price sensitivity and do not like buying food or buying precooked food or shopping in supermarkets. Neither do they prepare lists or purchase known products and brands. In our study, age was associated with an increased rejection of exotic foods; age was positively related to consumer ethnocentrism (Good and Huddleston, 1995; Grunert *et al.*, 2011).

This study observed a relation between level of education and statements regarding the importance of price, shopping and buying precooked foods. Price is quite important to consumers with an intermediate education level whereas consumers with university degrees perceive price as less important. The percentage of respondents who frequently purchase convenience products was twice as great in people with no education or only a primary education (27.5%) than in the other two educational levels. Higher incomes are associated with price being less important. Hence, 91.8% of people with low incomes thought price was important as opposed to 49.1% of people with extremely high incomes. However, only 3.8% of people with high incomes buy prepared foods whereas 19.3% of people at a low economic level buy prepared foods. In many cases, the relation between fast or prepared food and saving time and lower prices is more important than health considerations (Hough and Sosa, 2014). Respondents with low (83.3%) or intermediate (70.7%) levels of education reported buying only known products ($p < 0.001$) more often than those with more education (62.3%). A theory that supports the relation between people with more education and higher incomes and a greater preference for exotic or foreign foods is that these individuals tend to be less conservative in all facets of their lives (Garitta *et al.*, 2008). However, people with low levels of education prefer to buy only well-known brands. There is an apparent contradiction in that the people with low educational levels value price as quite important but buy name brands, which are generally more expensive. This could be a result of the influence of advertising.

Chicken breast perception: The perception of chicken (Table A1) as a cheap meat is widespread (83.4%), as is the perception that it is a lean meat (77.0%). Seventy percent of consumers said that they buy chicken breast because it is easy to cook. This is consistent with only 27.4% preferring to buy the entire chicken rather than chicken pieces. In 1962 in the US, 83% of chicken was sold as whole chicken, 15% was sold in pieces and 2% was sold in processed meals. In 2012, the percentages were 12, 41 and 47%, respectively (NCC, 2012b). Men

prefer buying whole chickens whereas women prefer just the breast because 78.7% of women think that breast has no fat or is healthier than other chicken parts (69.1% of women). Perhaps this is why men perceive chicken as inexpensive meat. Although 69.1% of women think chicken breast is healthy, 47.9% think chicken breast contains hormones. This apparent contradiction suggests that the concept of health is associated with the consumption of fat and being overweight and not the presence of hormones or additives.

In cultural terms, the entire chicken is associated with a traditional food culture. In a study by Jaeger and Meiselman (2004) conducted in Copenhagen, respondents who perceived their own diet as modern perceived consuming the entire chicken as traditional and a part of their own childhood memories. In addition, consumers currently prefer to buy meat in portions, especially boneless or skinless. Chicken breasts are preferred because they are not obviously a part of an animal (Kubberod *et al.*, 2002b). In fact, in the study by Kennedy *et al.* (2004), respondents said they are not interested in how the chickens were raised or fed. This tendency to perceive the flesh as disconnected from the animal is increasing in Northern European countries.

A large percentage of Russian and Polish consumers directly relate chicken meat to health because it has little fat, is nutritious and light, is appropriate for low cholesterol diets and is good for children. According to Good and Huddleston (1995) chicken consumption is growing with the aim of "eat less of other meats". Verbeke *et al.* (2010) observed that whether the meat is healthy is gradually becoming more important than concerns about food safety. This generalized reduction in meat consumption is primarily a result of health concerns even when other reasons such as animal welfare are involved. Other factors that motivate the restriction of meat consumption are religion and ideology (Bello and Calvo, 2000). However, in addition to these reasons, a dislike of raw meat or blood and the difficulty of separating the concept of flesh from the animal (Fischer, 2006) may have led to decreased consumption of red meat. Concerns regarding weight (Grunert, 1996) and even physical characteristics such as taste, smell and texture are important reasons why women reject meat (Twigg, 1979). Behavior related to food and health demonstrates a disparity between men and women. Nayga Jr (1996) reported that men perceived nutrition as a less important factor than women when shopping. Additionally, men read package labels less than women do. One possible explanation is that women find these risk-reduction strategies more useful than men do (Nayga, 2000). In terms of convenience, chicken is sought as a versatile product that can be eaten as is or used as the base ingredient for other dishes (Kennedy *et al.*, 2004).

Table A1: Perception of chicken breast by gender

	Men	Women	P
I buy the entire breast	58.8	59.2	0.884
Chicken is cheaper than other meats	87.6	80.3	<0.001
I buy chicken breast because it is easy to cook	69.9	70.0	0.945
I prefer to buy the entire chicken	31.3	24.5	0.010
I buy sliced chicken breast	63.7	73.5	<0.001
I like the breast because it has no fat	74.5	78.7	0.094
Chicken breasts contain hormones	36.4	47.9	<0.001
Chicken breast is healthier than other meats	63.3	69.1	0.037
I buy breasts in trays	72.2	73.6	0.587
I like other parts of the chicken more than the breast	53.1	48.2	0.100
I buy chicken breasts from a butcher	54.8	60.4	0.052

Table A2: Perception of chicken breast by age group

	Young	Adult	Mature	Senior	P
I buy the entire breast	56.4	62.2	55.6	52.9	0.154
Chicken is cheaper than other meats	82.1	82.0	85.9	72.2	0.219
I buy chicken breast because it is easy to cook	67.9	71.1	68.1	64.7	0.701
I prefer to buy the entire chicken	19.2	23.9	32.9	35.3	0.003
I buy sliced chicken breast	78.2	69.1	68.3	56.3	0.222
I like the breast because it has no fat	72.2	74.3	82.0	78.9	0.021
Chicken breasts contain hormones	32.9	44.2	41.9	42.9	0.300
Chicken breast is healthier than other meats	72.2	68.8	63.9	47.1	0.082
I buy chicken breast in trays	83.3	73.9	69.7	65.0	0.061
I like other parts of the chicken more than the breast	31.6	48.9	55.0	52.6	0.002
I buy chicken breasts from a butcher	43.6	56.0	63.8	76.5	<0.001

Young, <26; Adults, 26-45; Mature, 46-65; Senior, >65

Table A3: Perception of chicken breast by population size

	BC	C	T	V	SV	P
I buy the entire breast	56.9	65.8	64.9	67.4	60.0	0.104
Chicken is cheaper than other meats	84.8	79.8	75.6	80.7	82.1	0.176
I buy chicken breast because it is easy to cook	70.4	67.2	76.6	70.1	55.0	0.171
I prefer to buy the entire chicken	25.2	27.1	35.5	31.8	48.8	0.005
I buy sliced chicken breast	71.8	64.4	70.5	59.1	52.5	0.009
I like the breast because it has no fat	77.5	83.2	80.8	62.9	72.5	0.008
Chicken breasts contain hormones	43.5	44.2	46.6	38.8	36.8	0.788
Chicken breast is healthier than other meats	68.8	67.5	62.8	56.3	55.0	0.082
I buy chicken breast in trays	73.7	74.2	69.7	66.3	73.2	0.606
I like other parts of the chicken more than the breast	49.9	43.1	59.2	56.3	43.9	0.148
I buy chicken breasts from a butcher	57.5	57.6	65.4	67.0	43.6	0.087

BC, large city; C, city; T, town; V, village; SM, small village

Table A4: Perception of chicken breast by educational level

	Primary/no education	Intermediate	Advanced	P
I buy the entire breast	80.0	66.8	55.4	<0.001
Chicken is cheaper than other meats	72.5	82.2	84.1	0.139
I buy chicken breast because it is easy to cook	65.8	65.2	71.9	0.081
I prefer to buy the entire chicken	61.9	30.8	24.3	<0.001
I buy sliced chicken breast	57.9	67.1	71.0	0.126
I like the breast because it has no fat	87.8	84.5	73.8	<0.001
Chicken breasts contain hormones	42.9	47.4	41.8	0.258
Chicken breast is healthier than other meats	82.9	68.7	65.6	0.053
I buy chicken breasts in trays	67.5	74.6	72.7	0.593
I like other parts of the chicken more than the breast	43.6	52.6	49.5	0.459
I buy chicken breasts from a butcher	66.7	60.2	57.0	0.347

Table A5: Perception of chicken breast by family income level

	Low	Medium	High	Very high	P
I buy the entire breast	62.7	62.9	53.0	49.1	0.007
Chicken is cheaper than other meats	78.3	82.2	86.4	85.2	0.205
I buy chicken breast because it is easy to cook	58.3	68.0	74.6	83.3	0.002
I prefer to buy the entire chicken	38.8	27.8	22.2	26.4	0.017
I buy sliced chicken breast	60.2	69.4	72.2	67.3	0.205
I like the breast because it has no fat	80.0	76.1	77.4	79.6	0.810
Chicken breasts contain hormones	51.2	42.7	41.5	40.0	0.432
Chicken breast is healthier than other meats	76.2	67.4	64.2	64.8	0.200
I buy chicken breast in trays	70.2	72.3	74.1	77.8	0.724
I like other parts of the chicken more than the breast	53.0	51.3	49.0	42.3	0.556
I buy chicken breasts from a butcher	44.0	59.6	59.6	51.9	0.035

Low, <1,000 Euro; Medium, 1,000 - 3,000 Euro; High, 3,000 - 5,000 Euro; Very high >5,000 Euro

Young people and adults perceive chicken breast in quite similar manners (Table A2). Both think that the breast is healthier than other meats and prefer to purchase breast trays rather than buying whole chickens from a butcher. As with previous questions, more mature adults have different reasons for buying the breast as opposed to buying whole chickens. Older consumers like the breast because it is a lean meat although older consumers do not think it is healthier than other meats. According to Grunert *et al.* (2001), senior consumers tend to make decisions based on health because they are at greater risk than younger consumers of having health problems. Additionally, Lopez *et al.* (2008) concluded that older consumers do not like to utilize much product information; although they have less inclination to read labels, they have more experience. Older consumers use their experience in strategies for buying healthier products. However, in a changing market in which new products appear every day, such as a new presentation of traditional foods, nutraceuticals, or functional foods, it appears that grocery shopping in itself is insufficient to ensure making a healthy purchase. A study conducted in Australia observed that young and middle-aged people are three times more likely than those over 60 to buy frozen food or convenience foods and five times more likely to buy fast food (Hunter and Worsley, 2009). However, the concept of convenience food is variable. Wu (2007) suggested that young people define convenience in a different manner from older people. Wu (2007) argued that young people associate convenience with easy access to food, recipes and Internet tips whereas the older population associates convenience with precooked meals that require minimal preparation. This perception causes those born between 1965 and 2007 to eat prepared or convenience foods during the week because of time demands whereas on the weekends, they like experimenting with new recipes and fresh ingredients. In contrast, the older population have more time to prepare food and tend to use few convenience products (Wu, 2007). In addition, a study in eight European countries observed that older adults perceive convenience meals negatively. The intent to purchase this type of food was very low and older consumers do not see any need for convenience food. In addition, older consumers do not suffer from social pressure to use such foods (Saba *et al.*, 2008).

Table A3 shows there is an inverse relation between respondents who live in the cities and prefer to buy filleted chicken breast and inhabitants of small towns who prefer the entire chicken. Those in small towns also do not believe that the breast is healthier because it has less fat, contrary to the beliefs of people living in cities. People in small and middle-sized towns buy from a butcher whereas those in the extremely small towns do not. This is most likely because of the absence of

butcher shops in extremely small towns. These people must shop in the supermarket in the nearest larger town.

Respondents with only primary or no education prefer to buy the entire breast and the entire chicken more frequently than people with higher education levels and believe that chicken is healthier than other meats (Table A4). People with intermediate educations also bought the entire breast more often; however, they did so because it is easy to cook. Finally, people with a high educational level do not buy the entire breast or the entire chicken because these consumers seek convenience.

Middle-income households buy the entire breast more frequently than the general sample whereas households with a high family income do so less often (Table A5). Income level was unrelated to the opinion that chicken is cheaper than other meats; however, it was related to convenience. The low-income consumers prefer to buy the entire chicken breast and consumers with high income levels prefer easy-to-prepare or easy-to-cook foods such as chicken pieces or sliced breast. The dependence between the variables of education level and family income level was analyzed. A correlation (Spearman's ρ) of 0.31 ($p < 0.01$) was identified. Thus, it was observed that the higher the level of education, the higher the income.

People who live alone present a different profile. These homes demonstrate an important trend to buy convenience products; they buy the entire chicken and the entire chicken breast less often. These households and households with only two people avoid buying from butcher shops. At the opposite extreme, families with more than 6 members definitely prefer to buy non sliced breasts and also do so in butcher shops. However, only 16.7% of respondents from these very large families believe that chicken breast is healthier than other meats. This indicates that many families buy chicken breast for the price instead of as a health issue. They do not buy chicken breasts for the convenience because the smaller the number of family members, the greater the use of processed products and convenience foods (Rama, 1997).

In our study, the presence of young children does not appear to alter the frequency of consumption of chicken breast. However, according to the study by Chettamrongchai and Davies (2000), these families do consume more convenience foods because of lack of time for work and child care. Parents clearly know the likes and dislikes of their children (Mata *et al.*, 2008). Because the breast is a child's favorite food, its consumption frequency should be higher. The explanation for this contradiction could be that parents think that chicken breast contains growth hormones. Another explanation is that, although parents are clear about the criteria they consider important when buying

food for their children, the criteria are not always reflected in their purchases, e.g., although nutrition is a criterion, parents nevertheless buy unhealthy foods (Kiefner-Burmeister *et al.*, 2013). In fact, after the Chinese scandal of adding melamine to milk, no difference in milk consumption among families with or without children was observed (Qiao *et al.*, 2012).

Consumer types based on lifestyles: The results of the cluster analysis are shown in Fig. 1. There are two major consumer groups, which are divided into four clusters (G1, G2, G3 and G4). Socio-demographic characteristics (Table 2), consumption habits (Table 3), cooking and eating habits (Table 4), purchasing habits (Table 5) and perception of the chicken breast (Table 6) of the four groups.

G2 and G3 each contained just over 25% of the consumers, whereas G1 was the largest group with nearly one-third of the sample. G4 was the least numerous group with 14.3% of respondents. These groups were not defined by socio-demographic variables such as gender or education level, nor were they defined by variables such as the presence of children under 6 years or older than 65 years in the family home. However, there were differences in place of residence, income level and family size. Regarding questions related to food-related lifestyles, it was observed that no group was characterized based on the weekly frequency of consumption of chicken or the group's preference for the color of the chicken breast or other parts of the chicken.

G1 was characterized by a higher frequency of adults but not more mature adults than the other clusters. G1 included a large percentage of households with low incomes and a small percentage of households with high incomes. The family home of these consumers comprised two people more frequently than the general average and there are fewer homes containing three people. On this basis, it could be said that a feature of this group is the increased occurrence of couples without children and with low income, most likely because these couples have only been in the labor market for a short time or have unstable jobs. Respondents in G1 were in charge of buying meat for the house, ate chicken breast, cooked almost every day and loved to cook and try out exotic foods and new recipes. In addition, members of this group liked to innovate because did not appreciate traditional recipes. Members of this group also enjoyed eating out and liked social events (96.1%). Cost was considered quite important by 82.9% of G1 compared with 72.8% of the sample. G1 members loved to buy food and shopped in larger cities in which they could buy packaged meat in trays. This group did not make shopping lists or restrict themselves to known foods or brands. Perhaps this is why they read labels to make purchase decisions. In

terms of their perception of chicken breast, they avoided buying in butcher shops and preferred to buy at supermarkets. They purchased the entire breast but not sliced breast, most likely because the sliced breast is more expensive. This consumer group expressed no distinct opinions regarding concepts relating chicken breast to health. However, members of G1 expressed their preference for chicken pieces based on the pieces' ease of use because this group likes to cook and innovate although they seek the convenience of making a purchase without prior planning in supermarkets. This group could be called the "innovative precariat". Although consuming exotic or ethnic foods can be more expensive than eating traditional foods and this segment is characterized by low income, this type of food can be interesting if the consumer analyzes his own preferences. Fischer (2006) argued that a dish of foreign origin is widely accepted when it is perceived as superior in some aspects to local food. These aspects may be flavor, that it is healthy, cheaper or just presents an image of higher status. Rama (1997) reported that consumers who live in a household of two adults without children eat outside of the home more often than any other type of consumer.

Consumer group 2 (G2) did not differ from the overall sample in terms of age or income but did more often live alone in large cities. Although the level of education did not influence the groups, there is a trend for this group to include people with more education (Table 2). This group is not defined by their consumption habits of chicken breast (Table 3). However, the group is clearly defined by having cooking and eating habits that are quite different from those of G1. Consumers in this group did not like to cook and were not innovative when cooking. They prefer traditional rather than exotic meals. This is the only group with a lower frequency (88%) than the general sample in their preference for dinners or lunches with friends or family. This group also values price and like G1, does not buy well-known brands. However, they do not like to experiment and just buy familiar food. They are prone to buying convenient products such as meat trays and precooked products in supermarkets. Confirming that this group minimizes time and effort regarding everything surrounding food, they prefer to buy sliced breast packaged in a tray because of the ease of cooking. G2 is also the group with a lower preference for the entire chicken (11.6%). However, G2 showed interest in health and were the group that most often purchased chicken breast because it is a lean meat and healthier than other meats. In fact, only 36.3% thought that chicken breast contains hormones (Table 6). This group could be called "Urban Singles". Hunter and Worsley (2009) showed that single and widowed people use many more convenience products and frozen foods than couples. Chicken breast fillets are perceived as a

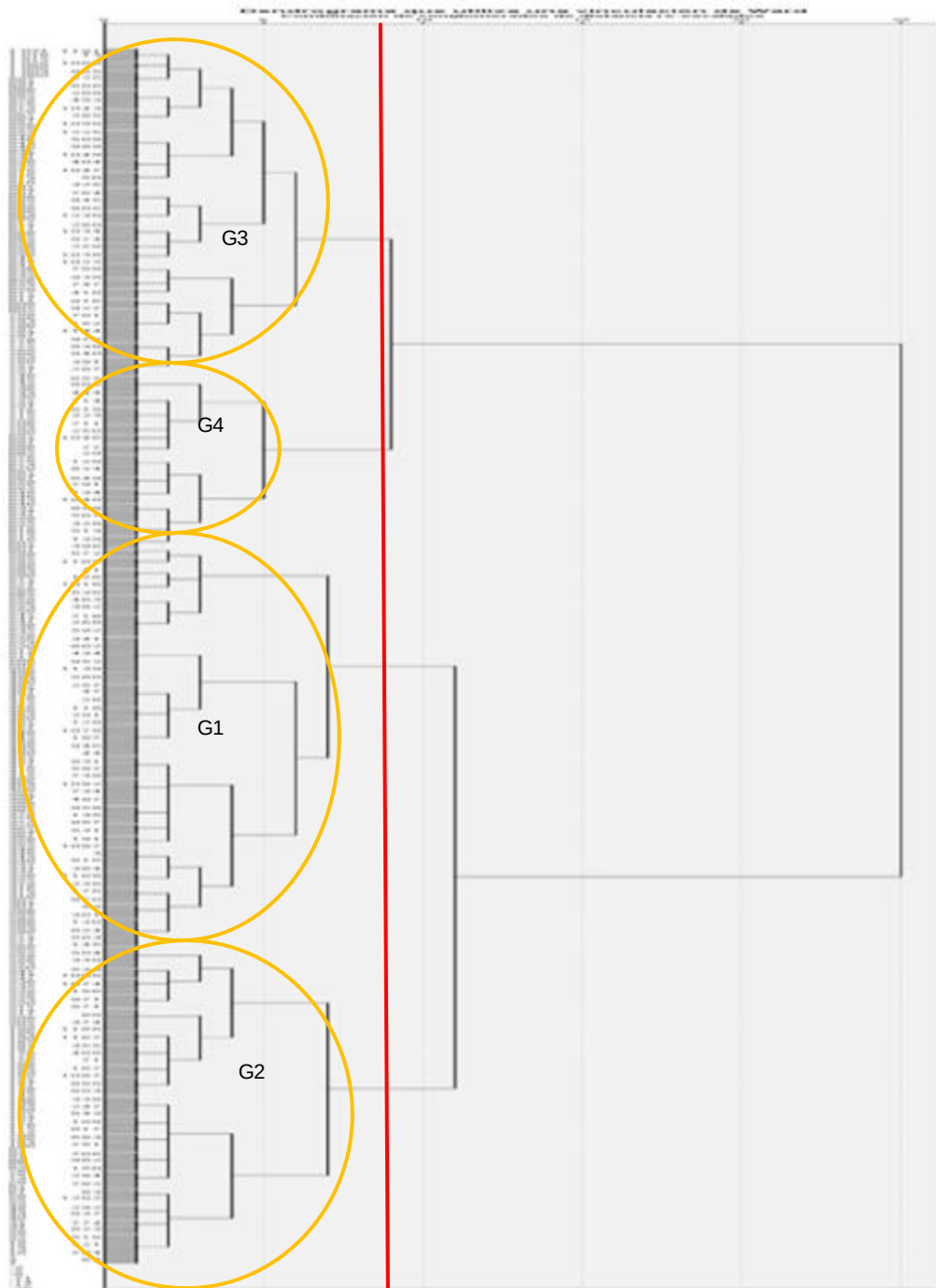


Fig. 1: Grouping of consumers by means of cluster analysis

convenience food because they require minimal preparation (Kennedy *et al.*, 2004). A product oriented to satisfy this group, must be quite careful about a fatty breast appearance because the white streaks of the breast are associated with a high fat content. Half of the

consumers in a survey by Kuttappan *et al.* (2012) stated that they would not buy a chicken breast with streaks of fat.

The third group, G3, comprised mostly more mature people with fewer youths and adults. G3 families were

medium-sized families (4 people) and there was some tendency toward a basic education. However, contrary to the relation that was observed in the overall sample between income and education, this group comprises fewer families with low income levels. Respondents in this group do not purchase meat to cook at home by it selves. This group is not defined by any particular habit of chicken consumption (Table 3). Regarding cooking and eating habits, this group is traditional and conservative because they do not like to cook or try innovative, exotic meals. This group also appreciates more traditional recipes (90.2%). Only 44.4% like eating out compared with 67.7% of the sample. The purchasing habits (Table 5) of this group reflect the absence of low income in this group and only 57.5% consider price to be extremely important compared with 72.8% of the overall sample. Consistent with the traditional or conservative profile of G3, quite a low percentage buy precooked products, meat trays or like to buy food in supermarkets. This is also the group that most frequently makes lists before buying and has a greater preference for popular brands and food.

In G3, 87.3% buy breast chicken from a butcher and 73.8% buy sliced breast. G3 is the only group that prefers to buy the entire chicken and does not worry about fat. As many as 59.6% believe that the breast is healthier than other meats (Table 6). This group, based on these features, could be called 'Traditional'. This traditional concept is consistent with the reduced presence of young people, who are less likely to be conservative than older adults. Furthermore, although older adults have more health concerns, G3 respondents do not consider chicken breast to be healthier than other meats. Health benefits have been widely described as one of the main criteria in the selection of food by the consumer in addition to availability, culture, taste, weight control or care for the environment. However, the importance of health benefits varies according to the type of consumer (Steptoe *et al.*, 1995). Grunert (1996) analyzed a similar type of consumers called "Conservatives.". These consumers were characterized by great interest in the taste and quality of food; however, this type had few concerns regarding health and the environmental. For these consumers, price was not an important restriction when buying food. The most important feature was that G3 members do not buy convenience products.

The last group (G4) was not clearly defined by gender, age, educational level or family size. The main characteristics of G4 are that the members have the highest percentage of extremely high income levels and a lower percentage of consumers who live in a city. This group also has marked consumption habits (Table 3) although their habits in terms of cooking and eating tend to be quite experimental. G4 members like cooking, innovating, exotic recipes and eating away from home.

By contrast, only 45.2% of G4 prefer traditional recipes. G4 members did not consider price an important factor and because they like to cook, do not buy convenience products (8.2%) or meat trays. Furthermore, because G4 members like to experiment, this group indicates the lowest preference for well-known brands and products. G4's perception of the chicken breast is not influenced by any concept related to health or convenience. These respondents do not purchase chicken breast for ease of cooking, nor do they buy sliced chicken breast. They prefer to buy chicken breast from a butcher (79.5%). G4 is the only group that is prominent for the low frequency of respondents who think that chicken is not cheaper than other meats. This group of consumers is characterized by its innovative and experimental nature and high economic level; they might be called "Gourmet".

In general, consumers are increasing their search for unexpected and exciting products, including innovative foods and ethnic foods. Some consumers desire new experiences when they prepare food and eat it (Buckley *et al.*, 2007). This fact is consistent with Cotes (2010), who observed that consumers who spend time cooking prefer non-processed foods to maintain the sensory characteristics of the product. These consumers are therefore not interested in food that is sliced, packaged or in other formats that may alter the taste or smell of the food. In our study, G4 consumers preferred buying meat from a butcher and did not consume chicken breast because it was easy. In a study of Spanish ham, Mesias *et al.* (2009) identified three groups of consumers based on their socio-demographic characteristics and consumption habits. These groups were not defined by age, gender or education, but by their income and preferences. One group is similar to the Gourmet group. They were characterized by preferring Iberian ham, giving little thought to the price, but in return ascribed great importance to quality labels (PGI) and preferred the entire ham instead of sliced ham. G4 (Gourmet) did not consider chicken breast to be cheaper than other meats, which would have indicated a greater purchase intention. However, a higher price may be perceived as a quality indicator, which increases purchasing (Bello and Calvo, 2000).

According to other studies, our study has highlighted the existence of divergent consumer profiles. These groups are similar to those typically observed in Europe (Grunert *et al.*, 2001) (careless, rational, worried, hedonistic, adventurous, innovative, traditional, conservative) with variations depending on the studied country. A similar study concerning lamb in 1996 (Bredahl and Grunert, 1997) identified five groups of consumers that were similar to those identified in this study, as in the case of the traditional group. Similarly, although the methods were different, Bernues *et al.* (2012) also identified some of these groups in another study on lamb in the

Aragón (Spain). The Traditional group surfaces in numerous studies, regardless of the product or the culture. Grunert *et al.* (2011) identified the traditional group in a study in China. Buckley *et al.* (2007), in a study of convenience foods and lifestyles of British consumers, also identified four groups of consumers. In this case, one called "Food connoisseurs" would be analogous to our Gourmet Group.

According to Fischer (2006), increased health problems related directly or indirectly to food in countries with higher economic growth have resulted in three consumer trends. One group of consumers tends to consume ethnic or foreign food, another group of consumers prefers to buy natural and healthy food and finally, one consumer group focuses more on purchasing functional foods. Each of these strategies somehow satisfies the consumer who buys a particular food. Buyers of ethnic foods are searching for the taste and status those foods offer and most likely would be absorbed by the "innovative precariat" group. Natural foods are sought because of health and environmental concerns. In addition, natural foods respect the flavor and culinary possibilities of food. Presumably, these foods would be acquired by the "Gourmet" and "Traditional" groups but for different reasons. Finally, functional foods, which are related to aspects of health and weight control, are the focus of the "Urban Single" group.

Conclusion: Use of the Internet in a broad sense (websites, blogs, social networks, emails) for dissemination, completion and collection of surveys has been shown to be a useful and inexpensive resource.

Most Spaniards consume chicken breast once or twice per week. White chicken is preferred although yellow chicken is also consumed in significant amounts. Spanish consumer perceptions of chicken breast are positive because consumers consider chicken an inexpensive meat that has no fat and is healthy, although 43% think chicken contains hormones. Chicken breast is a convenient product and 70% of consumers buy chicken breast because it is easy to cook; only 27% prefer to buy the entire chicken.

Shopping, cooking and eating habits and the perception of chicken breast are related to socio-demographic variables; however, consumers' attitudes are complex. When consumers are grouped by homogeneous types, socio-demographic variables are less significant than food-related lifestyles and consumers' perceptions of chicken breast. It was possible to identify four groups of consumers based on consumers' lifestyles related to chicken breast. These types of consumers were consistent with those identified in terms of the lifestyles associated with other foods. Classifying and defining groups of consumers according to their perceptions of chicken breast are useful in guiding marketing strategies to satisfy these differences.

REFERENCES

- Arcia, P.L., 2012. Influencia de las características sensoriales y la información nutricional en la respuesta de los consumidores a alimentos funcionales. CSIC, Valencia, Spain, pp: 232.
- Barbut, S., 2001. Acceptance of fresh chicken meat presented under three light sources. *Poult. Sci.*, 80: 101-104.
- Bello, L. and D. Calvo, 2000. The importance of intrinsic and extrinsic cues to expected and experienced quality: An empirical application for beef. *Food Quality and Preference*, 11: 229-238.
- Bernues, A., G. Ripoll and B. Panea, 2012. Consumer segmentation based on convenience orientation and attitudes towards quality attributes of lamb meat. *Food Quality and Preference*, 26: 211-220.
- Bilgili, S.F., 2002. Poultry meat processing and marketing-what does the future hold? *Poult. Int.*, 9: 12-22.
- Boedeker, M. and H. Marjanen, 1993. Choice orientation types and their shopping trips: An empirical study of shopping trips to the city centre vs to an edge-of-town retail park. In: 7th International Conference on Research in the Distributive Trades. Institute for Retail Studies, University of Stirling.
- Bredahl, L. and K.G. Grunert, 1997. Identificación de los estilos de vida alimenticios en España. *Investigación Agraria: Economía*, 12: 247-263.
- Briz, J. and I. De Felipe, 2001. Política de calidad y actitud del consumidor de carne en la Unión Europea: Referencia especial al caso español. In: S. L. E. Estrategias Alimentarias, (Ed.), pp: 115-142.
- Brunso, K. and K.G. Grunert, 1995. Development and testing of a cross-culturally valid instrument: Food-related life style. *Adv. in Consumer Res.*, 22: 475-480.
- Brunso, K., J. Scholderer and K.G. Grunert, 2004. Testing relationships between values and food-related lifestyle: Results from two European countries. *Appetite*, 43: 195-205.
- Buckley, M., C. Cowan and M. McCarthy, 2007. The convenience food market in Great Britain: Convenience food lifestyle (cfl) segments. *Appetite*, 49: 600-617.
- Campbell, W.W., M.L. Barton, D. Cyr-Campbell, S.L. Davey, J.L. Beard, G. Parise and W.J. Evans, 1999. Effects of an omnivorous diet compared with a lacto-ovo-vegetarian diet on resistance-training-induced changes in body composition and skeletal muscle in older men. *Am. J. Clin. Nutr.*, 70: 1032-1039.
- Canavari, M., G. Nocella and R. Scarpa, 2005. Stated willingness-to-pay for organic fruit and pesticide ban: An evaluation using both web-based and face-to-face interviewing. *J. Food Prod. Marketing*, 11: 107-134.

- Carbajal, A., 2005. Hábitos de consumo de carne de pollo y huevos. Calidad nutricional y relación con la salud. Sección Española de la Asociación Mundial de Avicultura Científica, pp: 51-72.
- Carreras, I., 2005. Influencia de la suplementación de antioxidantes y de la administración de enrofloxacin en la calidad y seguridad de la carne de ave. Universitat de Girona, Girona, pp: 316.
- Consumer, 2013. A fondo: Solo uno de cada dos encuestados lee siempre el etiquetado de los productos. Eroski Consumer, 179: 22-27.
- Cotes, A., 2010. Modelos de comportamiento del consumidor de productos alimenticios con valor agregado. In: Departamento de Administración y Economía de la empresa. Universidad de Salamanca, Salamanca, pp: 230.
- Chettamrongchai, P. and G. Davies, 2000. Segmenting the market for food shoppers using attitudes to shopping and to time. *Br. Food J.*, 102: 81-101.
- de Boer, M., M. McCarthy, C. Cowan and I. Ryan, 2004. The influence of lifestyle characteristics and beliefs about convenience food on the demand for convenience foods in the Irish market. *Food Quality and Preference*, 15: 155-165.
- Devkota, N., K.P. Paudel, J.M. Fannin, L.M. Hall and R.H. Caffey, 2007. Calibrating online survey sample for economic impact analysis. In: 2007 Annual Meeting, February 4-7, 2007, Mobile, Alabama. Southern Agricultural Economics Association.
- Fischer, C., 2006. The complexities of modern food consumption and implications for international food product marketers. *J. Int. Food and Agribusiness Marketing*, 19: 7-35.
- Fleming, C.M. and M. Bowden, 2009. Web-based surveys as an alternative to traditional mail methods. *J. Environ. Manag.*, 90: 284-292.
- Fletcher, D., 1999. Broiler breast meat color variation, pH and texture. *Poult. Sci.*, 78: 1323-1327.
- Forestell, C.A., A.M. Spaeth and S.A. Kane, 2012. To eat or not to eat red meat. A closer look at the relationship between restrained eating and vegetarianism in college females. *Appetite*, 58: 319-325.
- Garitta, L., G. Hough and E. Hulshof, 2008. Determining optimum ripening time of fruits by applying survival analysis statistics to consumer data. *Food Quality and Preference*, 19: 747-752.
- Good, L.K. and P. Huddleston, 1995. Ethnocentrism of Polish and Russian consumers: Are feelings and intentions related. *Int. Marketing Rev.*, 12: 35-48.
- Grunert, K., 2006. Future trends and consumer lifestyles with regard to meat consumption. *Meat Sci.*, 74: 149-160.
- Grunert, K.G., 1996. Market orientation in food and agriculture. Springer.
- Grunert, K.G., K. Brunso, L. Bredahl and A.C. Bech, 2001. Food-related lifestyle: A segmentation approach to European food consumers. In: *Food, people and society*. Springer, pp: 211-230.
- Grunert, K.G., T. Perrea, Y. Zhou, G. Huang, B.T. Sorensen and A. Krystallis, 2011. Is food-related lifestyle (frl) able to reveal food consumption patterns in non-western cultural environments? Its adaptation and application in urban China. *Appetite*, 56: 357-367.
- Hernández, J., 2002. Quality of foods of animal origin: What is the meaning for the Spanish consumer of 21st century? *Eurocarne*, 106: 33-34.
- Hoek, A.C., P.A. Luning, A. Stafleu and C. de Graaf, 2004. Food-related lifestyle and health attitudes of Dutch vegetarians, non-vegetarian consumers of meat substitutes and meat consumers. *Appetite*, 42: 265-272.
- Hoogland, C.T., J. de Boer and J.J. Boersema, 2007. Food and sustainability: Do consumers recognize, understand and value on-package information on production standards? *Appetite*, 49: 47-57.
- Hough, G. and M. Sosa, 2014. Food choice in low income populations a review. *Food Quality and Preference*, In press. DOI 10.1016/j.foodqual.2014.05.003.
- Hunter, W. and T. Worsley, 2009. Understanding the older food consumer. Present day behaviours and future expectations. *Appetite*, 52: 147-154.
- INE, 2012. Instituto nacional de estadística. Instituto Nacional de Estadística, Madrid (Spain).
- Jaeger, S.R. and H.L. Meiselman, 2004. Perceptions of meal convenience. The case of at-home evening meals. *Appetite*, 42: 317-325.
- Kennedy, O.B., B.J. Stewart-Knox, P.C. Mitchell and D.I. Thurnham, 2004. Consumer perceptions of poultry meat: A qualitative analysis. *Nutr. and Food Sci.*, 34: 122-129.
- Kennedy, O.B., B.J. Stewart-Knox, P.C. Mitchell and D.I. Thurnham, 2005. Flesh colour dominates consumer preference for chicken. *Appetite*, 44: 181-186.
- Kiefner-Burmeister, A.E., D.A. Hoffmann, M.R. Meers, A.M. Koball and D.R. Musher-Eizenman, 2013. Food consumption by young children: A function of parental feeding goals and practices. *Appetite*, 74: 6-11.
- Kubberod, E., O. Ueland, M. Rodbotten, F. Westad and E. Risvik, 2002a. Gender specific preferences and attitudes towards meat. *Food Quality and Preference*, 13: 285-294.
- Kubberod, E., O. Ueland, A. Tronstad and E. Risvik, 2002b. Attitudes towards meat and meat-eating among adolescents in Norway: A qualitative study. *Appetite*, 38: 53-62.

- Kuttappan, V.A., Y.S. Lee, G.F. Erf, J.F. Meullenet, S.R. McKee and C.M. Owens, 2012. Consumer acceptance of visual appearance of broiler breast meat with varying degrees of white striping. *Poult. Sci.*, 91: 1240-1247.
- Larsson, C.L., K.S. Klock, A. Nordrehaug Astrom, O. Haugejorden and G. Johansson, 2002. Lifestyle-related characteristics of young low-meat consumers and omnivores in sweden and norway. *J. Adolescent Health*, 31: 190-198.
- Lopez, M.M., G. Hough, A. Salvador, E. Chambers, S. McGraw and S. Fiszman, 2008. Beef's optimum internal cooking temperature as seen by consumers from different countries using survival analysis statistics. *Food Quality and Preference*, 19: 12-20.
- MARM, 2013. Presentación de los datos de consumo alimentario en el hogar y fuera del hogar en españa 2012. [http://www.magrama.gob.es/es/prensa/1300307%20PANEL%20CONSUMO%20\(2\)_tcm7-266200.pdf](http://www.magrama.gob.es/es/prensa/1300307%20PANEL%20CONSUMO%20(2)_tcm7-266200.pdf).
- Martin, V.J., 2010. Consumo de carne y productos carnicos. *Distribucion y Consumo*, 111: 5-23.
- Martin, V.J., 2011. Habitros de compra y consumo de carne de pollo. *Distribucion y Consumo*, 117: 37-42.
- Mata, J., B. Scheibehenne and P.M. Todd, 2008. Predicting children's meal preferences: How much do parents know? *Appetite*, 50: 367-375.
- Mesias, F.J., P. Gaspar, A.F. Pulido, M. Escibano and F. Pulido, 2009. Consumers' preferences for iberian dry-cured ham and the influence of mast feeding: An application of conjoint analysis in spain. *Meat Sci.*, 83: 684-690.
- Nayga, Jr, R.M., 1996. Determinants of consumers' use of nutritional information on food packages. *J. Agric. and Appl. Econ.*, 28.
- Nayga, R.M., 2000. Nutrition knowledge, gender and food label use. *J. Consumer Affairs*, 34: 97-112.
- NCC, 2012a. Consumers speak about chicken breast meat/breast tenders. Survey results 2012. National chicken Council, Stowe, Vermont, USA.
- NCC, 2012b. www.nationalchickencouncil.org/about-the-industry/statistics/how-broilers-are-marketed. National Chicken Council, Washington.
- Nielsen, J.S., 2011. Use of the internet for willingness-to-pay surveys: A comparison of face-to-face and web-based interviews. *Resource and Energy Econ.*, 33: 119-129.
- ONTSI, 2013. La sociedad en red. Informe anual 2012. Madrid, Espana: Ministerio de industria, energia y turismo.
- Qiao, G., T. Guo and K.K. Klein, 2012. Melamine and other food safety and health scares in china: Comparing households with and without young children. *Food Control*, 26: 378-386.
- Rama, R., 1997. Evolución y características de la alimentación fuera del hogar y del consumo de alimentos procesados en espana. *Agric. y Sociedad*, pp: 107-140.
- Saba, A., F. Messina, A. Turrini, M. Lumbers and M.M. Raats, 2008. The food in later life project, older people and convenience in meal preparation: An european study on understanding their perception towards vegetable soup preparation. *Int. J. Consumer Studies*, 32: 147-156.
- SADA, 2002. Expectativas y hábitos de consumo ante la carne de pollo. *Eurocarne*, 108: 1-5.
- SAS, 1994. *Sas/stat user's guide*. Cary, North Carolina: SAS Institute Inc.
- Scholderer, J., K. Brunso, L. Bredahl and K.G. Grunert, 2004. Cross-cultural validity of the food-related lifestyles instrument (frl) within western europe. *Appetite*, 42: 197-211.
- Sharma, S., T.A. Shimp and J. Shin, 1995. Consumer ethnocentrism: A test of antecedents and moderators. *J. Academy of Marketing Sci.*, 23: 26-37.
- Steptoe, A., T.M. Pollard and J. Wardle, 1995. Development of a measure of the motives underlying the selection of food: The food choice questionnaire. *Appetite*, 25: 267-284.
- Sunde, M., 1992. Introduction to the symposium: The scientific way to pigment poultry products. *Poult. Sci.*, 71: 709-710.
- Troy, D.J. and J.P. Kerry, 2010. Consumer perception and the role of science in the meat industry. *Meat Sci.*, 86: 214-226.
- Twigg, J., 1979. Food for thought: Purity and vegetarianism. *Religion*, 9: 13-35.
- Twigg, J., 1983. Vegetarianism and the meanings of meat. In: *The sociology of food and eating*, A. Murcott, (Ed.). Gower Publishing, Aldershot, UK: pp: 18-30.
- Verbeke, W., F.J.A. Pérez-Cueto, M.D.d. Barcellos, A. Krystallis and K.G. Grunert, 2010. European citizen and consumer attitudes and preferences regarding beef and pork. *Meat Sci.*, 84: 284-292.
- Von Alvensleben, R., 1997. Consumer behaviour. In: *Agro-food marketing*, D. PadbergC. Ritson and L. Albus, (Eds.). CAB International, Oxon, UK, pp: 209-224.
- Worsley, A. and G. Skrzypiec, 1998. Teenage vegetarianism: Prevalence, social and cognitive contexts. *Appetite*, 30: 151-170.
- Wu, L., 2007. How generations view convenience. *Food Technol.*, 12: 32-37.