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Fifty years of beverages consumption trends in Spanish households

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Abstract

Objectives: To describe the evolution of non-alcoholic and alcoholic beverages consumption in the Spanish households from the 60’s to nowadays.

Methods: This study is based on beverages and food consumption in Spanish households; the data sample consisted of consumption and distribution data, obtained from the Household Budget Survey (HBS) since 1964 to 1991 and from the Food Consumption Survey (FCS) since 2000 to 2014, in collaboration with the Spanish Nutrition Foundation (FEN).

Results: In 2014 the average consumption of non-alcoholic beverages was 332 g/person/day, whereas alcoholic beverages consumption represented 72.6 g/person/day. Consumption of non-alcoholic beverages has increased 721% (1964: 46 g/person/day; 1991: 96 g/person/day; 2000: 240 g/person/day and 2014: 332 g/person/day), whereas alcoholic beverages consumption has decreased roughly a 50% (1964: 145 g/person/day; 1991: 113 g/person/day; 2000: 78.4 g/person/day and 2014: 72.6 g/person/day).
The most consumed alcoholic beverage in 2014 was beer (41.3 g/day), followed by wine (23.0 g/day). Regarding non-alcoholic beverages, the most consumed was water (144 g/day), followed by cola (ordinary: 30.7 g/day and diet: 20.5 g/day).

According to Spanish regions, in 2014 non-alcoholic beverages were the most consumed in the islands (Balearic Islands 521 grams/person/day; Canary Islands 515 grams/person/day), as it was in the nineties (Balearic Islands 148 grams/person/day and Canary Islands 281 grams/person/day). However in 1980-81 the largest consumption of alcoholic beverages was that of Galicia, 408 g/person/day, and the lower in the Canary Islands, 63 g/person per day. In 2014, Murcia and Andalucia represented the regions with the highest consumption of alcoholic beverages.

In 2014, alcoholic beverages provided roughly 1.89% of the total energy and 1.47% of sugars; whereas non-alcoholic beverages provided 3.28% of energy and 15.72% of sugars and, in 2000, alcoholic beverages contributed 2.29% of the energy and 1.47% of sugars and non-alcoholic drinks provided 3.76% of the energy and 22.7% of sugars.

Conclusion: There have been significant changes in the eating patterns at the Spanish homes, especially regarding beverages consumption, over the last five decades. In general, a higher consumption and variety for non-alcoholic drinks has occurred, especially in the islands. In parallel, a decline in alcoholic beverages consumption has been clearly observed.

Key words: Non-alcoholic beverages. Alcoholic beverages. Nutrition survey. Dietary habits.

INTRODUCTION

Many factors affect population health. Some of them, such as age, sex or race, cannot be modified, but others, like food consumption, can be changed. The population nutritional status depends on the nutritional value of the diet, which varies according to food set; through an appropriate mix, we obtain a healthy diet. Eating habits are the result of a conscious behaviour, mainly collective and always repetitive, which leads to choosing, preparing and consuming a certain menu or food as additional part of their social, cultural and religious habits, and which is influenced by multiple factors (socio-economic, cultural, geographical, etc.). There is a continuous need for updating food and beverage consumption habits, dietary patterns and trends in Spain (1).

In Europe, national and regional lifestyle practices, including dietary habits, have been changing over the past 50 years. Spain has undergone a dramatic social and socioeconomic change since the 1960s, including a massive rural-urban migration and a rapid urbanization process (2).

A rapidly increasing number of people use catering services, restaurants and vending machines, both during weekdays and leisure time, which is also a key factor in understanding changes in diet (1). In addition, there has been a rapid increase the immigrant population, which now represents about 10% of the total population(3). In addition, the economic crisis has been a factor generating a new lifestyle (4).

These changes in dietary patterns and lifestyle appear to have had negative consequences for both, present and future populations, as overweight and/or obesity affect > 50% of the adult population and 25% of the infant/young population (5).

One the main objectives of the Spanish Nutrition Foundation (FEN) is to study, understand and improve the nutrition of the Spanish population, therefore, it has been working jointly with the National Institute of Statistics (INE) and lately with the Spanish Ministry of Agriculture, Food and Environment (MAGRAMA) in the Food Consumption Survey (FCS). This information is also essential in order to obtain information about nutritional parameters and diet quality which allows the identification of dietary patterns from the Spanish population.

The purposes of the present study are to analyze the evolution of beverages intake in Spanish households, according to

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the Household Budget Survey (HBS) and the Food Consumption Survey (FCS), from 1964 to 2014, in the context of the whole diet, as well as to evaluate alcoholic and non-alcoholic beverages intake, stratified by regions, and their contribution to total energy intake.

**METHODS**

The data sample is about shopping and product entrance into the home obtained from the Household Budget Survey (HBS) since 1964 to 1991 and from the Food Consumption Survey (FCS) from 2000 to 2014.

In both cases, the sample was the whole household and a two-stage sampling method was carried out (1964-2014). The sample size of the HBS was 24,000 randomly selected households and that of the PCA was 12,000 households representative of the Spanish habitat population. The differences between both surveys are listed in table I (6).

A “household” is considered as the person or group of people who occupy a family house together or part of it, and consume foods/beverages and other goods bought from the same budget. Products’ data were registered by a scanner the same day the products were acquired, for seven consecutive days. Data from the households have also been considered according to geographical areas. The location of the study was Spain inland plus the Balearic and Canary Islands.

The purchase data obtained in both surveys have been transformed into energy and nutrients. Two different programs were used for that purpose: RSIGMA program, which includes DIETECA base data, for the HBS, and VD-FEN 2.1 program for the PCA. Both programs include the same food Spanish composition tables (7), containing over 600 foods and beverages, distributed in 15 groups. The use of two different tools for converting databases was due to the evolution in time of computer systems.

In order to calculate the average of energy and nutrients intake, quantities were transformed to grams per person per day. The data were also compared to the most updated Recommended Nutrient Intakes for the Spanish population to evaluate the adequacy of the diet (7,8).

**RESULTS**

Analysis of food consumption data per capita availability based on the food surveys by the National Statistics Institute, over the period of 1964 to 1991, and the Ministry of Agriculture, Food and Environment over 2000 and 2014, allows estimation of the “average menu” in Spain and the associated distribution of the different food groups as shown in figure 1.

Therefore, as shown, in 2014 the average consumption of non-alcoholic beverages at home was 332 g/person/day, whereas alcoholic beverages consumption was 72.6 g/person/day. Non-alcoholic drinks consumption has increased gradually a 621% from 1964 to 2014, whereas alcoholic beverages consumption has decreased roughly a 50% (Table II).

As already stated, the consumption of non-alcoholic beverages has largely increased; in 2014 the most consumed drink was bottled water (144 grams/person/day) followed by regular cola (30.7 grams/person/day) and diet cola (20.5 grams/person/day) as shown in Table III. The consumption of soft drinks without calories has been steadily increasing in the last years. As for alcoholic drinks, the most consumed was beer (41.3 grams/person/day) followed by wine (23 grams/person/day) (Table IV). Alcoholic beverages consumption has undergone a slow decline during recent years. Within this group, wine, as a beverage traditionally included

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Table I. Household Budget Survey (HBS) and Food Consumption Panel (FCS) characteristics

<table>
<thead>
<tr>
<th></th>
<th>Food Consumption Panel</th>
<th>The Household Budget Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>1987</td>
<td>1939</td>
</tr>
<tr>
<td>Frequency</td>
<td>Annual</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Population scope</td>
<td>Households, hotel industry/restoration and institutions</td>
<td>Family homes, commercial areas and establishments (excluding institutions)</td>
</tr>
<tr>
<td>Geographic scope</td>
<td>Inland Spain and Islands (Balearic and Canary)</td>
<td>National territory</td>
</tr>
<tr>
<td>Sample size</td>
<td>12,000 households</td>
<td>24,000 households</td>
</tr>
<tr>
<td>Criteria breakdown</td>
<td>Geographic areas and autonomous</td>
<td>Autonomous Community</td>
</tr>
<tr>
<td></td>
<td>Household socioeconomic status</td>
<td>Province</td>
</tr>
<tr>
<td></td>
<td>Habitat size</td>
<td>Size of the municipality</td>
</tr>
<tr>
<td></td>
<td>Family size</td>
<td>Household composition</td>
</tr>
<tr>
<td></td>
<td>Age and activity of responsible for purchasing</td>
<td>Household income level</td>
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<tr>
<td></td>
<td>Presence of children</td>
<td>Educational level of the main breadwinner</td>
</tr>
<tr>
<td>Number of foods</td>
<td>130 food staples disaggregated in 416 inputs (quantified by weight)</td>
<td>187 foods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>66 (quantified by weight)</td>
</tr>
</tbody>
</table>
in the Mediterranean diet concept for the adult population, only represented a 31% of the total alcoholic beverages consumption in 2014, whereas it accounted for 62% of the total consumption in 1991. In the last few years, a gradual substitution of wine for beer has occurred, the latter representing almost 56% of the total alcoholic beverage consumption nowadays.

**BEVERAGES CONSUMPTION BY THE AUTONOMOUS COMMUNITIES IN SPAIN**

According to the Spanish regions, in 2014 non-alcoholic beverages were the most consumed in the islands (Balearics Islands 521 grams/person/day; Canary Islands 515 grams/person/day),
as it was in the nineties (Balearics Islands 148 grams/person/day and Canary Islands 281 grams/person/day).

Table V shows the data from purchases by regions in 1980-81 and 2014, and allows studying how the trends look like in our country.

The largest differences regarding availability of a food group between regions, in 1980-81, was observed in the group of alcoholic beverages, the largest purchases were made in Galicia, with 408 g/person per day, and the lowest in the Canary Islands, with 63 g/person per day. In 2014, Murcia and Andalucía were the regions with the highest consumption of alcoholic beverages.

ENERGY AND NUTRIENT INTAKE

Changes in eating and drinking patterns are reflected in energy and nutrient content of the diet in the last 50 years (Table VI). The mean energy intake for the Spanish population in 2014 was 2,219 kcal/person/day, which was much lower than in 1964 (3,008 kcal/person/day), a difference of 789 kcal/day.

In relation to macronutrients, major changes are shown in carbohydrates: in 1964, people consumed approximately 200 grams more than in 2014; lipids (1964: 108 g/person per day vs 2014: 103 g/person per day) and proteins (1964: 87 g/person per day vs 2014: 78.2 g/person per day) had, however, much lower variations in 50 years evolution. In 2014 fiber, consumption (16.6 g/day) was insufficient compared with the recommended amounts (25-30 g/day) while in 1964 the recommendations (27.5 g/day) were met. Finally, sugar consumption has increased 11 grams per day in just 14 years (2000-2014).

Energy contribution to total energy intake from non-alcoholic beverages was 4% in 2000-2006 and decreased 1% in 2014. Due to the increased consumption of sugar-free drinks, the percentage contribution of sugar from non-alcoholic beverages has decreased lately, representing in 2014 15.72% (Table VII).

DISCUSSION

Spanish society has undergone numerous changes in the second half of the twentieth century such as economic development, industrialization and a decrease in family members. We have changed from an almost universal family model to the coexistence of different types of families, so there is now a greater diversity of ways of living (9). Any pattern, however, seems to maintain the principle of “variety”, even though the marked changes observed during the 1964-1980 period. This change has been translated in lower consumption of certain food groups and significant increase of non-alcoholic beverages, being the main target of the present study.

Comparing the present results with those of other related countries, an increase in consumption of some food groups is also observed in other European countries as recorded by the European Nutrition and Health Report based on the balance sheets of FAO (10). Therefore, the Mediterranean countries have significantly reduced the consumption of some foods characteristics of the traditional Mediterranean diet, such as cereals, bread, potatoes, vegetables, olive oil and wine. Conversely, the consumption of meats, especially poultry, and dairy fats has increased significantly. In short, the diet is no longer predominantly vegetarian. From a nutritional point of view, this trend has resulted in an enrichment
of dietary fat, saturated fat and cholesterol, salt and sugar at the expense of carbohydrates. That is, the current diet of Mediterranean countries is increasingly moving away from the pattern of prudent and healthy diet that it once represented (11,12). Comparing our results with other European and Spanish studies, we can observe that the main differences are due to the methodology used in each study (11,13,14).

All these changes have led to a deviation of the traditional Mediterranean diet in Spain, despite being a major producer and exporter of typical Mediterranean products (15).

The present study, conducted at national level, updates beverages and food habits and nutritional aspects of the Spanish population. In addition, trends emerging from other surveys mentioned above were considered.

Spanish beverages pattern, and consequently diet trends, may be still considered as varied and healthy, although some trends need to be corrected. More education and information of the large beverages market offered in Spain and their nutritional characterization is urgently needed.

ENERGY AND NUTRIENTS

These variations in the diet have been linked, however, to reduced energy consumption, from 3,008 kcal/person per day in 1964 to 2,219 kcal/person per day in 2014. It is a very sharp drop, which has not been attached to obesity rates, as they are currently much higher, according to the National Health Survey in Spain: obesity has increased from 7.4% to 17.0% over the past 25 years (16), mainly indicating that obesity rates cannot be only related with energy consumption by population but needs to be considered as a multifactorial complex condition and disease.

This decrease in the availability of energy can be explained by the decrease of carbohydrates intake, almost a 200 grams difference in the past 50 years. This leaded to a lower contribution of fiber intake (1964: 27.5 g/person per day; 2014: 10.9 g/person per day) which clearly indicates that the diet nowadays should include greater variety of foods such as whole grains, legumes, fruits and vegetables.

Regarding the contribution to energy intake from beverages, we can see that it has gradually declined since 2000. Similar results and trends were obtained on the ANIBES study (17).

In conclusion, in the last decades, there have been significant changes in drink intake patterns, with a remarkable increase of non-alcoholic beverage consumption, especially in some Spanish regions where a decline of alcoholic beverages consumption was also observed. The Spanish population diet has notably changed in the last 50 years, differing somehow from the traditional Mediterranean diet. This change resembles the one observed in other European countries (15). Regarding the intake of energy and nutrients, the results show a decrease in energy intake per person. It is necessary to design strategies that encourage a healthy diet allowing the recovery and maintenance of the traditional characteristics of the Mediterranean diet.

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