



asociación Española de historia económica

DOCUMENTOS DE TRABAJO

ISSN 2174-4912

**INEQUALITY DURING THE NUTRITIONAL TRANSITION: HOSPITAL DIETS IN
MEDITERRANEAN SPAIN (VALENCIA, 1853-1923)**

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DT-AEHE N°1909
www.aehe.net



asociación española de historia económica

May 2019



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DESIGUALDAD DURANTE LA TRANSICIÓN NUTRICIONAL: DIETAS HOSPITALARIAS EN LA ESPAÑA MEDITERRÁNEA (VALENCIA, 1853-1923)**Francisco J. Medina-Albaladejo[†] y Salvador Calatayud[§]**

DT- 1909, May 2019

JEL: N33, N34, I12, I31

RESUMEN

La desigualdad social en el acceso a los alimentos ha sido un postulado central en los estudios de historia alimentaria, pero la escasez de fuentes adecuadas ha dificultado su cuantificación. En este trabajo proponemos el uso de las dietas de instituciones hospitalarias para suplir esa carencia. Hemos utilizado las de la sección de dementes del Hospital General de Valencia (España) en el periodo de 1853 a 1923 y hemos reconstruido la ingesta real diaria de seis grupos diferentes de internos y empleadas. Los resultados muestran notables diferencias en los alimentos que componían las dietas y en la aportación de energía y nutrientes de esa ingesta. Mientras los grupos más favorecidos (religiosas e internos con recursos) ya habían reducido en 1853 el peso de los cereales y aumentado el de la carne, como establece el modelo de la transición nutricional, los grupos más pobres y los niños expósitos todavía en 1923 presentaban un retraso en este cambio. Por su parte, las trabajadoras del hospital tenían una dieta hipercalórica, apta para trabajos duros, pero también una carencia importante de nutrientes. Estas desigualdades muestran que la transición nutricional no fue un proceso homogéneo y lineal, sino notablemente diferenciado según grupos sociales.

Palabras clave: transición nutricional, desigualdad, dietas hospitalarias, ingesta de nutrientes, España.

ABSTRACT

Unequal access to food is one of the main issues in nutritional history, but scarcity of sources has hampered the quantification of this phenomenon. This work proposes using hospital diets to address this gap. We have used records from 1853 to 1923 concerning hospital diets in the psychiatric section of the Hospital General de Valencia (Spain) and we have inferred the actual intake of nutrients for six groups of patients and members of staff. The results reveal considerable differences in terms of diet and nutrition. While the most-favoured group (nuns and well-off patients) had by 1853 reduced their relative intake of cereals and increased that of meat, in line with the general trend of the nutritional transition, the poor and orphans were still behind the trend by 1923. On the other hand, hospital staff were on a high-calorie diet that was adequate for undertaking heavy tasks, yet still suffered from a significant deficit in nutrient intake. These inequalities indicate that the nutritional transition was an uneven and non-linear process, with substantial differences according to social groups.

Keywords: nutritional transition, inequality, hospital diets, nutrient intake, Spain.

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INEQUALITY DURING THE NUTRITIONAL TRANSITION: HOSPITAL DIETS IN MEDITERRANEAN SPAIN (VALENCIA, 1853-1923)¹

1.- Introduction

Social difference and its effect on food access is one of the most prominent features of inequality in standards of living. Social history has paid considerable attention to this phenomenon, as shown by the abundant literature; from early debates about the standards of living of the working class during industrialisation, when Hobsbawm introduced nutrition as a basic indicator of well-being,² to later revisions taking an economic history approach.³ Generally, these works present national or sectorial averages, often calculated on the basis of income and food prices, but are insufficiently precise to account for inequality in food access.

On the other hand, studies on nutritional transition, undertaken from a food history perspective, have made substantial progress in the quantification of the nutritional components of food intake and of their evolution over time. However, these measurements are as a rule based on overall apparent consumption figures, and cannot be used to examine the effects of social inequality in nutrient intake. This is a paradox, because the effects of social inequality in access to new diets is a central assumption of these works, since income levels are considered one of the most important variables in the consumption of various foodstuffs. However, few studies have focused on this inequality *per se*. As a result, we have very precise figures concerning the evolution of average consumption, which are always accompanied by caveats warning that real consumption would vary widely depending on social class. These differences, therefore, have only been examined generically, on the basis of dispersed and often qualitative evidence.⁴

In Spain, alimentary inequality has been approached from a variety of perspectives. In some cases, the different access of various social groups to a given food, or the different preferences for foodstuffs manifested by these social groups, have been

¹ This work was supported by the Spanish Ministry of Science, Innovation and Universities under Grant HAR2016-76814-C2-1-P (AEI/FEDER, EU), and Generalitat Valenciana, Conselleria d'Educació, Project AICO/2018/130.

² Hobsbawm, "The British Standard"; Oddy, "Working-Class Diets"; Taylor, *The Standard*.

³ Fogel, "New Sources"; Clark, Huberman, and Lindert, "A British food"; Horrell and Oxley, "Bringing"; Gazeley, Newell, and Bezabih, "The Transformation".

⁴ Nelson, "Social-class trends"; Grigg, "The nutritional transition"; Smith, "Introduction".

pointed out, but generally from a qualitative perspective that does not help in quantifying these phenomena.⁵ Other studies have used Fogel's model to present a distribution of calorific intake by deciles in early-20th century Spain.⁶ Others have used data concerning different social groups and nutrition, but have applied this only to calorific intake.⁷ Hypothetical projections of the number of consumers of a key food for the process known as the nutritional transition, such as milk, based on differences in income levels over time, have also been presented.⁸ Shortcomings of diet among low-income groups, based on a comparison of income levels and food prices, have been emphasised.⁹ Finally, anthropometric studies, which are based on disparities in height between different social sectors, allow us to also capture the differences in the nutritional status of the population.¹⁰

These studies have greatly contributed to our knowledge of alimentary inequality. However, they still deal in average values, without breaking down effective nutrient intake by social group. The reason is that little evidence is available to support such an approach until well into the second half of the 20th century, when nutritional statistics began being collected systematically. This forces us to search for alternative sources that will help us to approach the issue, even if indirectly and only in part. In this regard, institutional diets, such as hospital diets, can open an interesting avenue of research, although to date they remain mostly unexplored. The present work is based on diets provided by the Hospital General de Valencia (Spain), and aims to calculate real intake by social group in the period 1853-1923. This is a key period, when the nutritional transition began in Spain.

The use of this source aims to estimate with as much precision as possible the differential progress of the nutritional transition among various social groups. The questions that we want to answer are: what differences in nutrient intake existed according to income levels and labour requirements? and, did these differences narrow or disappear over time? Our ultimate target is to present a fuller and more nuanced perspective on the nutritional transition than that hitherto presented on the basis of national average diets.

The article is organised as follows: the first section discusses various possibilities concerning hospital diets, with those provided by the Hospital General de Valencia described, and outlines the methodology used in processing the data; the second section presents data on calorie and protein intake and on the composition of diets; the third section presents our estimates of nutrient intake and compares them with recommended

⁵ Simpson, "La producción agraria"; Cussó, "El estado nutritivo"; Nicolau and Pujol, "Los factores"; Nicolau et al., "Milk"; Cussó and Garrabou, "La transición nutricional"; Hernández, Muñoz, and Pujol-Andreu, "A new statistical"; Collantes, "Más allá de los promedios"; González de Molina et al., "Crecimiento agrario".

⁶ Fogel, "New Sources"; Simpson, *La agricultura*; Cussó, "El estado nutritivo".

⁷ Bernabeu-Mestre et al., "Nutrición y salud"; idem, "De la faim".

⁸ Muñoz-Pradas, "Consumer populations"; Hernández, Muñoz, and Pujol-Andreu, "A new statistical".

⁹ Gallego, "Obstáculos".

¹⁰ Martínez Carrión et al., "La brecha rural-urbana"; Puche, "Evolución del nivel de vida".

minimum intakes; finally, the conclusion compares these results with previous perspectives on the nutritional transition.

2.- Sources and methodology: the diet at the Hospital General de Valencia

Hospital diets allow us to consider actual rations consumed and to compare their evolution over time within a given social group. In this way, they allow us to go further than apparent consumption on a national scale. Although they refer to very specific social groups, which arguably stands against their representativeness, many examples have demonstrated that hospital rations often did not differ substantially from the food intake of these same groups in their normal life outside hospital.¹¹ Generally, hospitals housed members of low-income social groups, often below the poverty line, so that the hospital diet can thus be regarded as similar to those normally taken by these social groups.

If, in periods earlier than that taken into considered here, diets provided by hospitals and charities depended to some extent on disciplinary criteria and tended to be very meagre as a result, by the second half of the 19th century the situation had changed substantially.¹² Punitive criteria had largely been abandoned, and diets came to depend chiefly on administrative criteria and on notions, still incipient, about the relationship between nutrition and health.¹³ From the end of the 19th century, hospitals were becoming places where, on the one hand, doctors observed the effects of undernutrition and possible remedies, and, on the other hand, new knowledge about needs and nutrients was applied and the aim was to design optimal diets.¹⁴ In Spain, the spread of this knowledge was somewhat later. Therefore, we can safely assume that hospital diets and general nutrition were not radically different in the period under scrutiny.

By qualifying the data provided for average diets, hospital diets can offer a better understanding of the differences introduced by social status. Studies about the nutritional transition suggest that these differences must have been broad, forcing us to correct the average values generally in use. Hospital diets can help to achieve this goal, provided that the records provide evidence for the different diets offered to patients and members of staff, as is the case with the Hospital General de Valencia.

Few studies have used hospital and charity records for the analysis of this phenomenon in Europe during the 19th and 20th centuries,¹⁵ and fewer still have taken this

¹¹ Scholliers, “Norms and Practices”.

¹² Thoms, “Between medical”, pp. 281-2; Maes et. al., “A Vehicle”.

¹³ Barona, “Nutrición y salud”, p. 60; Thoms, “Between medical”, p. 283; Knecht-van Eekelen and van Otterloo, “What the body”; Bernabeu-Mestre et al. “La alimentación”.

¹⁴ Thoms, “Between medical”; Knecht-van Eekelen and van Otterloo, “What the body”; Barona, “Nutrición y salud”; Barona, Bernabeu-Mestre y Galiana-Sánchez, “La urban penalty”.

¹⁵ Mandrou, “Le ravitaillement”; Bennassar and Goy, “Contribution à l’histoire”, pp. 409-411; Taylor, *The Standard*; Johnston, *Diet in workhouses*. For the case of British workhouses: McCants, “Consumer behaviour”; Fogel, “New Sources”, pp. 7-9; Crawford, “The Workhouse Diet”; Thoms, “Between medical”; Schmid, “Reconstructing”; Hyltoft, “Food as Social Marker”; Reinartz, “Towards a History”; Scholliers, “Norms and Practices”.

approach in Spain. Enríquez and Gelabert analysed diets in military hospitals in the second half of the 19th century¹⁶; several case-studies also focus on the 19th century, namely those concerning the Hospital General in Madrid and the Casa de Misericordia in Bilbao.¹⁷ However, these studies provide no data on effective per capita intake, either because they use standardised rations from a specific date, or because they base their conclusions on total food purchases made by the institution under examination. Recent works have measured per capita real intake with more precision, for instance at the Hospital de Alcoy (Alicante) and in the comparison between hospitals from Valencia and Catalonia.¹⁸ However, only in the second case has been explored internal differences in food intake, and the analysis dealt with a single year. The present work aims to go beyond these limitations and analyse real food consumption among patients and staff members – an ‘internal hospital alimentary hierarchy’¹⁹ – over a long enough period to detect changes related to the nutritional transition.

The present article focuses on the Hospital General de Valencia, one of the largest and most important medical institutions in Spain.²⁰ It was created in 1512, and has been active without interruption to the present day; the hospital records are fairly complete, and have thus been the subject of multiple national and international research projects.²¹ In the period under consideration, the hospital had had to adapt to recent liberal legislation regarding charities (Ley de Beneficencia, 1849), which imposed a new funding system and changes in its management. The hospital was divided into three departments: patients, psychiatric patients and orphans.²² We shall focus on the psychiatric section, which remained part of the hospital until 1924. This section housed an average of 730 patients, some of whom carried out work.²³ According to a source, 97% of psychiatric patients came from low-income backgrounds.²⁴

The period under examination begins in the mid-19th century, when the hospital had lost much of its previous financial muscle, after half a century of declining income as a result of the process of *desamortización* (i.e. the forced sale of mortmain) that liquidated some of its former properties.²⁵ These financial difficulties seem to have hit

¹⁶ Enríquez and Gelabert, “Un aspect”.

¹⁷ Fernández, *El abastecimiento*, pp. 125-135; Pérez and Martínez, *La alimentación*.

¹⁸ García and Trescastro, “Transición nutricional”; Calatayud, Medina, Nicolau, and Pujol-Andreu, “Dietas y desigualdad”.

¹⁹ Bennassar and Goy, “Contribution”, p. 409.

²⁰ In 1860 this institution cared for 4,522 patients and housed 508 psychiatric patients and 107 orphans. Half a century later, the number of patients had increased to 7,147, and that of psychiatric patients to 772. Staff for 1910 comprised around a hundred nuns, 20 nurses, 10 laundry personnel and 12 wet-nurses. Archivo de la Diputación Provincial de Valencia (ADPV), sección Hospital, *Extensión del servicio General en los años 1857, 1858, 1859 y 1860*.

²¹ See especially Hamilton, *American treasure*; Allen, *The British Industrial*.

²² *Reglamento*.

²³ Heimann, *El Manicomio*, pp. 216-218; *Reglamento*.

²⁴ García, “Población y locura”, p. 189.

²⁵ Diez, *La sociedad*, p. 42; Modesto, *Tierra y colonos*, p. 351. In fact, the financial difficulties had begun earlier, although not quite so dramatically. For instance, in 1771 the hospital was forced to by supplies on credit, owing to the elevated prices and the hospital’s tenant’s delays in paying their rent. ADPV, sección Hospital, V-4.3/C-1, legajo 2.

the psychiatric wing the hardest: by the 1880s, the quality of the services it provided had deteriorated notably, and this is reflected in alimentary deficits, leading to cases of malnourishment²⁶, as we shall see in more detail below.

As in other European hospitals²⁷, the regulations of the Valencia hospital established that the rations being served the patients be standardised. Regulations reproduce the nutritional criteria applied at any given period, but they are no guarantee that these criteria were being implemented, reflecting real consumption.²⁸ For this reason, we have not used these regulations, but rather data on the food actually consumed, which was recorded in a ledger entitled *Estado del consumo de los víveres que constituyen la ración en las diferentes clases de albergados*²⁹. Based on these data, we have calculated the average daily diet of several groups of patients for 1853, 1868, 1900 and 1923. The temporal framework of the study is defined by the source: patients are presented divided by groups between 1853 and 1923.

Four groups of people ate at the hospital – patients, psychiatric patients, orphans over 20 months of age, and hospital staff – and we have reconstructed the diet of the latter three of these groups. We have excluded non-psychiatric patients, despite this group amounting to 40% of total beds, because the source does not divide them according to social status. Also, in this group the diet was directly affected by the patient’s health and by medical criteria, which makes questionable its value as a proxy for average diets in the society. However, the diets provided to the psychiatric patients did reflect better those that were consumed outside hospital.³⁰

Among psychiatric patients, the most numerous group, differences were made between ‘poor lunatics’ and ‘distinguished lunatics’. The former had no resources of their own, and ate the standard hospital diet. The latter paid a little daily amount (‘rich boarding lunatics’) or enjoyed the charity of family or patrons (‘patronised poor lunatics’), and were fed a better, richer and more varied diet. In the early 20th century, the amount paid by boarders was approximately 2.25 pesetas per day,³¹ equivalent to the daily salary of

²⁶ García, “Población y locura”, p. 190.

²⁷ Scholliers, “Norms and Practices”; Fernández, *El abastecimiento*.

²⁸ Several works have analysed the diets established in the various regulations. 1850: Benet and Rodríguez, “Alimentació i dietes”; 1860 and 1884: García, *El Manicomio*, pp. 122-7; 1872, 1895 and 1930: Heimann, *El Manicomio*, pp. 407-412.

²⁹ *Report on the consumption of food among each group of patients*. The data is presented using the decimal system, which the institution adopted in 1860; we have had to convert pounds and other measures into kilograms and litres only for 1853. ADPV, sección Hospital, II.2.1, V-7.2/2-3,33, V-7.7/7,10, *Estado del consumo de los víveres que constituyen la ración en las diferentes clases de albergados de este Hospital Provincial*, 1853, 1868, 1900, 1923.

³⁰ García, *El Manicomio*, p. 118. In fact, the author of the main medical topography of Valencia, published in 1879, claimed that hospital diets: ‘[...] with small differences and despite their monotonous nature, are very similar to those normally consumed by the [working] class in general’ (Peset, *Topografía*, p. 233).

³¹ According to the 1872 hospital regulations all ‘boarding rich lunatics’ had to pay 1.25 pesetas per day, which was the daily cost of maintaining a ‘poor lunatic’, and 1, 2 or 3 pesetas extra depending on the food they wanted to have (in the 1855 regulations the amounts were 6, 8 and 10 reales). The fees were the same for ‘patronised poor lunatics’ (ADPV, *Reglamento para el suministro de raciones y sistema pensionario*, Valencia, 1872). Most ‘distinguished lunatics’ paid 6 reales or 1 peseta extra. From 1900 this distinction disappeared, and all of these groups were merged into a single category in the record. ADPV, sección

an industrial worker in the region.³² The hospital also housed orphans, who began receiving a solid diet aged 20 months and who were transferred to the Casa de la Misericordia³³ aged seven, unless they were adopted sooner. This allows us to establish the children's diet. The record also includes the food consumed by the three main groups of carers: nurses and laundry-personnel, who carried out the hardest tasks; wet-nurses for the lactating orphans; and nuns, who carried out only management tasks. As such, we have information for six different types of diet.

In order to estimate calorie and nutrient intake we have taken the annual average consumed by each group. The following food groups have been created: cereals (rice, noodles, white and 'rough' bread – both of which were wheat breads³⁴); pulses (beans, chickpeas); potatoes;³⁵ meat products (beef, pork fat, hen, *criadillas*³⁶); milk;³⁷ eggs; salted fish (cod); wine; olive oil; and chocolate. The source does not mention other products that we know, based on other sources, to have been consumed: vegetables, spices, onion, garlic and sardines. This omission is of little relevance, as the aggregate value of these products never exceeded 4.5% of the food budget.³⁸

Our calculations used the standard methodology, taking raw products as reference. After removing non-edible parts, especially with such products as cod, hen, potatoes and eggs, the transformation coefficient provided by Base de Datos Española de Composición de Alimentos³⁹ was applied to the resulting estimates, divided into 100 g units. Finally, maximum biological value for protein was calculated by multiplying total protein intake by 0.7.⁴⁰

The analysis aims to understand the evolution, divided by social group and over time, of the following variables: calorie and protein intake; composition by product and relative weight of each product in the overall calorie intake; distribution (in %) of macronutrients (protein, fats and carbohydrates); proportion of animal-based protein and fats; energy and nutrient intake compared with minimum recommended intake. For the

Hospital, II.2.1, V-7.2/2-3,33, V-7.7/7,10, *Estado del consumo de los víveres que constituyen la ración en las diferentes clases de albergados de este Hospital Provincial*, 1853, 1868, 1900, 1923.

³² García, "El nivel de vida".

³³ Local charity institution for the poor.

³⁴ Contemporary sources indicate that the dough used to bake 'normal' bread had a greater proportion of bran than white bread, which made for a darker colour (Peset, *Topografía*, p. 450. 'Normal' bread disappears from the source in 1923, when it was entirely replaced by white bread.

³⁵ The record only mentions this product explicitly in 1923, but other sources indicate that potatoes were consumed in earlier periods, so we have incorporated it into all the estimates. ADPV, sección Hospital, II.1.14, V-2.3/C-15, *Clasificación del personal que se calcula atenderá este establecimiento de 1899 a 1900 [...]*, 1900.

³⁶ Testicles. Only for the 19th century: their supply was interrupted in 1900.

³⁷ The main record does not include information about this product, but other sources confirm that its consumption became widespread in the 20th century. The hospital had its own dairy, and the production figures have allowed us to estimate milk consumption. In order to determine the amounts given to each group, we have assumed that milk was distributed in the same proportions as beef. ADPV, sección Hospital, II.2.3, V-7.6/3, *libros de la vaquería*; ADPV, sección Hospital, *Informe que eleva la dirección del hospital provincial a la Excelentísima Diputación*, Imp. de J. Ortega, 1924.

³⁸ ADPV, sección Hospital, II.1.14, V-2.3. *Presupuestos de gastos*.

³⁹ *Spanish Food Composition Database*. <http://www.bedca.net/bdpub/index.php>

⁴⁰ Cussó, "El estado nutritivo"; Carbajal, *Manual de Nutrición*.

last variable, protein have been selected as the main macronutrient, alongside a series of key micronutrients such as vitamins A, D, and folic acid (vitamin B9), and minerals such as calcium, iron and zinc. According to the specialised literature, these elements are essential for children's growth, a satisfactory physical and intellectual performance, and the correct operation of the immune system.⁴¹

In order to determine nutritional balance we shall use the Recommended Dietary Allowance (RDA) calculated by Cussó et al. for the years 1860, 1900 and 1930.⁴² These authors calculate these amounts according to age, gender, body mass and physical activity for the Spanish population in general, and specifically for the following groups: minors, the elderly, adult men and women, pregnant women and lactating women. The values corresponding to minors have been used to characterise the orphans; those corresponding to adult women have been applied to nurses, laundry-staff and nuns; those pertaining to lactating women for the wet-nurses; finally, the measured average of adult men, adult women and the elderly have been used to characterise both groups of psychiatric patients.

3.- Energy, protein and the composition of the diet

As illustrated in Table 1, calorie and protein intake grew among all population groups during the seven decades under consideration. As far as these general indicators go, this increase is also attested for the Spanish population in general.⁴³ The increase, however, was very uneven. Throughout the period, calorie intake among 'distinguished lunatics' remained approximately 20% higher than among 'poor lunatics', and was similar to that of another privileged group: the nuns. Calorie intake among wet-nurses, nurses and laundry-personnel was even higher, in response to their more demanding needs (lactating and carrying out heavy tasks). This intake was on average between 50% and 60% higher than among 'poor lunatics' throughout the period under scrutiny. Energy and protein consumption stagnated among all groups between 1868 and 1900, owing to the hospital's financial problems, which led to an overall deterioration of the diet, a situation that the doctors working for the institution denounced.⁴⁴

These differences in calorie intake agree with the few existing studies about alimentary inequality in Spain in the early 20th century. Simpson applied Fogel's income-level-based model for England in 1790 to Spain in 1900.⁴⁵ The resulting values suggest that the highest intakes were nearly three times as high as the lowest (1,199 kcal against 3,361 kcal), a very sharp difference that our data does not support. The differences between extreme values attested in Valencia, however, are closer to other existing estimates: calorie intake among well-off professionals in the Spanish countryside in 1914 was 40-50% higher than among poor day-labourers (2,179 kcal against 3,295 kcal); on

⁴¹ National Research Council, *Recommended*; Carbajal, *Manual de Nutrición*.

⁴² Cussó, Gamboa, and Pujol-Andreu, "El estado nutritivo".

⁴³ Cussó, "El estado nutritivo"; Cussó, Gamboa, and Pujol-Andreu, "El estado nutritivo".

⁴⁴ Heimann, *El Manicomio*, p.410; García, *El Manicomio*, p. 127.

⁴⁵ Simpson, *La agricultura*, p. 377; Fogel, "New Sources", p. 10.

the other hand, calorie intake statistics undertaken by a public agency in 1910, which divided subjects into different income brackets, pointed out to a difference of 40% between extreme values (2,586 kcal against 3,562 kcal).⁴⁶ The evidence clearly suggests that values in this region were common in Spain at the beginning of the 20th century.

Table 1. Daily intake of energy and proteins by population groups of the Hospital General de Valencia, 1853-1923

	Distinguished lunatics	Poor lunatics	Children (over 20 m.)	Nurses / laundry-staff	Wet-nurses	Nuns
Energy (kcal)						
1853	2,720	2,222	1,380	3,117	3,052	2,622
1868	2,985	2,578	1,578	3,944	4,070	3,010
1900	2,880	2,523	1,575	3,974	4,281	2,917
1923	3,366	2,766	1,773	4,297	4,547	3,286
Proteins (g)						
1853	69	69.4	39	66.2	77.6	64.5
1868	81.3	77.8	43.4	95.1	96.7	72.4
1900	64.9	68.8	40.1	90	93.8	68.1
1923	89.3	78.3	44.2	105.7	109.5	85.8

Source: Archivo de la Diputación Provincial de Valencia (ADPV), sección Hospital, II.2.1, V-7.2/2-3,33, V-7.7/7,10, *Estado del consumo de los víveres que constituyen la ración en las diferentes clases de albergados de este Hospital Provincial*, 1853, 1868, 1900, 1923; ADPV, sección Hospital, II.1.14, V-2.3/C-15, *Clasificación del personal que se calcula atenderá este establecimiento de 1899 a 1900 [...]*, 1900. ADPV, sección Hospital, II.2.3, V-7.6/3, *libros de la vaquería*; ADPV, sección Hospital, *Informe que eleva la dirección del hospital provincial a la Excelentísima Diputación*, Imp. de J. Ortega, 1924; Base de Datos Española de Composición de Alimentos (<http://www.bedca.net/bdpub/index.php>). Own elaboration.

The overall improvement in nutrition came alongside changes in the composition of the diet. One of the main characteristics of the nutritional transition is the reduction of the relative importance of cereal – the most important food group in the traditional European diet – in terms of calorie intake. This was compensated by an increase of pulses and vegetable fats first, and of vegetables and animal products later.⁴⁷ These trends are also attested for our case-study, but not in the same way for all social groups and food groups under analysis (Table 2). Concerning cereals, in the mid-19th century they accounted for between 60% and 70% of calorie intake among ‘poor lunatics’, orphans, nurses and laundry-personnel, and that proportion only decreased between 1900 and

⁴⁶ Comisión Consultiva de Consumos, *Documentos*; Giral, *Ración alimentaria*; Bernabeu-Mestre et al., “Nutrición y salud”, pp. 216-7.

⁴⁷ Popkin, “Nutritional Patterns”; Clark, Huberman, and Lindert, “A British”; Grigg, “The nutritional transition”; Scholliers, *Food, drink*; Floud et al., *The Changing Body*; Cussó, “El estado nutritivo”; Cussó and Garrabou, “La transición nutricional”; Cussó, Gamboa, and Pujol-Andreu, “El estado nutritivo”; Nicolau and Pujol, “Los factores condicionantes”; Pujol and Cussó, “La transición nutricional”; González de Molina et al., “Crecimiento agrario”; García and Trescastro, “Transición nutricional”; Calatayud, Medina-Albaladejo, Nicolau, and Pujol-Andreu, “Dietas y desigualdad”.

1923. In contrast, among nuns and ‘distinguished lunatics’ cereals accounted for only half of their calorie intake throughout the whole period. This contrast is also attested for the main cereal-based food: bread. In 1853, the most common type among all groups was rough wheat bread, which was both cheaper and less favoured.⁴⁸ White bread, regarded as of much higher quality, was largely reserved for ‘distinguished lunatics’ and nuns. This remained the case until the 1910s; rough bread did not disappear from the diet until the 1920s, when white bread began being distributed among ‘poor lunatics’.

Table 2. Average daily diet by population groups of the Hospital General de Valencia, 1853-1923

	Distinguished lunatics	Poor lunatics	Children (over 20 m.)	Nurses / laundry-staff	Wet-nurses	Nuns
Cereals (g)						
1853	522 (51)	492 (61)	371 (68)	759 (62)	669 (56)	499 (51)
1868	474 (42)	597 (62)	443 (70)	959 (61)	959 (59)	577 (50)
1900	510 (46)	638 (67)	445 (71)	968 (62)	978 (58)	556 (50)
1923	613 (48)	617 (60)	461 (65)	926 (55)	949 (53)	589 (47)
Pulses (g)						
1853	55 (7)	90 (11)	29 (7)	59 (6)	58 (6)	29 (4)
1868	144 (14)	88 (9)	30 (6)	59 (5)	59 (5)	37 (4)
1900	60 (7)	102 (11)	30 (6)	60 (5)	61 (5)	58 (7)
1923	69 (7)	132 (13)	32 (6)	69 (5)	70 (5)	68 (7)
Potatoes (g)						
1853	0	0	0	0	0	0
1868	0	178 (5)	0	0	0	0
1900	178 (5)	178 (5)	0	178 (3)	266 (5)	0
1923	185 (4)	182 (5)	8 (0)	182 (3)	253 (4)	149 (3)
Meat products (g)						
1853	274 (27)	313 (26)	118 (22)	118 (10)	266 (22)	281 (30)
1868	296 (29)	310 (22)	119 (19)	266 (17)	296 (22)	296 (29)
1900	204 (22)	79 (10)	89 (14)	172 (11)	200 (15)	191 (21)
1923	208 (19)	95 (9)	90 (13)	185 (12)	207 (14)	205 (20)
Milk (ml)						
1853	0	0	0	0	0	0
1868	0	0	0	0	0	0
1900	65 (2)	24 (1)	33 (1)	64 (1)	64 (1)	61 (1)
1923	230 (4)	120 (3)	116 (4)	232 (4)	229 (3)	226 (5)
Eggs (g)						
1853	0	0	0	0	0	0
1868	0	0	0	0	0	17 (1)
1900	0	0	0	0	0	61 (3)
1923	0	0	0	132 (5)	132 (4)	132 (6)

⁴⁸ ADPV, sección Hospital, II.1.14, V-2.3. *Presupuestos de gastos*.

Salted fish (cod) (g)						
1853	0	0	0	0	0	0
1868	0	0	0	0	0	0
1900	2 (0)	10 (1)	0	3 (0)	3 (0)	2 (0)
1923	27 (3)	13 (2)	0	3 (0)	3 (0)	3 (0)
Wine (ml)						
1853	0	11 (0)	0	381 (9)	303 (7)	0
1868	0	9 (0)	0	319 (6)	322 (6)	0
1900	210 (5)	0	44 (2)	309 (6)	315 (5)	43 (1)
1923	199 (4)	133 (3)	0	317 (5)	295 (5)	23 (1)
Olive oil (ml)						
1853	30 (10)	3 (1)	6 (4)	30 (8)	28 (8)	30 (10)
1868	31 (9)	3 (1)	7 (4)	31 (7)	28 (6)	35 (10)
1900	29 (9)	11 (4)	9 (5)	43 (10)	44 (9)	44 (13)
1923	28 (7)	8 (3)	9 (4)	43 (9)	43 (8)	31 (8)
Chocolate (g)						
1853	29 (6)	0	0	30 (5)	0	29 (6)
1868	30 (5)	0	1 (0)	30 (4)	19 (3)	30 (5)
1900	22 (4)	3 (1)	1 (0)	20 (3)	22 (3)	21 (4)
1923	23 (4)	16 (3)	24 (7)	23 (3)	24 (3)	23 (4)

Note: The values in parentheses indicate the percentage that the caloric contribution of that food supposes with respect to the total of the daily energy intake of each population group.

Source: see Table 1. Own elaboration.

Legume consumption increased across the board, and its relative importance remained more or less constant throughout the period. Legumes were not particularly popular at the time, and were frequently served to ‘poor lunatics’, who were largely fed beans while the remaining groups ate the more expensive chickpeas, which were more popular.⁴⁹ In addition, chickpeas were generally served with vegetables, unlike beans.⁵⁰ Potato consumption increased substantially. In the mid-19th century, this product was absent from the diet, appearing for the first time in 1868 in the poor patients’ menu. In the 20th century potatoes entered the diet of all groups, accounting for between 3% and 5% of the diet. In this case, there was little difference between groups, explained by the low price of this product, which was even cheaper than beans.⁵¹

Concerning vegetable fats (olive oil), the differences between groups were sharp, owing to its relatively high price.⁵² In 1853, only nurses and ‘distinguished lunatics’

⁴⁹ Throughout the period under examination, the price paid by the hospital for chickpeas was between 40% and 60% higher than that paid for beans. ADPV, sección Hospital, II.1.14, V-2.3. *Presupuestos de gastos*.

⁵⁰ ADPV, sección Hospital, *Método y advertencias para la formación de los partes diarios de despensa*, 1882.

⁵¹ In 1879 the hospital paid 0.29 pesetas per kilo of beans, and 0.12 per kilo of potatoes. In the 20th century, the price difference increased even further. ADPV, sección Hospital, II.1.14, V-2.3/C-5, *Presupuestos de gastos*, 1879.

⁵² In 1879, the hospital paid 1.08 pesetas per litre, compared with 0.40 pesetas per kilo of chickpeas, 0.29

consumed olive oil in any significant quantities, accounting for 10% of their calorie intake. This percentage remained stable throughout the period among these groups, although the intake of olive oil among wet-nurses, nurses and laundry-personnel was to increase notably. The diet of ‘poor lunatics’, in contrast, remained very poor in vegetable fats (1% in the 19th century and 3% decades later). As pointed out by several authors, it is likely that the first stage of the nutritional transition in Spain was characterised by an increase in the consumption of legumes, potatoes and, especially, vegetable fats, before the general increase of animal products that are usually associated more directly with this process.⁵³ The relative prevalence of olive oil ran parallel to the increase of olive groves and the increase in the apparent consumption of olive oil in the country from the late 19th century onwards.⁵⁴

With regard to meat products, consumption among all groups was relatively high, despite the fact that it was one of the costliest products;⁵⁵ meat accounted for between 22% and 30% of total calorie intake. However, this general picture hides some nuances. Nearly all groups consumed beef, especially ‘distinguished lunatics’, nuns and wet-nurses. The first two groups also consumed pork fat. Concerning ‘poor lunatics’, meat accounted for 26% of calorie intake, but it was mostly limited to *criadillas*, much cheaper and less popular than lean meat.⁵⁶ In fact, in 1853 no other group were served *criadillas*, in another example of the sharp differences in access to food made by social status in terms of price and organoleptic properties.

Over time, lean meat replaced *criadillas*, although it was served in smaller quantities than *criadillas* had been, and also in smaller quantities than were given to the other groups, which explains the sharp drop in meat consumption among ‘poor lunatics’. That is, quantity decreased while quality increased. Among other groups, meat consumption remained the same or decreased slightly, in contrast with the growing consumption of vegetable fats and newer food groups which were also characteristic of the nutritional transition: fish (cod), eggs and milk. That is, meat was combined with other animal products, resulting in an increase in protein intake and a different distribution of protein sources. Similar trends have been attested for the population of Barcelona during this period.⁵⁷

Fish was mostly salted cod – an unpopular dish – and was largely served to both groups of psychiatric patients.⁵⁸ Eggs, on the other hand, were reserved for carers – especially nuns, who had consumed them as part of their diet since the 19th century – and

pesetas per kilo of beans, and 0.12 pesetas per kilo of potatoes. ADPV, sección Hospital, II.1.14, V-2.3/C-5, *Presupuestos de gastos*, 1879.

⁵³ Cussó and Garrabou, “La transición nutricional”; González de Molina et al., “Crecimiento agrario”.

⁵⁴ In the province of Valencia, the area planted with olive trees increased by nearly 40% in the two opening decades of the 20th century; Garrabou, *Un fals dilemma*, p. 176.

⁵⁵ ADPV, sección Hospital, II.1.14, V-2.3. *Presupuestos de gastos*.

⁵⁶ In 1855 the hospital paid 0.83 per kilo of meat, and 0.13 per kilo of *criadillas*. ADPV, sección Hospital, II.1.14, V-2.3/C-1, *Presupuestos de gastos*, 1855.

⁵⁷ Nicolau and Pujol, “El consumo de proteínas”.

⁵⁸ In 1905 the hospital paid 1.75 pesetas for a kilo of fresh fish, and 1.2 for a kilo of salted cod. ADPV, sección Hospital, II.1.14, V-2.3/C-16, *Presupuestos de gastos*, 1905.

some patients depending on medical criteria; these criteria also played a significant role in the distribution of milk. Milk consumption became general in the early decades of the 20th century, accounting for between 3% and 5% of the diet according to group. A similar overall trend has also been attested in the city of Valencia during this period. Milk consumption at the hospital (which had its own dairy), however, was substantially higher than outside it, pointing to the important role played by institutions in the dissemination of milk consumption.⁵⁹

The consumption of colonial products such as chocolate also reflects the different access to food among different social groups.⁶⁰ While by 1853 ‘distinguished lunatics’, nuns and wet-nurses already consumed this product in significant quantities (accounting for 6% of calorie intake), ‘poor lunatics’ had no access to it until the 20th century, and always in smaller amounts than other groups. Wine was mostly provided for carers, as an extra source of calories, in response to the physically-demanding nature of their jobs, something common during this period.⁶¹ Wine consumption also increased among psychiatric patients in the 1920s, against the advice of doctors, who thought that, following common practice in other countries, psychiatric patients should not be served wine at all.⁶² In the period under consideration, doctors did not always have the last word, another important variable being the finances of the institution.

Finally, the cost of menus also reflects prevailing social inequality. In 1900, the cost of feeding a ‘distinguished lunatic’ was 1.60 pesetas, and that of feeding a nun 1.25, while feeding a ‘poor lunatic’ only cost 0.51 pesetas, and an orphan 0.40.⁶³ Three times more money was spent on feeding the most privileged groups than on feeding the least favoured.

4.- Nutritional conditions

The analysis of macronutrient intake only emphasises the trends attested in the previous section (Table 3). Primarily, there were sharp differences between groups, and this did not change substantially throughout the period. The distribution of macronutrient intake (in %) changed only moderately between 1853 and 1923, despite the overall deterioration of hospital diets in the late 19th century. However, significant changes in energy consumption, diet structure and, as a result, distribution of macronutrient intake took place between 1900 and 1923. By the mid-19th century, ‘distinguished lunatics’ and nuns already consumed fewer carbohydrates than the other groups, owing to the smaller role played by cereals in their diet. In addition, they took over twice as much fat as the ‘poor lunatics’, based on their regular consumption of olive oil and beef. Concerning

⁵⁹ Calatayud and Medina-Albaladejo, “Leche sin prados”, p. 167.

⁶⁰ This was the most expensive product in the hospital’s shopping basket, even above meat products. ADPV, sección Hospital, II.1.14, V-2.3, *Presupuestos de gastos*.

⁶¹ Peset, *Topografía*.

⁶² Heimann, *El Manicomio*, pp. 416, 421.

⁶³ ADPV, sección Hospital, II.1.14, II.1.14, V-2.3/C-15, *Clasificación del personal que se calcula atenderá este establecimiento de 1899 a 1900 [...]*, 1900.

protein, the differences were not as sharp, owing to the *criadillas* consumed by the ‘poor lunatics’ being rich in protein but poor in fat.

Table 3. Percent distribution of macronutrients in the average daily diet by population groups of the Hospital General de Valencia, 1853-1923 (%)

	Distinguished lunatics	Poor lunatics	Children (over 20 m.)	Nurses / laundry-staff	Wet-nurses	Nuns
1853						
Proteins	13.6	16.2	14.1	11.5	14.2	13.4
Fats	22	10	13.7	13.6	17.9	23.8
Carbohydrates	64.3	73.8	72.2	75	68	62.8
1868						
Proteins	14.9	15.2	13.6	12.9	12.9	13.2
Fats	23.6	8.6	12.9	15.5	17.3	23.4
Carbohydrates	61.4	76.1	73.5	71.7	69.7	62.4
1900						
Proteins	12.6	12.9	12.8	11.9	11.7	12.8
Fats	21	9.1	11.6	14.1	15.9	23.4
Carbohydrates	66.4	77.9	75.5	74	72.4	63.8
1923						
Proteins	14.5	13.9	12.3	13.3	13	14.1
Fats	18.8	8.9	13.5	16.8	18	21.6
Carbohydrates	66.8	77.2	74.2	70	69	64.3

Source: see Table 1. Own elaboration

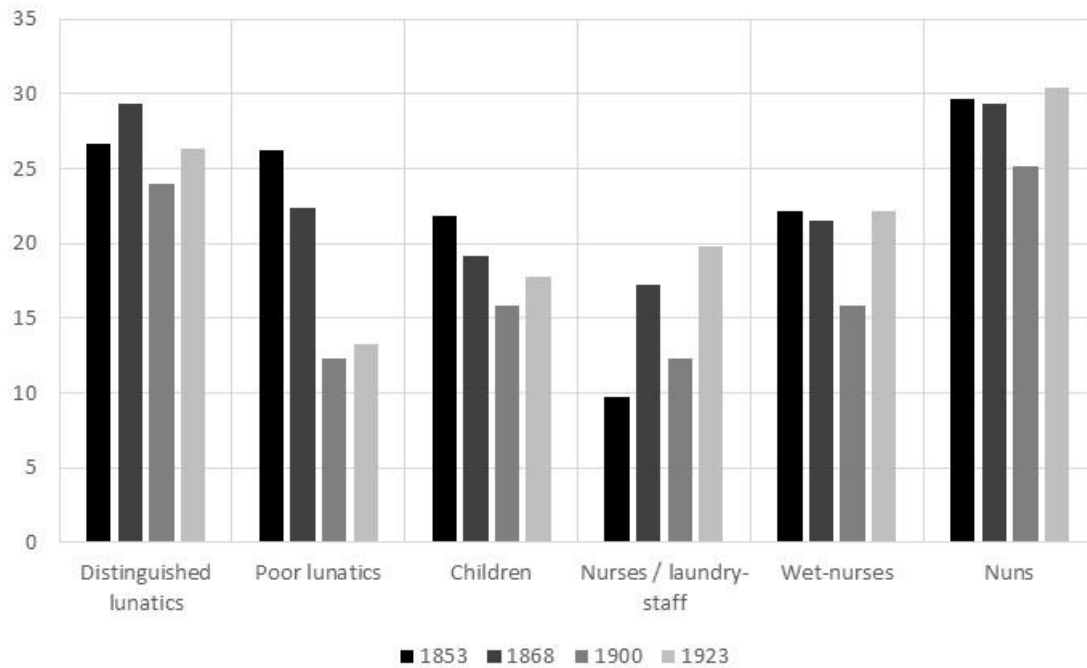
In subsequent years, a slow increase in carbohydrate consumption is detected among all groups (thus maintaining the differences between them). The role played in this regard by the incorporation of potatoes to an already rice-heavy diet – Valencia is the leading rice producing region in Spain – must be emphasised.⁶⁴ Protein consumption remained more-or-less stable while fat consumption evolved in different ways: it decreased among the more favoured groups, while it increased among carers and continued the same among ‘poor lunatics’.

Figures 1 and 2 illustrate the percentage of calories and animal proteins consumed, helping to visualise some of the ideas developed so far. Concerning ‘poor lunatics’, in 1853 the role played by animal protein and calories in their diet was similar to that of other groups, owing to the consumption of offal. ‘Distinguished lunatics’ and nuns were always ahead of other groups in this regard. However, the low values presented by such groups as nurses and laundry-personnel must be stressed; their diet was largely constituted by cereals, eaten in great quantities. Animal protein consumption evolved

⁶⁴ Paella, a rice-based dish already popular in the 19th century, originates from the region; Peset, *Topografía*.

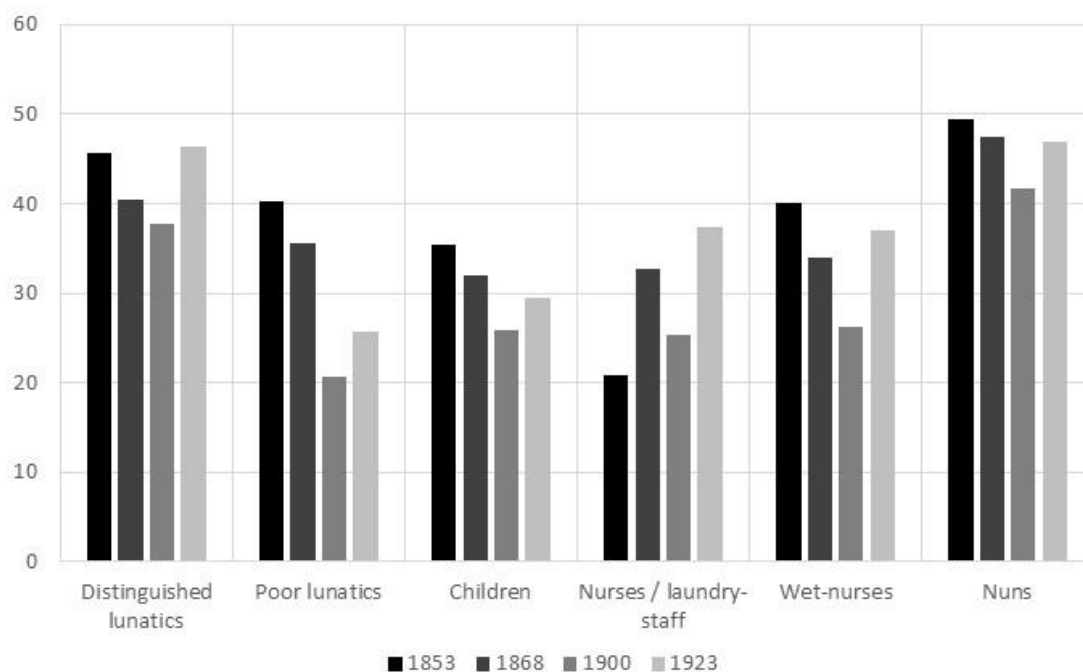
very differently according to group. While it increased among the more favoured groups – after the drop caused by the crisis undergone by the institution in the late 19th century – with the incorporation of new food groups such as fish, milk and eggs, among ‘poor lunatics’ and ‘orphans’ its consumption decreased significantly. Bread and legumes continued being the main source of protein for this group, while the relative amount of beef in their diet remained constant.

Figure 1. Percentage of animal calories in the daily average diet by population groups of the Hospital General de Valencia, 1853-1923 (%)



Source: see Table 1. Own elaboration.

Figure 2. Percentage of animal proteins in the average daily diet by population groups of the Hospital General de Valencia, 1853-1923 (%)



Source: see Table 1. Own elaboration.

Based on these data, we can question whether this intake of energy and nutrients covered the Recommended Dietary Allowances. As Table 4 suggests, over time the situation improved, albeit unevenly. At the beginning of the period under scrutiny, the diet of ‘poor lunatics’ and orphans did not meet minimum calorie requirements (it covered just above 80%), while that of the other groups did, in some cases handsomely. This suggests that the age of malnourishment and hunger defined by Popkin’s model of nutritional transition was coming to an end, especially among the more favoured groups.⁶⁵ These differences continued until the 1920s. In 1923, the calorific needs of ‘poor lunatics’ and orphans were fully satisfied for the first time, while those of other groups were more than covered. Spanish national averages reflect the same trend: by 1900 the overall calorific needs of the population were being covered, but by 1923 the situation had improved still further.

⁶⁵ Popkin, “Nutritional Patterns”.

Table 4. Contribution of energy and nutrients with respect to the Recommended Dietary Allowances (RDA = 100) in the average daily diet by population groups of the Hospital General de Valencia, 1853-1923

	Distinguished lunatics	Poor lunatics	Children (over 20 m.)	Nurses / laundry-staff	Wet-nurses	Nuns	Spanish average
1853							
Energy	105	85	84	132	107	111	nd
Proteins	145	146	117	161	117	157	nd
Vitamin A	1	0	1	2	1	1	nd
Vitamin D	0	0	0	0	0	0	nd
Folic acid	62	100	72	75	58	49	nd
Calcium	34	37	26	49	34	29	nd
Iron	126	114	95	132	134	191	nd
Zinc	88	68	61	66	55	83	nd
1868							
Energy	115	99	96	167	142	127	nd
Proteins	171	164	130	231	146	176	nd
Vitamin A	2	0	1	2	1	5	nd
Vitamin D	0	0	0	0	0	2	nd
Folic acid	127	112	81	90	72	59	nd
Calcium	44	45	31	60	47	35	nd
Iron	157	135	107	166	169	104	nd
Zinc	108	75	66	107	64	89	nd
1900							
Energy	111	97	94	169	150	124	106
Proteins	135	144	119	215	140	163	164
Vitamin A	5	2	1	6	3	20	35
Vitamin D	1	3	0	1	1	8	12
Folic acid	70	124	79	96	81	71	72
Calcium	45	47	30	68	55	46	42
Iron	141	130	105	166	172	108	133
Zinc	74	67	57	91	56	74	52
1923							
Energy	130	107	107	183	159	140	117
Proteins	188	165	132	257	165	208	184
Vitamin A	14	7	12	47	29	46	42
Vitamin D	9	4	0	16	16	16	13
Folic acid	86	143	87	120	100	98	119
Calcium	70	63	48	93	74	72	49
Iron	163	157	114	182	188	131	134
Zinc	87	82	65	109	67	94	65

Note: The Spanish average refers to the years 1900 and 1930.

Source: see Table 1. Recommended Dietary Allowances and Spanish average: Cussó, Gamboa, and Pujol-Andreu, "El estado nutritivo". Own elaboration.

Inequality was less sharp as far as protein intake is concerned, the Recommended Dietary Allowances being amply covered among all groups owing to the abundant consumption of both animal and vegetable protein-rich products. Inequality was, in this case, expressed in the protein sources. While the more favoured groups obtained their protein from white bread and beef, and later from cod, milk and eggs, ‘poor lunatics’ had to make do with *criadillas*, pulses and rough bread, and started consuming white bread, milk and beef later than the other groups. National averages also indicate sufficient levels of protein intake in the country as a whole.

Concerning micronutrients, significant differences can be attested. There was a significant deficit in vitamins A and D. Vitamin A is essential for growth and for the immune system to work properly, and is found especially in eggs, dairy products and vegetables.⁶⁶ These food groups were largely absent from hospital diets, except for eggs, which were served to some of the carers, and milk, towards the end of the period under consideration. By 1923, the intake of vitamin A had improved, but still fell far short of Recommended Dietary Allowances. Concerning vitamin D, which plays a key role in the mineralisation of bones, facilitating the absorption of calcium and phosphorus and preventing rickets, the situation was even worse. Only nuns and, later, the ‘distinguished lunatics’ and the rest of carers, saw the intake of this micronutrient increase, owing to their consumption of cod and eggs. Although always below the recommended levels, vitamin D intake among these groups was similar to the national average towards the end of the period under scrutiny. Deficit in vitamin D was a nationwide problem, but the figures from the hospital suggest that among the least privileged groups this problem must have been much more severe; the deficit in this micronutrient among orphans should be emphasised, as this would have had very negative consequences for their growth.

Concerning folic acid (vitamin B9), a crucial element during the first weeks of gestation for the correct development of the foetus⁶⁷, the situation was somewhat better. In 1853, intake of folic acid was between 50% and 100% Recommended Dietary Allowances, depending on the group. The main sources of folic acid were bread and pulses, which explains the fact that ‘poor lunatics’ were the leading group in this regard. In the subsequent decades, the situation was to improve substantially, and by 1923 all groups were consuming above 80% of their minimum requirement, owing to the increased consumption of white bread, pulses and eggs. These values were also close to those presented by the Spanish population in general, among which the consumption of this micronutrient had also improved.

Something similar happened with calcium, a key mineral in the formation of bone.⁶⁸ In 1850, calcium consumption covered between 25% and 50% of Recommended Dietary Allowances, according to group. Towards the end of our period, these percentages

⁶⁶ Carbajal, *Manual de Nutrición*.

⁶⁷ Idem.

⁶⁸ Idem.

had gone up, but still fell far short of Recommended Dietary Allowances (45-60%). The main reason behind this improvement was the increased consumption of milk, white bread and pulses. The limited presence of dairy products in the diet prevented higher levels being reached, not to mention the fact that reduced consumption of vitamin D would lead to inadequate absorption of calcium. The national averages indicate that calcium deficits were a structural nutritional problem.

Hospital diets included higher amounts of iron, which helps to transport the oxygen needed for cellular metabolism; the lack of iron can, therefore, cause anaemia and lead some organs not to function properly through lack of oxygen. This micronutrient is found in animal products, pulses and vegetables. All hospital groups amply surpassed recommended iron intake, owing to consumption of meat and pulses. However, it must be taken into account that iron from vegetable sources is only absorbed in small quantities so, in nutritional terms, this optimistic assessment needs to be qualified, especially among the least favoured groups, in whose diet animal products played a lesser role. The consumption of zinc, a basic element for growth and the operation of the immune system, was moderate. It is found in high-protein foods, such as meat, pulses and cereal. In 1853, zinc consumption covered at least 50% of Recommended Dietary Allowances, and 80% among the more privileged groups. Towards the end of the period under consideration, zinc consumption had increased among all groups.

5.- Conclusions

The evolution of hospital diets in the period under scrutiny confirms the general trends outlined by the nutritional transition at the national level. Historiography suggests that this was a slow process. Our data indicates that it was also discontinuous, with occasional setbacks.

The menus being served at the Hospital General de Valencia also allow for a more precise definition of inequality, a factor that previous studies had emphasised but which had not been able to quantify. Naturally, our hospital data cannot be directly extrapolated into income-level-based differences in society in general, but do allow for a better understanding of the specific nutritional components in which inequality was expressed.

The alimentary policies of this hospital – and probably of other institutions where similar criteria were applied – define three distinct population groups according to diet: first, ‘distinguished lunatics’ and nuns, whose diet was closest to the trends generally associated with the nutritional transition: a smaller role of cereal in the diet, significant meat consumption and the introduction of new foods such as olive oil, milk and fish; second, hospital staff, whose diet was highly calorific in response to their demanding jobs, but more traditional in terms of food distribution, a diet that was largely based on cereal, pulses, meat and wine; and, third, ‘poor lunatics’ and orphans, whose diet was much poorer and who only started to join the nutritional transition in the 1920s. The differences were particularly sharp when it came to more expensive products.

The differences between patients with- and without resources – the latter were defined as ‘dirt poor’ – may reflect the chasm that separated high- from low-income social groups. On the other hand, the diet provided for hospital staff can be considered representative of the diet consumed by wage-earners with permanent and physically demanding jobs.

These data suggest that the nutritional transition was not a homogenous process. It was very different according to social group. By the mid-19th century, the most favoured groups already consumed a diet that, in general terms, could be considered equally typical of the 1930s. Meanwhile, the least favoured groups only witnessed significant changes in their diet during the first three decades of the 20th century, when new foodstuffs became more accessible. As such, the least favoured groups can be considered to have lagged substantially behind the overall trend. This fact allows us to conclude that the medical criteria in the design of the diets, as we have pointed out in the first section, still did not apply in a generalized way in the Valencian institution.

To date, studies about the nutritional transition have argued, based on national averages, that parts of the population must have suffered a significant deficit in terms of energy and nutrients. Hospital diets have allowed us to approach this quantitatively. Our approach has three further advantages: the possibility of examining well-defined population groups, distinguished between adults and minors, which takes the analysis beyond average values; the opportunity to conduct an analysis not based on estimates, but on primary sources; and the chance of examining the structure of the diet fully – and not only in terms of calorie intake – and over time, within the general framework of the nutritional transition.

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