



The Data Food Networking (DAFNE) initiative
EUROPEAN FOOD AVAILABILITY DATABANK BASED ON
HOUSEHOLD BUDGET SURVEYS

Executive Summary Report of the DAFNE IV project

Grant Agreement number SPC.2002336 between the Commission of the European Communities and the National and Kapodistrian University of Athens (NKUA), Greece

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Introduction

The DAFNE initiative

Since 1987, the National Nutrition Center in Athens, Greece, has organized a series of workshops, seminars, and research activities aiming at the development of the most appropriate way of using food and socio-demographic data from the national HBS. This approach was granted financial support by the EC, through the DAFNE I, II and III projects, in order to develop the methodology for harmonizing the HBS data of the following European countries: Belgium, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Norway, Poland, Portugal, Spain and the UK. In an attempt to better understand and deal with the limitations of the HBS data, information retrieved from the DAFNE database was used in order to compare the HBS-derived food data with those collected through specially designed nutrition surveys (*the FAIR-97-3096 project: “Compatibility of the household and individual nutrition surveys in Europe and disparities in food habits”*). The methodology was developed for rendering the two types of dietary data comparable, at the level of the information collected and comparisons showed that household budget and specially designed nutrition surveys generate broadly comparable results.

Over the years, the DAFNE databank has been recognised as a tool to follow-up trends in nutritional practices; to identify population subgroups whose dietary habits are not favourable according to the current scientific knowledge on the association of diet and health; and to outline preventive interventions in order to support consumer choices towards a healthy nutrition.

The DAFNE IV project

The Consortium of the “European Food Availability Databank based on Household Budget Surveys – DAFNE IV” project:

- ◆ assembled and harmonized national HBS datasets from the following five EU Member States: Austria, Finland, Germany, Portugal and Sweden. The newly harmonised datasets were incorporated in the DAFNE database, which now forms a bank of food data from multiple HBSs undertaken in each of 16 European countries (15 EU Member States and Norway).
- ◆ developed the methodology for estimating the daily availability of selected nutrients, using food data from the national HBSs. The methodological approach was pilot tested in Greek

and German data and was applied in data of the Greek HBS undertaken in 1981-82, 1987-88 and 1998-99, which are already stored in the DAFNE database.

- ◆ compiled a protocol for collecting, in the context of the HBS, information on meals taken outside the household, addressing thus a limitation in the use of HBS data for nutritional purposes.

To better employ the potential of the DAFNE database and to ensure an efficient dissemination of the results, the coordinating center integrated the DAFNE data in the *DafneSoft*, a user-friendly application tool. The programme allows the user to monitor dietary choices and patterns within and between countries and to follow trends in food availability in Europe, using data presented in tables, bars, pie charts and maps. The tool further allows for cross-linkages of food availability data with socio-economic and demographic indicators. To ensure its efficient dissemination, the *DafneSoft* programme is directly accessible as a web-based application, through the website of the DAFNE coordinating centre (www.nut.uoa.gr).

Description of Tasks

The tasks undertaken in the context of the DAFNE IV project can be summarized in the following:

Integrating new datasets in the DAFNE databank

Tasks 1-6 included the:

- ◆ management and processing of the raw food, demographic and socio-economic information collected in the HBS of the participating countries
- ◆ documentation of the HBS variables, which would be used in the analysis
- ◆ incorporation of the raw HBS data of each participating country in the central database, operating at the coordinating centre
- ◆ harmonization of the food, and socio-demographic information collected in the national HBSs
- ◆ estimation of the average daily food availability for the overall population and for population groups, defined according to socio-demographic indicators.
- ◆ incorporation of the derived data into the operating DAFNE databank, which forms integral part of the DafneSoft program.

Estimating the daily nutrient availability, using national HBS data

Tasks 7 and 8 aimed at developing methodologies for estimating the mean daily nutrient availability, using data from national HBS. The conversion of household food acquisitions into nutrient availability is not a straightforward one, since HBS mostly provide data on the level of food groups, rather than on individual food items. Thus, food composition data need to be adjusted. Four different approaches were decided to address the aforementioned problem and were developed in an attempt to cover various situations, in terms of data availability at the country level. All approaches estimate the nutrient content of the HBS food codes, but they vary in the degree of effort their application requires. The application of the approaches generated two sets of four food composition tables, which were used for the analysis of the German 1998 and the Greek 1998-99 data. For the analysis of the Greek data, a software interface programme written in Microsoft Visual FoxPro was developed at the coordinating centre.

The results obtained from the analysis of the German and the Greek datasets were validated through comparisons with published nutrient intake data, collected in individual nutrition surveys undertaken in the two countries. The selected approach was applied in the 1981/82, 1987/88 and in the 1998/99 Greek HBS datasets, in order to timely compare the mean daily nutrient availability in Greece.

Compiling a protocol for collecting information on meals taken out of home, in the context of the HBSs

Task 9 of the project's Technical Annex was referring to tackling the issue of lacking information on eating out in the national HBSs. To initiate procedures, an inventory was developed and disseminated in order to elucidate the type of information on eating out currently collected in the HBSs of the participating countries. After evaluating the situation in relation to the currently collected data on eating out, participants decided on suggestions on how to improve the quality and the interpretability of the collected data. These preliminary suggestions are described in detail in Annex V of the project's final analytical report.

Results

Monitoring the mean daily food availability in European countries

In Annex VI of the project's analytical report, tables presenting the mean availability of the 15 DAFNE food groups by country and year of survey are presented. Mean availability values by four socio-demographic characteristics (locality of the residence, household composition, education and occupation of the household head) are also presented for each country and survey year. Graphical presentations of time changes and between countries differences in the daily individual food availability are included in a glossy publication entitled *Network for the Pan-European Food Databank based on Household Budget Surveys – The DAFNE IV project*. In this publication, disparities on the mean daily availability of food groups with public health interest (vegetables; fruits; meat and meat products; milk and milk products; wine and beer) are presented for all countries of the DAFNE network. The publication is available in a print-out format at the coordinating Centre's website (www.nut.uoa.gr).

Mean daily nutrient availability. Estimates derived using national HBS data from Greece and Germany.

According to results on the mean daily nutrient availability in the 1980s and the 1990s, the daily availability of energy and nutrients in a nationally representative sample of Greek households is adequate. Fat contributed to more than 40% of the daily energy, with monounsaturated fatty acids being the important contributor (22% of the energy intake). The intake of saturated fatty acids has substantially increased since the 1960s, when the first data on the diet of the Mediterraneans were collected, and it is very close to the upper recommended level of 10% of total energy intake. The relative share of protein to total energy availability is again within the optional range. The daily availability of sodium was also within the indicated range of 600-3500 mg/day; the availabilities of potassium and calcium were above the recommendations of 3100 and 700 mg/day, respectively. In terms of time changes, the daily availability of energy and all nutrients under study decreased in the 1990s. In terms of nutrient shares to total energy availability, however, the share of protein, total fat and monounsaturated fatty acids in particular increased, whereas the share of carbohydrates decreased.

Meat, cereals, cheese and fish were important protein sources. Cereals, potatoes and fruits contributed more than 70% of the daily carbohydrate availability. As expected, olive oil was identified as the main source of lipids, followed by meat and cheese. The share of olive oil in the daily lipid availability substantially decreased in late 1980s. Part of the decrease was compensated by an increase in the contribution of other vegetable oils. The share of olive oil in the daily lipid availability increased in late 1990s, without reaching, however, the levels of early 1980s. An increase in the share of the daily lipid availability was also noted in the case of cheese. Milk and milk products are important contributors of saturated fatty acids in the Greek diet.

Participants acknowledged the necessity for a common food composition table to be used in a harmonized procedure for estimating nutrient availability from HBS data. Concerns were, however, expressed either in the use of the same composition data for all the countries or in the magnitude of errors that will be introduced if different national tables are used. Participants also concluded that the network should aim to a DAFNE Food Composition Table and noted that the outcome of running projects related to food composition data for international comparisons (e.g. the EUROfir Network of Excellence) will prove useful in the DAFNE nutrient estimations.

Organisation of the project

The project was coordinated by the Department of Hygiene and Epidemiology, Medical School University of Athens. Four plenary meetings took place in the course of the project and eight bilateral meetings were undertaken between the coordinating centre and the participating countries to address country-specific problems.

Activities of the project

The new updated DAFNE software – The DafneSoft v3.0

Upon completion of the DAFNE IV project, the enlarged databank was integrated in the DafneSoft application tool. Some amendments on the tool's interface, options and facilities were further decided. The new *DafneSoft* is available since August 1st, as a web-based application, accessible through the Coordinating Centre's website (www.nut.uoa.gr).

Education – Undergraduate, Graduate and PhD studies

- The presentation of the DAFNE project forms an integral part of the programme of the Summer School “EU Basics in Public Health Nutrition”, organised yearly by the Unit for Preventive Nutrition of the Karolinska Institute. The Summer School is included in the curriculum of the EU Masters in Public Health Nutrition.
- In the context of the ERASMUS/SOCRATES programme, staff from the Athens Coordinating Centre visited the University of Kuopio, Finland and the Karolinska Institute, Sweden and presented the DAFNE initiative and the *DafneSoft* application tool to undergraduate and graduate students of nutrition and nutritional epidemiology.
- The DAFNE databank and the *DafneSoft* tool were also presented to undergraduate students of the Department of Food Technology and Biotechnology of the Athens Agricultural University
- Three members of the DAFNE team are undertaking their PhD theses in subjects related to the use of HBS data for nutrition purposes. The titles of their theses are the following:

- *Food and nutrient availability in Austria, based on household budget survey data.*

Alexandra Suchomel, University of Vienna, Austria

- *Time series analyses using German household budget survey data.*

Kornelius Wagner, TUM, Munich Germany

- *Trends in household food and nutrient availability during the last decade (1990 – 2000) in Portugal – socio-demographic and regional disparities in association with mortality patterns.*

Sara Rodrigues, University of Porto, Portugal

Participation in the National Nutrition Policy Committee of the Greek Ministry of Health and Welfare

To assess the dietary habits of the Greek population and formulate actions and measures, the Greek National Nutrition Policy Committee utilized DAFNE data collected in Greece in the 1980s and the 1990s. The assessment included evaluation of the current situation, identification of overtime changes and of socio-demographic characteristics that may shape food choices. The conclusions of the above effort were presented in the Committee's report.

Actions towards the enlargement and sustainability of the DAFNE databank

To ensure the continuity of the DAFNE initiative on exploiting the HBS data and to expand the DAFNE databank, the Athens Coordinating Centre has submitted two proposals, which have both been positively evaluated. The first refers to a Support Action in the context of Specific Measures in Support of International Cooperation (INCO) for Western Balkan Countries (DG-RTD). The title of the project is: *The use of household budget survey data as a tool for nutrition interventions in the post-conflict Western Balkan countries—the European Data Food Networking (DAFNE) approach (Acronym: DAFNE-WBC)*. In this project, the DAFNE network will expand to three West Balkan countries (Albania, Croatia, Serbia and Montenegro). The Regional Office for Europe of the WHO will also contribute in the analysis and interpretation of the monitoring indicators.

On February 8, 2005, the Athens Centre submitted a proposal for a Co-ordination Action entitled: *Eating Out: Habits, Determinants, and Recommendations for Consumers and the European Catering Sector (Acronym: HECTOR)*. The project aims at, among other things, addressing the HBS limitation of lacking data on eating out and has been positively evaluated

(score of 28/30). The project will get into the negotiation phase on September 2005.

Lastly, the DAFNE team is contributing in the EFCOVAL project, also submitted on February 8, 2005 (*Full title: European Food Consumption Validation. Acronym: EFCOVAL*). The DAFNE contribution refers to evaluating an approach for collecting harmonized dietary data at the European level, combining the EFCOVAL method (24-hour recall) with the standardized HBSs.

Dissemination of research results

Contribution to the European Nutrition and Health Report

The DAFNE team contributed with a chapter entitled “Food availability in Europe. Data retrieved from the DAFNE databank” to the European Nutrition and Health Report. The compilation of the report was coordinated by the Institute of Nutrition of the University of Vienna.

Compilation of a DAFNE pamphlet and of the third issue of the DAFNE glossy publications

The DAFNE coordinating team designed and developed a pamphlet presenting background information on the project, a selection of titles of DAFNE publications, as well as details for the contact points in all countries of the network. The pamphlet will be widely disseminated in meetings, symposia and conferences. Furthermore, the coordinating team compiled the third issue of the DAFNE glossy publications. All issues are available at www.nut.uoa.gr for direct downloading.

Compilation of a publication entitled “THE DAFNE FOOD CLASSIFICATION SYSTEM: Operationalisation in 16 European countries”

This publication aims at presenting the application of the DAFNE food classification system in the 16 countries of the network. The DAFNE classification scheme is presented in the forms of tables, specific for each country and survey year, and can serve as a basis for the integration of foods in a platform, which can contribute in making the European food data interoperable, allowing international comparisons.

DAFNE workshop in Durban

A workshop presenting the DAFNE project and results, as well as the DafneSoft application tool is organised to be held on September 19, 2005 in the context of the 18th International Nutrition Congress (ICC Durban, South Africa, 19 - 23 September 2005).

Presentation of DAFNE activities in a meeting of the EuroFir Network of Excellence.

The DAFNE activities towards the development of a DAFNE Food Composition Table were presented in a working session of the European Food Information Resource Network (EuroFIR), which aims at developing and integrating a comprehensive, coherent and validated databank providing a single, authoritative source of food composition data in Europe.

Scientific papers

- Trichopoulou A, Naska A, and the DAFNE III Group. *“European food availability databank based on household budget surveys-the Data Food Networking initiative”* Eur J Public Health 2003;13(3 Suppl):24-28
- Trichopoulou A, Naska A, Oikonomou E. *“The DAFNE databank: the past and the future of monitoring the dietary habits of Europeans”* J Public Health 2005;13:69-73.
- Naska A, Fouskakis D, Oikonomou E, Almeida MDV, Berg MA, Gedrich K, Moreiras O, Nelson M, Trygg K, Turrini A, Remaut AM, Volatier JL, Trichopoulou A and DAFNE participants. *“Dietary patterns and their socio-demographic determinants in ten European countries. Data from the DAFNE databank”* (European Journal of Clinical Nutrition, in press).
- Gedrich K, Naska A, Wagner K, Trichopoulou A, Karg G *“Food Consumption Away-From-Home: An Estimation Based on German Household Budget Survey Data”* (submitted for publication to the British Journal of Nutrition)
- A Pérez-Cueto, A. Naska, J. Monterrey, A-M Remaut, M. Almanza, A. Trichopoulou, P. Kolsteren *“Monitoring food and nutrient availability in a nationally representative sample of Bolivian Households”* (submitted to the Public Health Nutrition Journal).
- A. Trichopoulou, G. Golfis, M. Kammenou, A. Naska. Traditional diet and Globalisation: Nutritional priorities in Greece. Iatriki 2005;87 (3):228-33 (in Greek).

- Methodological approach for monitoring the daily nutrient availability, using the DAFNE databank (under preparation)

Conference Presentations

Four oral and five poster presentations in international conferences and symposia (The International Conference on “Health benefits of Mediterranean diet . Highlights on Cancer and Cardiovascular Diseases”. Crete, June 2003; The International Conference on “Poverty Food & Health in Welfare, current issues, future perspectives. Lisbon, July 2003; The 9th European Nutrition Conference, Rome October 2003; The 3rd Nordic Conference in Epidemiology. Kuopio, June 2004; The International Conference on “Traditional Mediterranean Diet Past, Present and Future Focusing on Olive Oil and Traditional Food Products. Athens, April 2005; The First Hellenic Conference on contemporary trends in fats and oils. Athens, June 2005).

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