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Statistical analysis on health-related longitudinal data from the ECHP



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1. Preliminary study

1.1. Introduction

What is ECHP?

The European Community Household Panel (ECHP) is a longitudinal survey of households and individuals, centrally designed and co-ordinated by the Statistical Office of The European Communities (Eurostat) and covering all countries of the European Union (EU). An attractive feature of the ECHP is the comparability across countries and over time. This survey regroups various modules as demographic information, income, financial situation, accommodation, employment, social relation, health, etc.

Goal of this project

The main aim of the project was to provide sophisticated statistical analysis of the health-related longitudinal data obtained by means of the ECHP, in order to fulfil existing information needs on (changes in) health, lifestyles, use of medical services of the European population and subgroups thereof. This should be supported and ‘justified’ by a thorough methodological evaluation of the survey. The statistical analysis focused on comparisons across Member States and population groups as a means of:

- Evaluating differences between Member States and population groups with respect to (changes in) health, determinants and the use of medical services,
- Adding to the existing expertise of analysing (longitudinal) survey data in an international context,
- Adding to existing expertise on methods of pre-harmonised health-related survey modules and surveys.

Data available

The data used to implement this study come from the user database named “UDB” (**version June 2003**). This is an anonymised user-friendly longitudinal user database regrouping information collected by means of questionnaires checked by the National Data Collection Units (NDUs) and by Eurostat. The UDB consists of various data files including information for each person, each household and allowing to rebuild the longitudinal status of the person from the beginning to the end of the panel. Each person has an identification number that is fixed across waves.

The ECHP UDB (**v. 06/2003**) contains:

- The ECHP data for waves 1994-2000 for Belgium, Denmark, Greece, Spain, France, Ireland, Italy, the Netherlands and Portugal;
- The ECHP data for waves 1995-2000 for Austria;
- The ECHP data for waves 1996-2000 for Finland;
- Comparable data extracted from the Swedish Living Conditions Survey for 1997-2000, but people are not followed up from one wave to the next;
- For Luxembourg, Germany and the United-Kingdom, two sub-sets are included: the ECHP micro-data for 1994-1996, and the national panels converted into ECHP format for 1994-2000 for Germany (SOEP) and the United-Kingdom (BHPS), and for 1995-2000 for Luxembourg (PSELL).

1.2. Evaluation of the wording of the health-related questions

This study aimed to document the wording of the health-related questions in the ECHP in all countries/languages/years. These questionnaires had to be compared with the basic documents (English version) in order to determine the comparability of the answers.

1.2.1. Overview of the supplied questionnaires

All the questionnaires supplied by Eurostat were analysed. For some countries, several versions were available: Belgium (French/Dutch), Denmark (English/Danish), Greece (English/Greek), The Netherlands (English/Dutch), Finland (English/Finnish). But the questionnaires available in several languages for the same country are similar. The following table gives an overview of the questionnaires available by country, language and wave:

Table 1: Questionnaires supplied by Eurostat

Country	Languages Available	1994	1995	1996	1997	1998	1999	2000	2001
Belgium	French	X	X	X	X	X	X	X	
	Dutch						X	X	
Denmark	English	X							
	Danish	X	X	X	X	X	X	X	X
Germany (ECHP)	German	X	X	X	-	-	-	-	-
Germany (SOEP)	German				X	X	X	X	X
Greece	English	X							
	Greek	X	X	X	X	X	X	X	X
Spain	Spanish	X	X			X	X	X	X
France	French	X	X	X					
Ireland	English	X	X	X			X	X	
Italy	Italian	X	X	X	X	X	X	X	X
Luxembourg (ECHP)	French	X	X	-	-	-	-	-	-
Luxembourg (PSELL)	-	-							
No health information available									
The Netherlands	English	X							
	Dutch	X	X	X	X	X			
Austria	German	-	X	X	X	X	X	X	
Portugal	Portuguese	X	X	X	X	X	X	X	X
Finland	English	-	-	X	X	X	X	X	X
	Finnish	-	-	X	X	X	X	X	X
Sweden	English	-	-	-					
Only one version									
United Kingdom (ECHP)	English	X							
United Kingdom (BHPS)	English		X	X	X	X	X	X	

The PSELL survey does not contain information about health and only one version of the questionnaire exists for Sweden.

1.2.2. Health variables of the ECHP UDB

All the health-related variables available in the ECHP UDB (23 items) were indexed. But, the questions concerning “Health cares financing” (PH012 to PH015) were not studied because of the variability of the answers between the Member States. Among all the questions, 5 of them are available through all the waves (1994-2001). 5 questions were added in 1995, 7 in 1998 and 2 were available only in 1994 (but were reconstructed from 1995 to 2001 with other questions).

Table 2: ECHP UDB health variables – codes, labels and periods

Period	Code	Label
1994-2001	PH001	How is your health in general?
1995-2001	PH002	Do you have any chronic physical or mental health problem, illness or disability?
1995-2001	PH003	Are you hampered in your daily activities by <u>this</u> physical or mental health problem, illness or disability? (Only for persons with a physical or a mental health problem, illness or disability)
1994-2001	PH003A*	Are you hampered in your daily activities by <u>any</u> physical or mental health problem, illness or disability? (All persons)
1994-2001	PH004	During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of <u>illness or injury</u> ?
1994-2001	PH005	During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of an <u>emotional or mental health problem</u> ?
1994-2001	PH006	During the past 12 months, have you been admitted to a hospital as an in-patient?
1994-2001	PH007	Number of nights spent in hospital during the past 12 months
1995-2001	PH008	During the past 12 months, about how many times have you consulted a general practitioner (including home visits by the doctor)?
1995-2001	PH009	During the past 12 months, about how many times have you consulted a medical specialist (including out-patient consultations but excluding any consultation during hospitalisation)?
1995-2001	PH010	During the past 12 months, about how many times have you consulted a dentist?
1994-2001	PH011**	Number of times the person has been to a doctor or a dentist or optician, during the past 12 months. (aggregated)
1998-2001	PH016	Do you smoke or did you ever smoke?
1998-2001	PH017	Number of cigarettes smoked per day (currently or in the past)
1998-2001	PH018	Number of cigars smoked per day (currently or in the past)
1998-2001	PH019	Number of pipes smoked per day (currently or in the past)
1998-2001	PH020	What is your height without shoes?
1998-2001	PH021	How much do you weigh without clothes and shoes?
1998-2001	PH022	Body mass index

*: Built with PH002 and PH003 from 1995 to 2001, **: built with PH008, PH009 and PH010 from 1995 to 2001

An evolution of the questions was observed over time. Indeed, in 1994, questions concerned the health status (PH001 to PH005) and the hospital admission/medical consultation (PH006, PH007 and PH011). In 1995, some questions were added in order to precise the type of consultation (PH008 to PH010). In 1998, questions about tobacco consumption and height/weight were included in the questionnaire.

It is necessary to notice that the variable PH016 was built with two questions: “Do you smoke daily, occasionally or never?” and “Have you ever smoked? Was it daily, occasionally or never?”.

1.2.3. Comparability of the health-related questions

This step aims to analyse the comparability of the health-related questions between the MS and the waves. Furthermore, for some countries, the questionnaires were available in several languages. Thus, all the versions supplied by Eurostat were analysed and the wording of the health-related questions was documented or translated in English. The problem of comparability can be induced by: the language version of the questionnaires, the wording difference between the question used in the questionnaire and the basic one, the difference of categories proposed for the answers, the absence of the question.

Language version of the questionnaires

For some countries, questionnaires were available in several languages. However, after translation, all the versions were similar. It concerns Belgium, Denmark, Greece, the Netherlands and Finland.

Wording difference with the basic version

After to have analysed all the questionnaires available, it appears that some questions can slightly vary from the basic version. It could lead to a variation in the answers and so, introduce a bias in the comparison of the results. For example, the question of reference PH002 “Do you have any chronic physical or mental, illness or disability?” was replaced by “Do you suffer from any long-term illness, after-effects from an accident, disability or other ailment?” in Sweden. The question of reference PH003 “Are you hampered in your daily activities by this physical or mental health problem, illness or disability?” was replaced by “Aside from minor illness, does your health prevent you from completing everyday tasks like work around the house, employed work, studies, etc.? To what extent?” in Germany (SOEP survey).

Globally, among all health-related items, two types of question have numerous wording differences according to the exact basic question. These questions are: “Are you hampered in your daily activities by any physical or mental health problem, illness or disability?” (PH003A in 1994, PH002 and PH003 from 1995 to 2001) and “Number of times the person has been to a doctor or a dentist or optician, during the past 12 months?” (PH011). Sometimes, several questions are used or questions are more precise. For example, “professionals, domestics or leisure” specify the word “activities”.

Difference of categories proposed for the answers

For some questions, answers had to be recoded. For example, the answers associated to the global health status (PH001) were recoded for France (6-point scale recoded in 5-point scale). Sometimes, the answers had to be modified/adapted. For example, concerning medical consultation (PH008), the answers concerned the last 3 months for Germany (SOEP survey) instead of 12 months.

Questions not asked or information not available

The table below gathers the questions not asked (or can not be rebuilt) or information not available. **All the questions not indexed are obtainable and comparable between countries.** The table was built only with the comparison of questionnaires available. It concerns the comparability of the standard items (PH001 to PH011 and PH016 to PH022) according to the changes in question wording through waves. Furthermore, it is necessary to keep in mind that questionnaires were updated through the 8 waves. Indeed, questions were added and the comparison could be made only for the years concerned: 9 questions are available from 1994 to 2001 (PH001 to PH007 and PH011), 3 questions were added in 1995 (PH008 to PH010) and 7 questions were added in 1998 (PH016 to PH022).

Table 3: Summary of the not asked/not available questions

Country	1994	1995	1996	1997	1998	1999	2000	2001
Belgium								
Denmark								
Germany (ECHP)	PH007	PH007	PH007					
Germany (SOEP)				PH004 PH005 PH009 PH010 PH017 to 22	PH004 PH005 PH009 PH010 PH017 to 22	PH004 PH005 PH009 PH010 PH016 to 22	PH004 PH005 PH009 PH010 PH016 to 22	PH004 PH005 PH009 PH010 PH020 to 22
Greece								
Spain					PH016 to 22	PH016 to 22	PH016 to 22	PH016 to 22
France	PH001	PH008 to 10	PH008 to 10					
Ireland								
Italy								
Luxembourg (ECHP)								
Luxembourg (PSELL)					PH016 to 22			
The Netherlands								
Austria								
Portugal								
Finland								
Sweden				PH004 to 10 PH016 PH020 to 22	PH004 to 10 PH016 PH020 to 22	PH004 to 10 PH016 PH020 to 22	PH004 to 10 PH016 PH020 to 22	PH004 to 10 PH016 PH020 to 22
United Kingdom (ECHP)	PH001							
United Kingdom (BHPS)		PH004 PH005 PH009 to 11	PH004 PH005 PH009 to 11	PH004 PH005 PH009 to 11	PH004 PH005 PH009 to 11 PH016 PH018 to 22			

According to the questionnaires available, it can be conclude that **all health-related variables are comparable for Belgium, Denmark, Greece, Ireland, Italy, Luxembourg (ECHP survey), Austria, Portugal and Finland.**

Furthermore, **some questions are identical to the basic version** for almost the whole of the Member States and for all the waves. Health-related items concerned are **PH001, PH004 to PH010, PH016 to PH022**.

1.3. Survey participation

This study aimed to document and evaluate the (non-) response, the attrition (panel drop out) phenomenon and the new respondents in the ECHP. This includes comparisons of outcomes on the health-related variables in waves available with and without replacements.

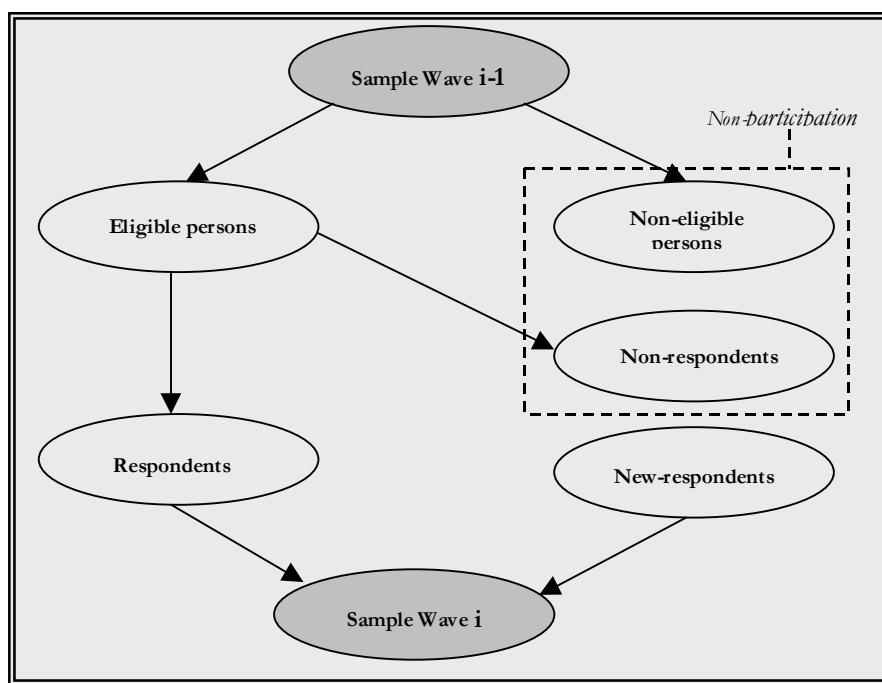
1.3.1. Methodology

Before the implementation of the statistical analysis of the health-related longitudinal data, a predominant study was carried out. This is the evaluation of the (non-) response among eligible persons, attrition (panel drop out because of non-eligibility) and new respondents in the ECHP. This task includes comparisons of outcomes on the health-related variables in waves 2-7 with and without replacements. **The database used is the version of June 2003.**

Causes of non-participation (non-eligibility and non-respondents)

The following schema synthesizes the participation pattern: “An individual does not participate in a given wave of the panel if he is ineligible in that wave or is a unit non-respondent”.

Figure 1: Schema of participation



An eligible individual is aged 16+ and living in private household within the EU. And a unit non-response occurs when an eligible individual fails to return the personal questionnaire. But, two reasons could characterise a unit non-response: one is **contact failure**, due to absence of the person or other reasons, the other is **lack of co-operation**. It is necessary to note that in the ECHP, unit non-respondents are followed up in the next wave, except when non-response is due to incapacity or refusal to return a questionnaire. In this case, it is considered as “final”.

To classify the various causes of non-participation, the age of the person has to be used like two variables available in the longitudinal link file of the UDB (the personal residential status and the personal interview result). Thus, the causes of non-participation could be ordered as following:

Table 4: Causes of non-participation – labels and codes

AMONG ELIGIBLE PERSONS: UNIT NON-RESPONSE	INELIGIBILITY
	Natural demographic events 16 th birthday Death
	Movement from in to out of scope of the survey, or viceversa Institutionalisation Migration to a foreign country ¹ Lost
	Lack of co-operation (refusal to respond) Individual unable to respond (illness, incapacitated, etc.) Failed to return self-completed questionnaire Refusal to co-operate
	Absence of the person at the address Person temporarily away (on vacation, etc.)
	Other types of contact failure Incomplete number of call-backs or interview not attempted for some reasons

It is necessary to keep in mind that if a person does not respond to the questionnaire it is simply dropped. **New persons may enter the survey. But this is not considered as replacement of a specific person.**

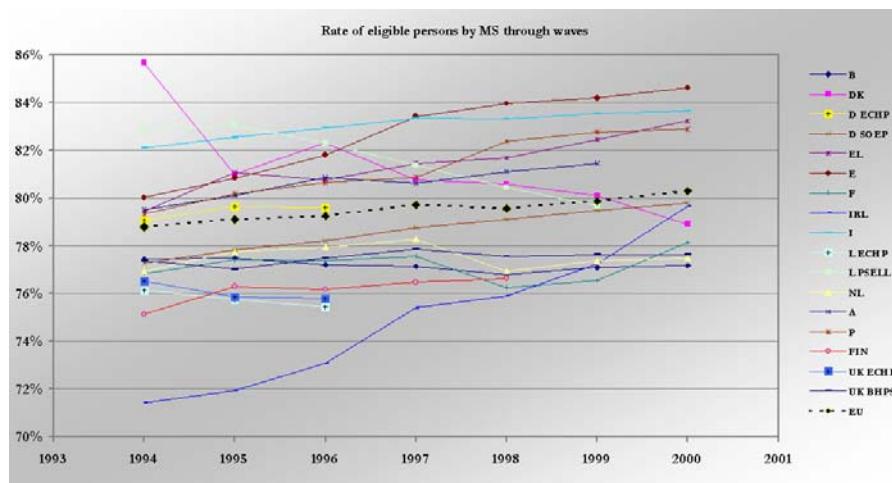
¹ In principle, people moving to another country within the EU remain in the scope of the survey, but according to the paper of Nicolletti and Peracchi, the follow up is difficult and is successful only in a few cases. Thus, these movements are classified with movements to a non-EU country.

1.3.2. Study of (non-) respondents

Eligible persons and respondents

In order to study the (non-) respondents it is necessary to select the eligible persons as described above. The following graph gives the evolution rate of eligible persons by MS through waves (data are not available for Sweden concerning the eligibility of persons).

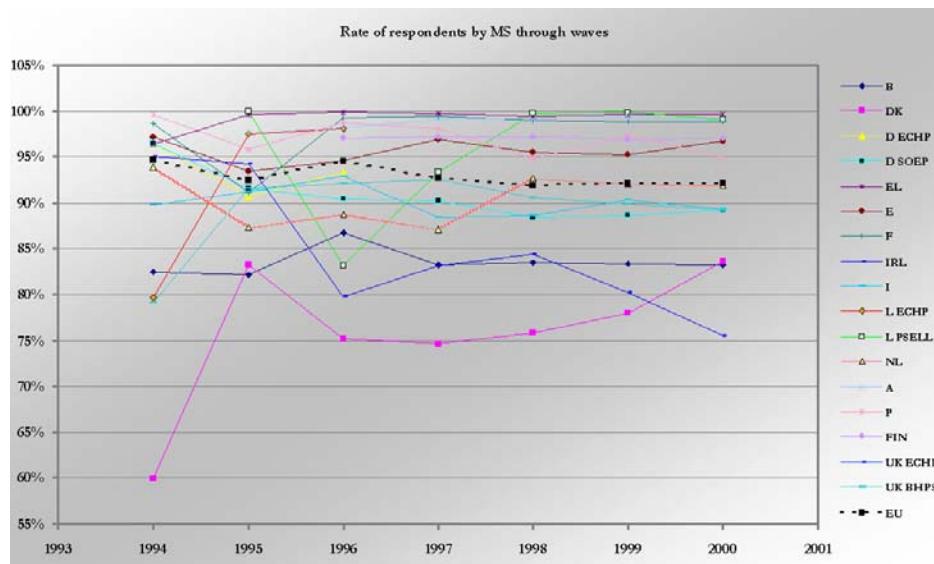
Figure 2: Rate of eligible persons by MS through waves



At the European level, the trend is to the upward of the eligibility through years (from 78% in 1994 to 80% in 2000). Except for Ireland in 1994, 1995 and 1996, all the rates of eligible persons are larger than 75% with a maximum of 86% for Denmark in 1994.

Once the eligible persons identified, it is necessary to identify the rate of respondents, non-respondents and missing data. The figure below shows the evolution of the respondent rates by MS through waves. Rates are not available for Sweden because of data unavailability.

Figure 3: Rate of respondents by MS through waves

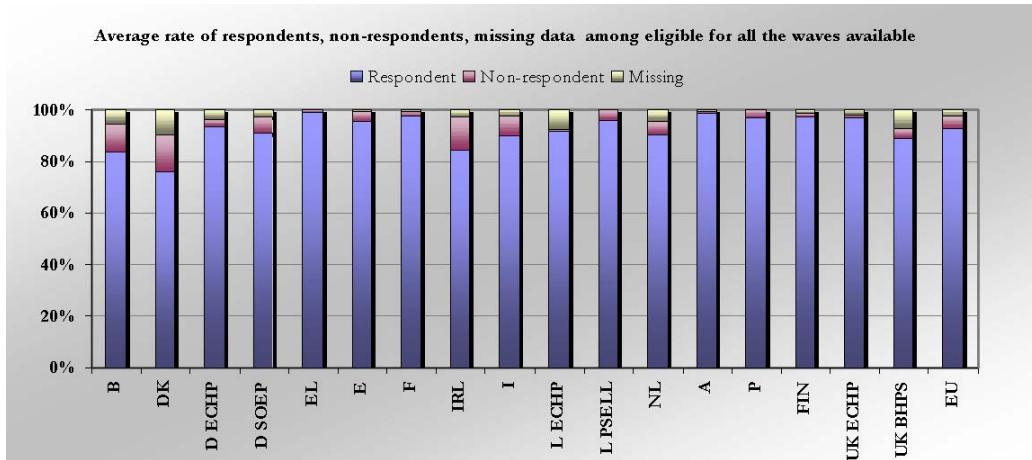


On basis of the eligible persons, the European response rate is upper than 90% trough all waves. Except Denmark and Ireland, all the MS have a response rate above the threshold of

80%. Greece, Spain, France, Luxembourg, Austria, Portugal and Finland have the greatest response rate among all the MS.

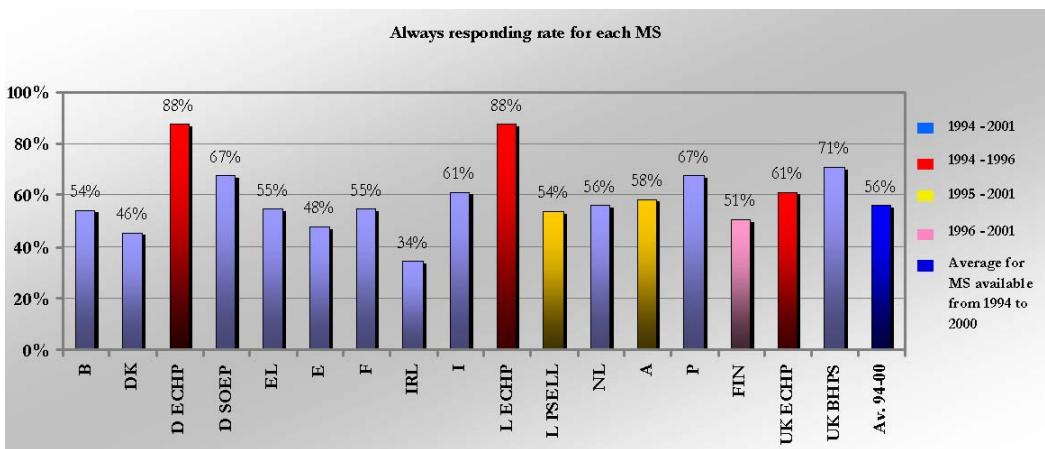
By averaging the response rate from 1994 to 2000, The following figure gives an overview of the response rate by country through all the survey. At the European level, 93% of the eligible are respondents, 5% are non-respondents and 2% are missing.

Figure 4: Average rate of respondents, non-respondents, missing data among eligible for all waves available



In this study, it is essential to distinguish people always responding (from the first to the last wave) to the respondents for a given wave. The figure below shows the percentage of always responding persons according to each country. Indeed, for numerous countries, the study began in 1994 and finished in 2001, but for others it is not the case. Thus, the “always responding” rate is adapted to each MS.

Figure 5: Always responding rate by MS



From the graph above, it appears that 8 MS have a “always responding” rate upper than 50% (from 1994 to 2000). Germany with SOEP survey (67%), Italy (61%), Portugal (67%) and the United Kingdom with BHPS survey (71%) have the highest “always responding” response rate. The lowest rates are obtained for Ireland (34%), Spain (48%) and Denmark (46%). Germany and Luxembourg with ECHP survey have a high rate (88%) but it concerns “always responding” persons for only 3 years (from 1994 to 1996).

This part aims to quantify both the respondent rates for each wave and the “always responding” rate. But it is also necessary to identify the non-response causes in order to deepen the

knowledge of the non-observed data mechanism. The results of this study are presented in the next part of the document.

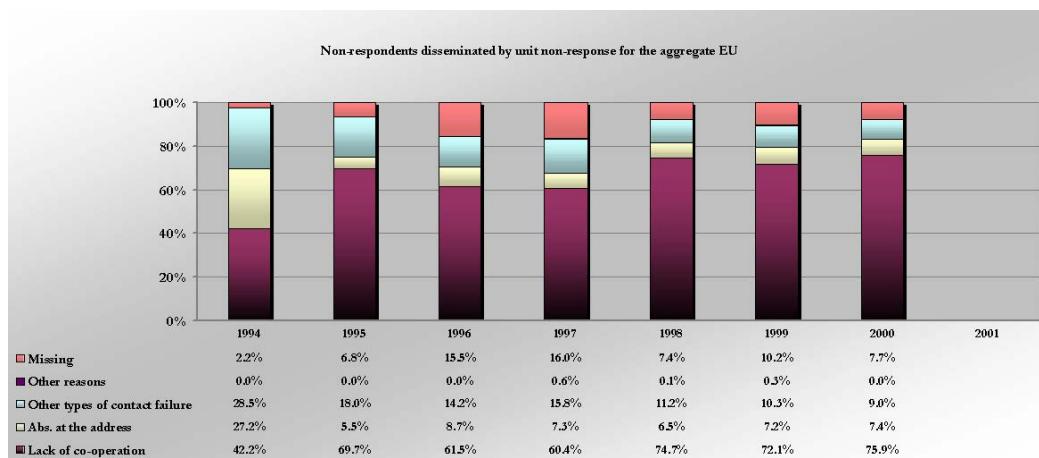
Causes of non-response

In order to identify the non-response causes, non-respondents were disseminated by unit non-response. The unit non-responses considered are the following:

- **Lack of co-operation:** Individual unable to respond (illness, incapacitated, etc.), failed to return self-completed questionnaire, initial refusal to co-operate, definite refusal to co-operate);
- **Absence at the address:** Person temporarily away (on vacation, etc.);
- **Other type of contact failure:** No contacts despite making the required number of call-backs, no contact as the required number of call-backs not made(yet), interview not attempted (yet) for some reason;
- **Other reasons:** Interview completed, interview completed but data not transmitted to Eurostat, interview completed with the reduced questionnaire;
- **Missing:** Interview not completed and reasons missing, not applicable.

The non-respondents are disseminated by unit non-response for the European aggregate in the figure below:

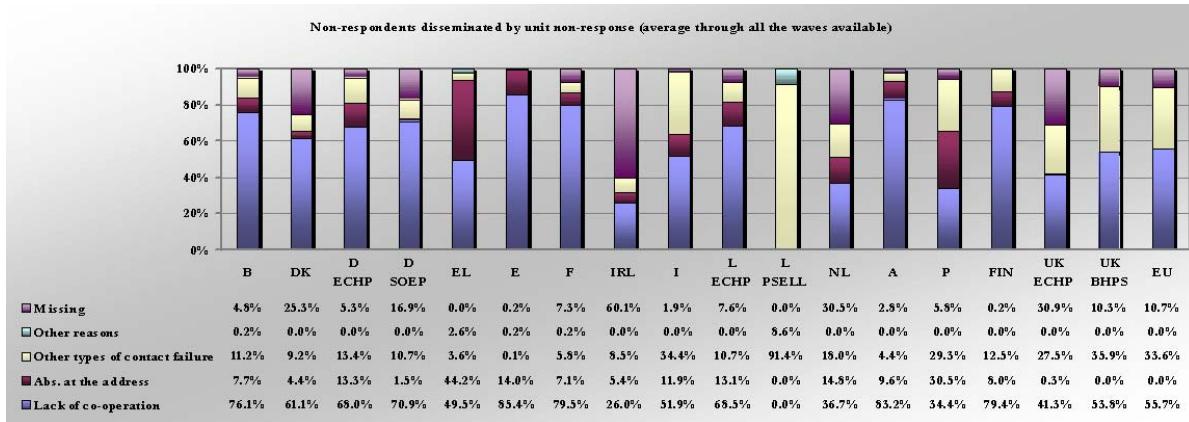
Figure 6: Non-respondents disseminated by unit non-response for the aggregate EU



The unit non-response “lack of co-operation” represents more than 50% of the causes of non-response at the European level from 1995 to 2000. The maximum is reached in 2000 with 76%. “Absence at the address” is highly represented in 1994 (27%) and the rate of “Missing values” is greater than 15% in 1996 and 1997. **Globally, “Absence at the address” and “Lack of co-operation” explain 70% of the non-response through waves for the aggregate EU.**

The following figure aims to disseminate the non-response causes by country. The results are averaged through all the period considered:

Figure 7: Non-respondents disseminated by unit non-response (average through all the waves available for each MS)



By averaging the results of each wave, it appears that for a majority of Member States, the unit "Lack of co-operation" represents more than 50% of the causes of non-response with a maximum of 83% for Austria. However, Ireland has a majority of "missing values" (60%) and especially since 1996 (cf. annex). For Denmark, Netherlands and the United Kingdom (ECHP survey), the rate of "Missing value" explains at least a quarter of the causes of non-response. The unit "Other types of contact" represents a large amount of non-response of the survey PSELL for Luxembourg.

Missing value for health-related variables

Among respondents, missing values could be recorded for health-related questions. The Member States having the strongest average rate of missing data are Sweden (67%), Germany with SOEP survey (59%), France (52%), the United-Kingdom with BHPS survey (29%) and the Netherlands (24%). It can be noticed that Luxembourg with PSELL survey does not have any health-related variables.

Nevertheless, **for some countries, items are filled in although questions are not asked in the questionnaires**. It concerns mainly:

- The UK BHPS survey for the questions about illness or injury in daily activities (PH004), medical specialist and dentist consultation (PH009, PH010) and smoking act (PH016);
- Sweden for questions about hospital admission (PH006, PH007), medical specialist and dentist consultation (PH009, PH010) and eight/weight (PH020, PH021, PH022);
- France for questions about tobacco consumption (PH017, PH018, PH019) and eight/weight (PH020, PH021, PH022).

It is necessary to keep in mind these remarks during the cross-sectional and longitudinal studies. Indeed, this factor maybe explains outliers or strange results in the future. In annex, a table gives the missing data frequency by country and wave for each health-related question concerning only original responding people.

1.3.3. Attrition phenomenon and new respondents

Types of participation pattern

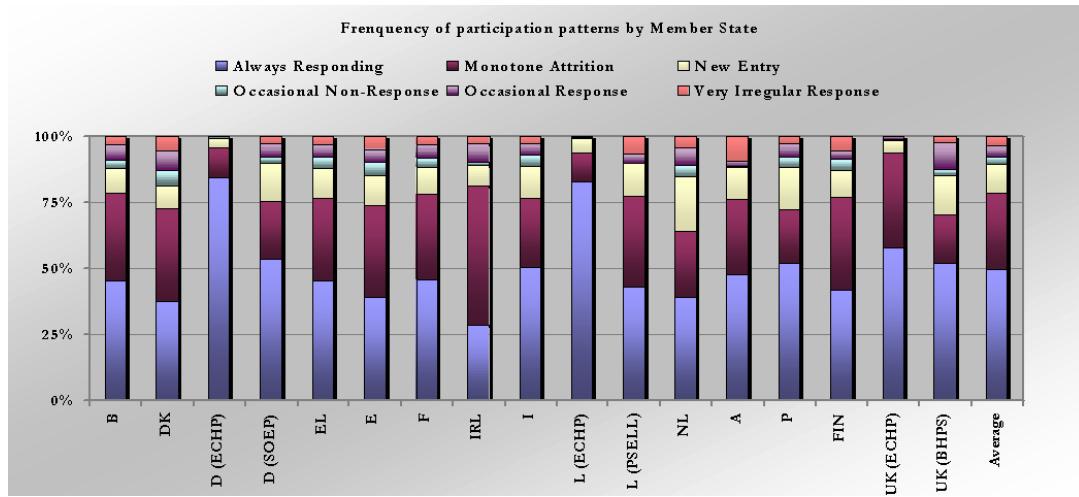
The following part allows studying the patterns of survey participation of people who participate in at least one wave of the UDB. The same patterns adopted by Nicoletti and Peracchi in their paper² were extended to 7 waves.

Let D_i be a binary indicator of survey participation in wave i . $D_i = 1$ corresponds to the participation of a person to the survey in the wave i . A non-participant will be coded $D_i = 0$. A 7-dimensional vector was built for each person (UDB Code: PID): $D = (D_1, D_2, \dots, D_7)$. With this approach, $127 (2^7 - 1)$ participation patterns are possible. The same categories as those used in the paper were used. Nevertheless, it is necessary to precise that the methodology was adapted to countries with participation lower than 7 waves.

Figure 8: Types of participation pattern

Always responding
$D = (1, 1, 1, 1, 1, 1, 1)$
Monotone attrition
$D = (1, 0, 0, 0, 0, 0, 0), D = (1, 1, 0, 0, 0, 0, 0), D = (1, 1, 1, 0, 0, 0, 0), D = (1, 1, 1, 1, 0, 0, 0),$ $D = (1, 1, 1, 1, 1, 0, 0), D = (1, 1, 1, 1, 1, 1, 0)$
New entry
$D = (0, 1, 1, 1, 1, 1, 1), D = (0, 0, 1, 1, 1, 1, 1), D = (0, 0, 0, 1, 1, 1, 1), D = (0, 0, 0, 0, 1, 1, 1), D = (0, 0, 0, 0, 0, 1, 1), D = (0, 0, 0, 0, 0, 0, 1)$
Occasional non-response
If D_i changes value more than once but less or equal than six times and if at least four participations are recorded (including first and last waves). For example: $D = (1, 0, 1, 0, 1, 0, 1)$
Occasional response
If D_i changes value more than once but less or equal than six times and if at least four non-participations are recorded (including first and last waves). For example: $D = (0, 1, 0, 1, 0, 1, 0)$
Very irregular response
All other participation patterns

Figure 9: Frequency of participation patterns by MS



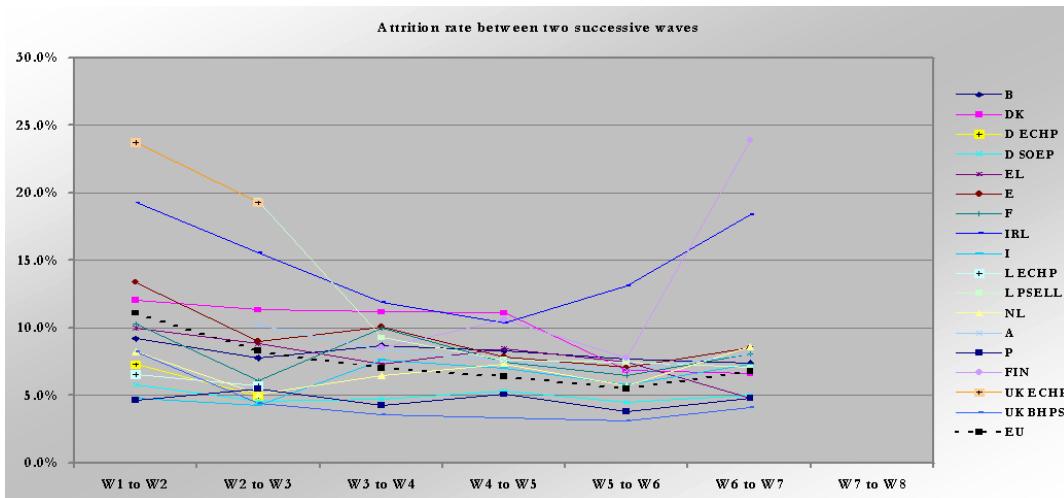
More than 80% of respondents have a regular pattern (always responding, monotone attrition or new entry) whatever the Member State considered. Among the 11 countries having data from 1994 to 2000, 4 of them have at least 50% of participants for the whole of the waves (Germany with SOEP survey, Italy, Portugal and the United-Kingdom with BHPS survey).

² Nicoletti C., Peracchi F. (2002), "A cross-country comparison of survey participation in the ECHP", <http://www.economics.soton.ac.uk/seminar/EconometricsSeminar/fperacchi2003.pdf>, 7-9

Attrition rate between two successive waves

The graph below allows showing the attrition trend through years for each country. Only persons with a regular pattern (always responding, monotone attrition or new entry) were considered.

Figure 10: Attrition rate between two successive waves

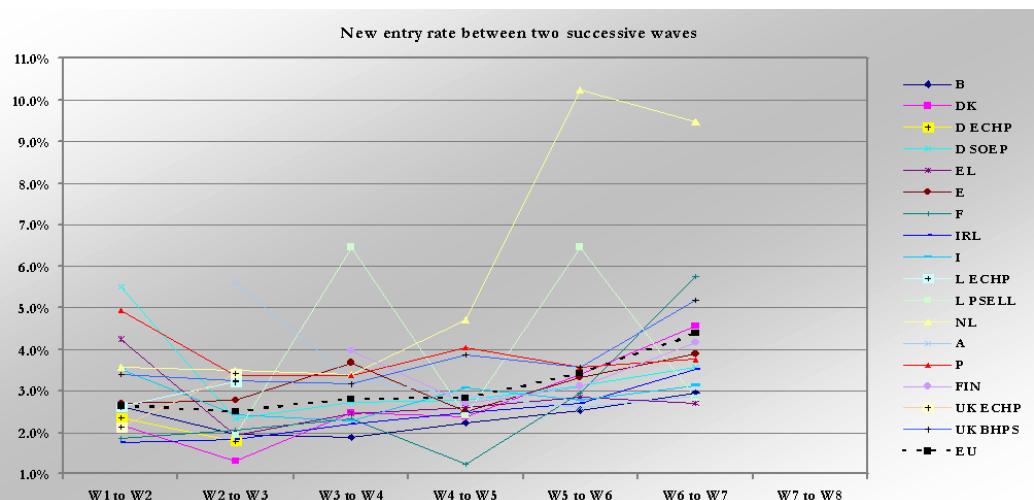


Globally, the attrition rate between waves is under the threshold of 10% for a majority of Member States. At the European level, a decreasing trend appears from the first to the sixth wave to reach the threshold of 6%. Between the sixth to the seventh wave, the European attrition rate increases of 1.3 points. It can be noticed that a jump appears in the attrition rate trend for Ireland from 1998 and for Finland from 1999.

New entry rate between two successive waves

The graph below allows showing the new entry trend through years for each country. Only persons with a regular pattern (always responding, monotone attrition or new entry) were considered.

Figure 11: New entry rate between two successive waves



Globally, the rate of new entry between waves is under the threshold of 5% for a majority of Member States. At the European level, an increasing trend appears to reach 4.4%. The trend

of Luxembourg PSELL survey is very unsteady with jumps of 6.5% in 1997 and 1999. It can be noticed that the Netherlands have a rate of new entry higher than 10% between 1998-1999.

Table 5: Evolution of respondents between waves

Wave	B ECHP	DK SOEP	D ECHP	D SOEP	EL	E	F	IRL ECHP	I ECHP	L PSELL	L PSELL	NL	A	P	FIN	S	UK ECHP	UK BHPS
Number of respondents by wave																		
1994	6710	5903	9490	12233	12492	17893	14333	9904	17729	2046	.	9407	.	11621	.	.	10517	9028
1995	6454	5503	9002	12542	12271	16263	13306	8531	17780	1968	6786	9151	7437	11858	.	.	8386	8825
1996	6145	4994	8746	12295	11602	15640	13051	7487	17736	1915	5629	9277	7271	11702	8173	.	6940	8949
1997	5741	4628	.	12059	10968	14819	12143	6868	16594	.	5819	9089	6999	11625	8068	9597	.	8932
1998	5339	4187	.	11562	9985	13779	11209	6324	15934	.	5420	8826	6561	11412	7381	9461	.	8868
1999	5021	3983	.	11288	9574	13104	10682	5451	15401	.	5307	8917	6246	11250	7109	9314	.	8738
2000	4713	3833	.	10987	9437	12317	10328	4528	14585	.	4894	8866	5801	11054	5614	9354	.	8637
Ratio of respondents between two successive waves																		
95/94	96.2%	93.2%	94.9%	102.5%	98.2%	90.9%	92.8%	86.1%	100.3%	96.2%	.	97.3%	.	102.0%	.	.	79.7%	97.8%
96/95	95.2%	90.8%	97.2%	98.0%	94.5%	96.2%	98.1%	87.8%	99.8%	97.3%	83.0%	101.4%	97.8%	98.7%	.	.	82.8%	101.4%
97/96	93.4%	92.7%	.	98.1%	94.5%	94.8%	93.0%	91.7%	93.6%	.	103.4%	98.0%	96.3%	99.3%	98.7%	.	.	99.8%
98/97	93.0%	90.5%	.	95.9%	91.0%	93.0%	92.3%	92.1%	96.0%	.	93.1%	97.1%	93.7%	98.2%	91.5%	98.6%	.	99.3%
99/98	94.0%	95.1%	.	97.6%	95.9%	95.1%	95.3%	86.2%	96.7%	.	97.9%	101.0%	95.2%	98.6%	96.3%	98.4%	.	98.5%
00/99	93.9%	96.2%	.	97.3%	98.6%	94.0%	96.7%	83.1%	94.7%	.	92.2%	99.4%	92.9%	98.3%	79.0%	100.4%	.	98.8%
Attrition rate between two successive waves (respondents with regular pattern)																		
95/94	9.2%	12.1%	7.2%	5.8%	10.0%	13.4%	10.3%	19.3%	4.8%	6.6%	.	8.2%	.	4.7%	.	.	23.7%	8.2%
96/95	7.8%	11.4%	4.9%	4.6%	8.8%	8.9%	6.1%	15.6%	4.3%	5.8%	19.4%	5.0%	10.2%	5.5%	.	.	19.3%	4.4%
97/96	8.7%	11.2%	.	4.7%	7.3%	10.1%	10.0%	11.9%	7.7%	.	9.3%	6.5%	8.4%	4.3%	8.6%	.	.	3.6%
98/97	8.3%	11.1%	.	5.4%	8.4%	7.9%	7.5%	10.4%	7.0%	.	7.6%	7.4%	7.5%	5.1%	10.6%	.	.	3.3%
99/98	7.7%	6.9%	.	4.5%	7.5%	7.0%	6.5%	13.1%	5.8%	.	7.5%	5.7%	6.8%	3.8%	7.8%	.	.	3.1%
00/99	7.4%	6.6%	.	5.0%	4.7%	8.5%	8.1%	18.4%	7.3%	.	7.1%	8.6%	8.1%	4.8%	23.9%	.	.	4.1%
New respondent rate between two successive waves (respondents with regular pattern)																		
95/94	2.6%	2.2%	2.4%	5.5%	4.3%	2.7%	1.9%	1.7%	3.5%	2.6%	.	3.6%	.	4.9%	.	.	2.1%	3.4%
96/95	2.0%	1.3%	1.8%	2.3%	1.9%	2.8%	2.0%	1.8%	2.4%	3.2%	1.9%	3.5%	5.6%	3.4%	.	.	3.4%	3.2%
97/96	1.9%	2.5%	.	2.7%	2.5%	3.7%	2.3%	2.2%	2.3%	.	6.5%	3.4%	3.3%	3.4%	4.0%	.	.	3.2%
98/97	2.2%	2.4%	.	2.8%	2.6%	2.5%	1.2%	2.5%	3.1%	.	2.4%	4.7%	2.9%	4.0%	2.7%	.	.	3.9%
99/98	2.5%	3.4%	.	3.1%	2.8%	3.3%	3.0%	2.7%	2.8%	.	6.5%	10.3%	2.6%	3.6%	3.1%	.	.	3.6%
00/99	3.0%	4.6%	.	3.6%	2.7%	3.9%	5.8%	3.5%	3.1%	.	2.8%	9.5%	2.9%	3.7%	4.2%	.	.	5.2%
Evolution of original respondents																		
1994	6710	5903	9490	12233	12492	17893	14333	9904	17729	2046	.	9407	.	11621	.	.	10517	9028
1995	6037	5111	8760	11413	11229	15228	12674	7942	16628	1905	6786	8483	7437	10955	.	.	8013	8148
1996	5492	4382	8317	10701	10208	13567	11735	6636	15751	1792	5389	7919	6580	10185	8173	.	6424	7725
1997	4929	3773	.	10063	9291	11922	10404	5782	14186	.	4833	7271	5914	9555	7379	.	.	7371
1998	4411	3220	.	9344	8138	10575	9430	5124	12891	.	4388	6576	5293	8848	6324	.	.	7045
1999	3976	2914	.	8776	7257	9517	8630	4329	11895	.	3985	5961	4791	8328	5657	.	.	6725
2000	3635	2688	.	8243	6843	8533	7836	3391	10865	.	3638	5274	4326	7834	4136	.	.	6392
Ratio of remaining original respondents through waves (according to each MS)																		
1995	90.0%	86.6%	92.3%	93.3%	89.9%	85.1%	88.4%	80.2%	93.8%	93.1%	.	90.2%	.	94.3%	.	.	76.2%	90.3%
1996	81.8%	74.2%	87.6%	87.5%	81.7%	75.8%	81.9%	67.0%	88.8%	87.6%	79.4%	84.2%	88.5%	87.6%	.	.	61.1%	85.6%
1997	73.5%	63.9%	.	82.3%	74.4%	66.6%	72.6%	58.4%	80.0%	.	71.2%	77.3%	79.5%	82.2%	90.3%	.	.	81.6%
1998	65.7%	54.5%	.	76.4%	65.1%	59.1%	65.8%	51.7%	72.7%	.	64.7%	69.9%	71.2%	76.1%	77.4%	.	.	78.0%
1999	59.3%	49.4%	.	71.7%	58.1%	53.2%	60.2%	43.7%	67.1%	.	58.7%	63.4%	64.4%	71.7%	69.2%	.	.	74.5%
2000	54.2%	45.5%	.	67.4%	54.8%	47.7%	54.7%	34.2%	61.3%	.	53.6%	56.1%	58.2%	67.4%	50.6%	.	.	70.8%

For some countries, the attrition rate average through all the years available (according to each survey associated) is higher than 10%: the United Kingdom ECHP survey (21.5%), Ireland

(14.8%), Finland (12.7%) and Luxembourg PSELL survey (10.2%). The lower attrition rate is recorder for the United Kingdom (4.4%), Portugal (4.7%) and Germany SOEP survey (5.0%).

The new entry average rate through all the years available is higher than 5% only for Netherlands (5.8%). For many MS, the average is lower than 3% (Belgium, Denmark, Germany ECHP survey, Greece, France, Ireland, Italy, Luxembourg ECHP survey and the United Kingdom ECHP survey).

Structure of each sample: panel drop out, new-respondents and total sample

Dissemination by age, gender and global health status

A study was implemented to compare the population of the panel dropout, the new-respondents and the total sample for a given wave according to variables age, gender and global health status. The following table gives the repartition of each sample by variable at the European:

Table 6: Structure of each sample – dissemination by age, gender and global health status

	Samples (European aggregate)	AGE					Gender		Global Health Status				
		< 18	[18 , 25[	[25 , 50[	[50 , 65[	> 65	Male	Female	Very Good	Good	Fair	Bad	Very Bad
1995	All Respondents	1.6%	12.0%	45.7%	21.4%	19.3%	48.0%	52.0%	20.5%	45.0%	25.2%	7.0%	2.3%
	Attritors	1.9%	14.8%	40.8%	18.4%	24.1%	49.6%	50.4%	21.1%	38.9%	25.5%	9.8%	4.7%
	New Respondents	41.0%	18.7%	27.6%	6.8%	5.9%	53.0%	47.0%	35.5%	45.5%	14.1%	3.7%	1.2%
1996	All Respondents	1.5%	11.6%	45.9%	21.3%	19.6%	47.9%	52.1%	20.2%	45.8%	25.0%	6.7%	2.2%
	Attritors	1.7%	14.2%	41.3%	17.2%	26.0%	49.4%	50.6%	18.9%	41.1%	24.9%	10.1%	5.1%
	New Respondents	37.1%	13.9%	30.9%	9.0%	9.1%	47.8%	52.2%	31.1%	44.9%	17.0%	5.4%	1.6%
1997	All Respondents	1.8%	11.2%	45.3%	21.5%	20.3%	47.7%	52.3%	17.5%	43.5%	27.3%	8.8%	2.9%
	Attritors	1.6%	15.1%	42.1%	16.9%	24.4%	48.5%	51.5%	17.4%	39.6%	26.5%	10.9%	5.6%
	New Respondents	36.2%	13.5%	32.2%	9.2%	9.0%	50.0%	50.0%	27.8%	44.5%	19.2%	5.8%	2.7%
1998	All Respondents	1.8%	10.8%	45.2%	22.2%	20.2%	47.7%	52.3%	16.5%	44.3%	27.3%	8.9%	3.0%
	Attritors	1.9%	15.7%	42.8%	17.2%	22.5%	50.1%	49.9%	17.4%	40.6%	26.2%	9.4%	6.3%
	New Respondents	32.5%	15.3%	39.1%	10.5%	7.8%	49.7%	50.3%	26.3%	48.0%	17.9%	5.8%	2.1%
1999	All Respondents	1.7%	10.7%	44.9%	22.4%	20.6%	47.7%	52.3%	14.8%	42.3%	29.6%	10.2%	3.2%
	Attritors	2.0%	14.9%	41.9%	17.3%	24.2%	49.1%	50.9%	16.4%	41.3%	26.2%	10.0%	6.1%
	New Respondents	30.7%	19.7%	36.2%	11.0%	7.2%	51.6%	48.4%	23.3%	46.9%	22.1%	5.8%	1.9%
2000	All Respondents	1.8%	10.6%	44.4%	22.5%	20.6%	47.8%	52.2%	15.7%	44.7%	28.3%	8.8%	2.6%
	Attritors	2.1%	14.9%	42.9%	16.9%	23.5%	49.4%	50.6%	14.3%	41.2%	27.1%	11.6%	5.8%
	New Respondents	33.5%	17.7%	33.3%	8.8%	6.6%	51.0%	49.0%	25.7%	48.5%	18.6%	5.6%	1.5%

The “new respondents” and the “attritors” do not have the same distribution according to the age and the global health status. Indeed, at the European level, the sample “new respondents” is younger than the sample “attritors”. Globally, more than 35% of “new respondents” are younger than 18 and more than 41% of “attritors” are older than 50. Furthermore, the sample “new respondents” has a better health status than the sample “attritors”. Almost 75% of the “new respondents” have a good or a very good health status for only 58% of “attritors”. The trend is reversed concerning the bad or very bad health status (7% for “new respondents” and 16% for “attritors”). New-respondents and panel dropout do not

seem to have the same profile (age and global health status). Logically, a difference appears between “attritors” and “new respondents” for group of people older than 65 and people younger than 18. Nevertheless, no difference appears concerning the sex distribution whatever the compared samples.

Homogeneity of the samples through waves

In order to test the homogeneity of the structure of the samples across waves, a study was made according to usual personal characteristics (age, gender, education and activity). The study concerned all the participants for a given wave and the respondents followed from the first wave only (original participants). Comparisons were made between successive waves (year i-1 / year i), between all waves and between the first and the last wave of the corresponding survey. The conclusions are the following:

- Significant differences appear between waves for “original participants” sample concerning the variable “age”. This phenomenon is explained by an ageing of the respondents through waves. Thus, **a sliding evolution of the ages leads to a difference of the age groups repartition across waves**. These differences are not so significant for “all participants” samples. Indeed, “new respondents” samples allow rebalancing the age groups.
- Globally, there are not significant differences between samples across waves concerning the variable “gender”.
- **A break is recorded between samples concerning education in 1997 and 1998.** But, in the beginning of the ECHP (up to 1997), the question on highest level of education was asked only the first time when a person was interviewed. Consequently, even if a person finished a higher level of education, the information was not updated. This is especially problematic for the school-leavers. Starting 1998, everybody was re-asked this question every year.

Among “original respondents”, the highest differences concerning the activity evolution are recorded for Denmark, Ireland and Finland. It can be noticed that these differences are marked as much for “all participants”. At the European level it appears that the differences between first/last wave concerning activity groups are not higher than 2 points for groups “employed (32.9%/34.4%), self-employed (5.0%/5.4%) and unemployed (4.3%/3.6%)” associated to “original respondents”. The differences are not higher than 1 point for these 3 groups associated to “all respondents” (employed (33.0%/33.8%), self-employed (5.0%/5.1%) and unemployed (4.4%/3.7%)). Thus, at the European level, the group differences concerning activity do not seem to be very strong between waves.

2. Cross-sectional analysis of the health-related ECHP-data

In a first part, an analysis was implemented on the **yearly data for 2000** in order to have an overview of the responses of all the Member States for each health-related variable. At this step of the study, only data available in the **ECHP UDB v. 06/2003** were used.

In order to introduce the **longitudinal study** and to make a **comparison with the cross-sectional approach**, a complementary analysis was implemented in a second part. It concerns the analysis of health-related variables of paramount interest. The study was implemented on respondents with answers recorded from 1998 to 2001. At this step, the database was updated. Thus, the **ECHP UDB used was the latest version available (v. 12/2003)**.

2.1. Analysis of the yearly data for 2000

This part aims to perform a cross-sectional analysis on the health-related variables in 2000. Every health-related variable was **tabulated by gender, age group, education, income and economic activity**. The study was implemented by country, wave and sample (yearly sample and panel members). Furthermore, the **data were standardised by age by gender** in order to take into account the yearly EU distribution in 2000. Calculations were made on the basis of the data available in the ECHP UDB. To complete this analysis, **regressions were carried out** in order to obtain model parameters according to each health-related variable and to compute Odds Ratio giving the probability to move from a state to another.

2.1.1. Methodology

Variables used for the tabulations

All the health-related variables were **tabulated by age group, gender, economic activity, education and income**. The following table gives the classes used in the study according to each variable of interest. Reference classes are in bold (used in logistic regression).

Table 7: Classes' definition of variables of interest

Gender		Age Group	
Male	1	< 18	1
Female	2	[18 , 25[	2
Education		[25 , 50[
<i>PT022: Highest level of general or higher education completed</i>		[50 , 65[
Recognised 3 rd level education (ISCED 5-7)	1	> 65	5
Second stage of 2nd level education (ISCED 3)		Economic activity	
<i>PC013: Most frequent activity, last year</i>		Employee	
<i>Creation of classes* based on PI100: "Total net personal income"</i>		Self-employed	
<10 th percentile	1	Unemployed	3
10 th – 25 th percentile	2	Retired	4
25th – 50th percentile	3	Other economically inactive	5
50 th – 75 th percentile	4		
75 th – 90 th percentile	5		
>90 th percentile	6		

*: Classes for income created according to each country

Health-related variables recoded in 2-point scale

A part of the study concerns the use of regressions in order to estimate the parameters of the models associated to each health-related variable. **Multivariate models** were used in order to determine the explanation power of the variables of interest (age, gender, etc.) on each health-related variable (PH001 to PH022).

In order to implement **logistic regression**, quantitative health-related variables were recoded in binary variables according to the results obtained in the previous part. Indeed, classes were built in relation with the median obtained in the descriptive analysis. The European median associated to each quantitative variable was the threshold used to build the classes (more details in the table below). The variables concerned are (PH007 to PH010, PH017 to PH019 and PH022). PH022 (BMI indicator) synthesizes the variables PH020 (height) and PH021 (weight), thus these two variables were not recoded. For some qualitative variables, answers were recoded in 2-point scale in order to simplify the analysis of the results. The following table gives the classes considered for each qualitative health-related variable (reference classes are in bold):

Table 8: Classes' definition of health-related variables

PH001* : How is your health in general?	
Bad, Very Bad	1
Very Good, Good, Fair	2
PH002: Do you have any chronic physical or mental health problem, illness or disability?	
Yes	1
No	2
PH003*: Are you hampered in your daily activities by this physical or mental health problem, illness or disability?	
Yes severely, Yes to some extend	1
No	2
PH003A*: Are you hampered in your daily activities by any physical or mental health problem, illness or disability?	
Yes severely, Yes to some extend	1
No	2
PH004: During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of illness or injury?	
Yes	1
No	2
PH005: During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of an emotional or mental health problem?	
Yes	1
No	2
PH006: During the past 12 months, have you been admitted to a hospital as an in-patient?	
Yes	1
No	2
PH007*: Number of nights spent in hospital?	
More than 7	1
7 or less	2
PH008*: During the past 12 months, about how many times have you consulted a general practitioner (including home visits by the doctor)?	
More than 2 times	1
2 times or less	2
PH009*: During the past 12 months, about how many times have you consulted a medical specialist (including out-patient consultations but excluding any consultation during hospitalisation)?	
More than 1 time	1
1 time or never	2
PH010*: During the past 12 months, about how many times have you consulted a dentist?	
More than 1 time	1
1 time or never	2
PH011*: Number of times the person has been to a doctor or a dentist or optician, during the past 12 months.	
6 times or more	1

0-5 times	2
PH016*: Do you smoke or did you ever smoke?	
Smoke daily, Smoke occasionally, Do not smoke but used to smoke daily	1
Never smoked, Do not smoke but used to smoke occasionally	2
PH017*: Number of cigarettes smoked per day (currently or in the past)	
More than 18	1
18 or less	2
PH018*: Number of cigars smoked per day (currently or in the past)	
More than 2	1
2 or less	2
PH019*: Number of pipes smoked per day (currently or in the past)	
More than 2	1
2 or less	2
PH022*: Body mass index	
Overweight or Obesity (BMI > 24.9)	1
“Normal” weight (BMI <= 24.9)	2

*: Classes recoded in 2-point scale

Samples considered

During the preliminary study, it appeared clearly that three samples could be considered. It concerns:

- **Yearly sample or Total sample:** All the respondents for a given wave;
- **Panel members or Original participants:** Respondents of the first wave, according to each survey;
- **Always responding:** This is a subsample of the original participants. Only respondents from the first to the last wave are concerned.

Weight used in calculations

Several weights are used to compute frequencies associated to health-related variables. An **individual weight** is associated to each respondent (UDB variable: PG002). All interviewed persons receive the same cross-sectional weight, computed as the average of base weights (UDB variable: PG003) of all interviewed household members. This means that the sum of cross-sectional weights of persons in a household equals the sum of their base weights, which also implies that for the whole sample the cross-sectional weights are scaled such that their sum equals the total number of interviewed persons in households, i.e. the average per person is 1.

It is necessary to notice that the UDB variable PG002 is used for all countries except Sweden (people are not followed up from one wave to the next). The weight used for Sweden is PG003.

In order to obtain a **yearly European average**, each MS is weighted by the number of persons aged 16+ living in private households by country.

Standardised calculations were made by age by gender in order to take into account the yearly European age by sex distributions.

Descriptive indicators

For each topic with a binary question (qualitative questions), **tabulations were made by age group, gender, activity, education and income level**. Thus, frequencies were computed in order to visualise the distribution of the population.

For quantitative health-related variables, **statistics were computed by age group, gender, activity, education level and income level**: average, confidence interval of the average, median, 25th percentile and 75th percentile.

For each frequency, average and quartile, **absolute variation** and **relative variation rate** were computed between two successive waves.

Multivariate analyses were implemented on the strengths **of correlations between health-related variables and usual variables** (agegroup, sex, education, activity and income). All the analyses were carried out by country by wave with row and standardised data. Logistic models were used in order to compute Odds Ratio. This indicator allows giving the probability to move from a state to another ('good health status' to 'bad health status' for example with the variable PH001).

2.1.2. Analysis of health-related variables

This analysis aims to give an overview of the responses to each health-related variable by age group, gender, income, activity and educational level. But, no data are available concerning the activity status for Sweden and the Netherlands. All the data analysed are adjusted by age by gender. The results associated to the multivariate analyses are available in the annex of this document.

Health status

Several variables concern the health status: PH001 to PH005.

PH001: Global overview of health

The original question is: "How is your health in general?" (1) Very Good, (2) Good, (3) Fair, (4) Bad, (5) Very bad. The study is restricted to the percentage of the population stating that they perceive their health as 'Bad' or 'Very bad' (as against 'Fair', 'Good' and 'Very good').

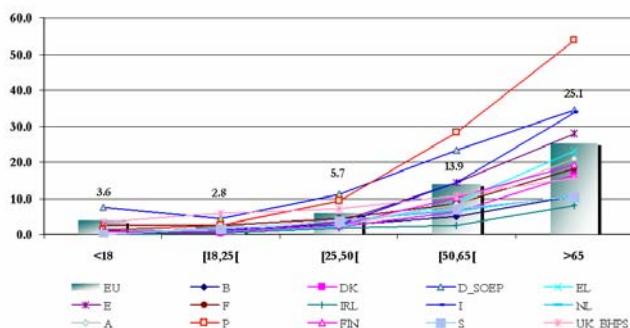
In the database (v. 06/2003), the data are available from 1994 to 2000 for all the MS. Nevertheless, the answer has been recoded to a 5-point scale (forma of reference) for France in 1995 and 1996, the question was not asked in proxy interviews in 1994 for UK ECHP and from 1996 to 2000 for some persons in Finland.

Age group

In 2000, among European people having a good perception of their health status, 47% have less than 50 years old and among population perceiving their health as bad or very bad, 74% have more than 50. The age distribution of the population perceiving their health as 'fair', 'good' or 'very good' seems to be the same for each MS. But some differences are recorded for the other group (bad or very bad health status). Indeed, the age group [25,50[represents less than 20% of the population for Finland, Italy, Greece and Austria. The same age group represents about 30% of the population for Sweden and United-Kingdom.

All these results depend of the global age distribution of the population. It appears that the age distribution in 2000 was respectively 2%, 11%, 44%, 22%, 21% for the age groups -18, [18,25[, [25,50[, [50,65[, +65. Thus, the group 'fair', 'good', 'very good' has the same structure, but differences arise for the age groups [18,25[(3%), [25,50[(27%) and +65 (47%) associated to the population with 'bad' or 'very bad' health status. This group is highly represented by people older than 65.

Figure 12: Rate of people perceiving their health as 'bad' or 'very bad' according to their age group – Yearly respondents in 2000, Standardised data –



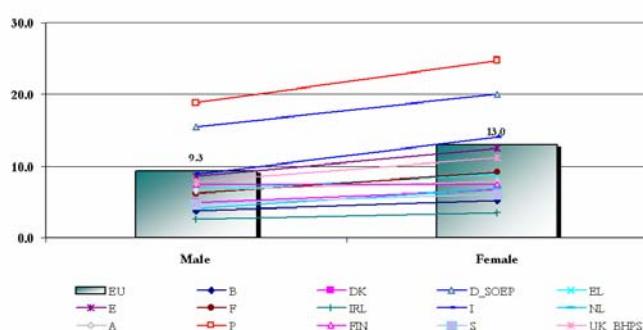
The rate of people perceiving their health as 'bad' or 'very bad' increases according to the age group. A quarter of people older than 65 perceive their health as 'bad' or very 'bad', for only 3.6% among people less than 18 years old (wave 2000). Portugal has the highest rate (55%) among oldest people. In Belgium, Ireland, Sweden and Netherlands, the rate is lower than 11% for the same age group.

The European age distributions by health status look the same whatever the sample considered (yearly, original or always) in 2000. Most of the differences are recorded for the age groups [25,50[and 65+. Differences between waves can occur. But the strongest variations are recorded between 1994-1995 for [50,65[, and between 1996-1997 for the age groups [25,50[and 65+ (at the European level with yearly respondents).

Gender

In 2000, the European rate of male with a 'bad' or 'very bad' health status represents 39% (43% for Austria and 46% for Finland, 36% for the Netherlands and 37% for Italy).

Figure 13: Rate of people perceiving their health as 'bad' or 'very bad' according to gender – Yearly respondents in 2000, Standardised data –



The gender distribution for people with a 'bad' or 'very bad' health status is different to the global distribution (without distinction by gender). In 2000, 13% of European female perceived their health as 'bad' or 'very bad' for only 9% of male. The highest rates are recorded for Portugal (25% of female and 19% of male) and for Germany-SOEP (20% of female and 16% of male).

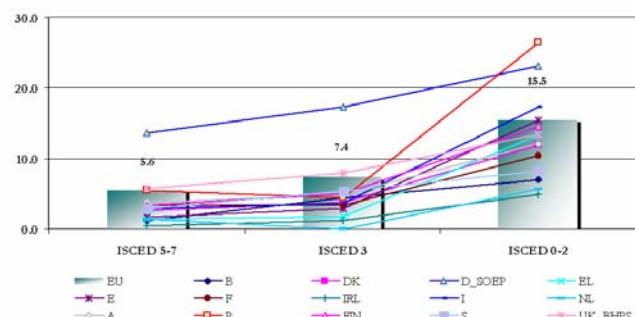
The European gender distribution by health status look the same whatever the sample considered (yearly, original or always) in all the waves (from 1994 to 2000).

Education

In 2000, among European people having a good perception of their health status, 22% have a high level of education (ISCED 5-7) and among population perceiving their health as bad or very bad, 68% have a low education level (ISCED 0-2). Distribution differences could occur between MS. Austria, Germany-SOEP, Denmark, Sweden and Finland have a majority of people with a 'bad' or 'very bad' health status included in the intermediate group (ISCED 3).

At the European level, in 2000, 16% of people of the lowest education level (ISCED 0-2) perceived their health as 'bad' or 'very bad' for only 6% for the highest education level (ISCED 5-7). Germany-SOEP has the highest rates for the group ISCED 5-7 (14%) and ISCED 3 (17%). Portugal has the highest rate for the group ISCED 0-2 (27%). The strongest differences between ISCED 5-7 and ISCED 0-2 are recorded for Spain (2%/16%), Italy (3%/17%) and Portugal (6%/27%).

Figure 14: Rate of people perceiving their health as 'bad' or 'very bad' according to the education level – Yearly respondents in 2000, Standardised data –



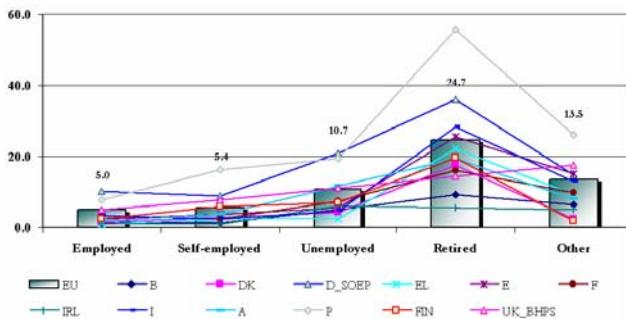
The European distribution by education level according to the health status in 2000 gives similar results whatever the sample considered (yearly, original or always). Nevertheless, the strongest variation inter-waves, at the European level, are recorded between 96/97 and 97/98 for ISCED 5-7, between 97/98 for ISCED 3, between 96/97 and 98/99 for ISCED 0-2. For differences between 1997 and 1998, it can be explained by the update of the information (in the beginning of the ECHP (up to 1997) the question on highest level of education was asked only the first time

when a person was interviewed. Consequently, even if a person finished a higher level of education, the information was not updated).

Activity

In 2000, among European people having a good perception of their health status, 47% were employed, 18% retired, 8% self-employed and 5% unemployed. The activity distribution is different for people with a bad or very bad perception of their health (3% self-employed, 4% unemployed, 19% of employed, 46% retired).

Figure 15: Rate of people perceiving their health as 'bad' or 'very bad' according to the activity – Yearly respondents in 2000, Standardised data –



In 2000, 35% of European retired or unemployed perceived their health as 'bad' or 'very bad', for only 5% of employed or self-employed. In Portugal, the rate is about 16% for self-employed and 56% for retired. In Ireland, only 5% of retired have a 'bad' or 'very bad' perception of health.

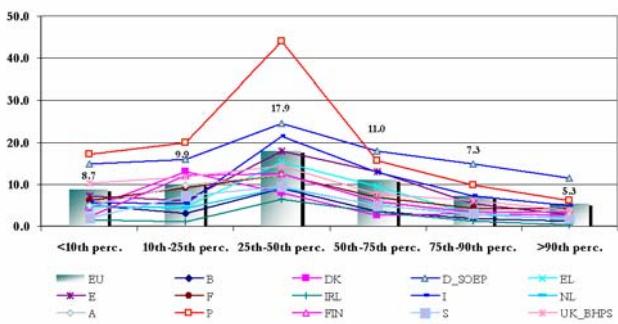
The European distribution by activity gives similar results in 2000 whatever the sample considered (yearly, original or always). The strongest variation inter-waves are recorded between 96/97 for the employed and for the retired.

Income

In 2000, among European people having a good perception of their health status, 11% have the highest income ($>90^{\text{th}}$ percentile) and 49% are below the median. On the contrary, among European people having a bad perception of their health status, 62% are below the median and 4.5% have the highest income ($>90^{\text{th}}$ percentile). Portugal, Spain, Italy and Greece have the highest rate of people included in the lowest income group ($<10^{\text{th}}$ percentile), and whatever the health status studied.

The income group $25^{\text{th}}\text{-}50^{\text{th}}$ has the highest rate of people perceiving their health as 'bad' or 'very bad' at the European level in 2000. This rate decreases to reach the threshold of 9% in the lowest income group and 5% in the highest one. Globally, contrary to the Ireland, Finland and Portugal have the highest rates of 'bad' health perception whatever the income group considered. 44% of Portuguese people of the income group $25^{\text{th}}\text{-}50^{\text{th}}$ percentile perceive their health has 'bad' or 'very bad' for only 7% of Irish people.

Figure 16: Rate of people perceiving their health as 'bad' or 'very bad' according to the income level – Yearly respondents in 2000, Standardised data –



Differences between considered samples (yearly, original or always) are not really significant (maximum difference of 3 points at the European level for the group $10^{\text{th}}\text{-}25^{\text{th}}$: 12% for yearly sample and 15% for original and always). The strongest variation inter-waves are recorded between 99/00 for the income group $10^{\text{th}}\text{-}25^{\text{th}}$ percentile.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is 'Fair, Good, Very good'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'Bad, Very bad' according to usual variables as activity, age, education, gender and income.

For numerous countries, unemployed or retired groups have about 3 more times likely to move from the good to the bad health status than the employed group. The biggest OR are recorded for Denmark ($OR_{unemployed} = 4$, $OR_{retired} = 8$) and for UK-ECHP ($OR_{unemployed} = 5$ $OR_{retired} = 9$).

Furthermore, the OR increases with ageing (with [25,50] the group of reference). This trend is the most marked for Spain ($OR_{>65} = 4$ in 1994), Greece ($OR_{>65} = 6$ in 1994) and Italy ($OR_{>65} = 8$ in 2000).

Greece, Spain and Portugal have the most marked OR for the education level (with ISCED 3 the level of reference): $OR_{ISCED\ 0-2} = 3$ in 1994 for Spain, $OR_{ISCED\ 0-2} = 4$ in 1994 for Portugal and $OR_{ISCED\ 0-2} = 3$ in 2000 for Greece.

Except for Ireland, the probability to move from the state 'Good' to the state 'Bad' does not depend strongly on the gender (OR between 0.8 and 1.2). But, Irish male have about 2.5 more times likely to move from the good to the bad health status than the Irish female in 1994 (OR = 1.5 in 2000).

For numerous MS, the probability to move from the state 'Good' to the state 'Bad' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1).

Even if modifications of this health question were recorded in the questionnaires for France, Finland and the United-Kingdom for the ECHP survey, the results are similar to the other MS. Data for France are available in the database for 1994, but this question does not exist in the questionnaire for this wave.

PH002: Chronic physical or mental health problem, illness or disability

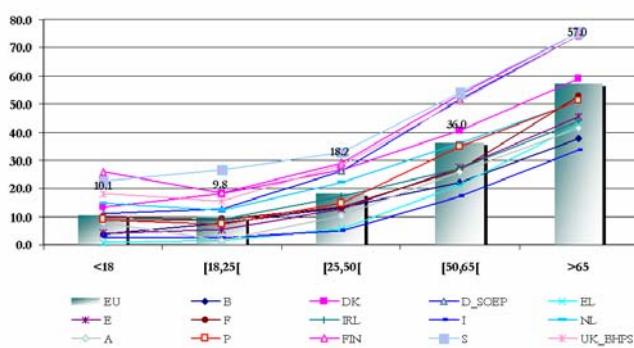
The original question is: "Do you have any chronic or mental health problem, illness or disability?" (1) Yes, (2) No. In the database (v. 06/2003), the data are available from 1995 to 2000 for all the MS.

Nevertheless, according to the questionnaires available, this question was not asked in France (from 1995 to 1996) but answers have been constructed from the question PH003 (Are you hampered in your daily activities by physical or mental health problem, illness or disability? (1) Yes severely, (2) Yes to some extend, (3) No). It was the same for Germany-SOEP (from 1997 to 2001), but the answers associated to the question PH003 were (1) A little, (2) Very much, (3) No.

In Italy, from 1995 to 1998, the question used was "Do you have any illness or chronic disease? (1) Yes, (2) No". In Sweden, the question used from 1997 to 2001 was "Do you have any illness or chronic disease? (1) Yes, (2) No".

Age group

Figure 17: Rate of people with chronic physical or mental health, illness or disability according to their age group – Yearly respondents in 2000, Standardised data –



In 2000, among European people having a chronic physical or mental health, illness or disability, 70% have more than 50 years old, for only 32% among people without illness or disability. Germany-SOEP, the United-Kingdom-BHPS, Sweden and Finland have the highest rate of people with chronic physical or mental health, illness or disability whatever the age group considered: about 52% of the [50,65] and 75% of the +65.

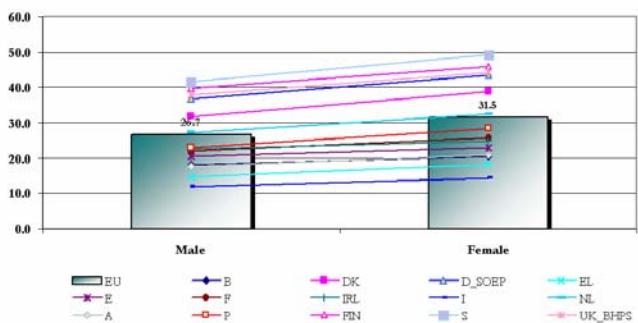
The European age distributions by health status look the same for original and always samples, but differences are recorded between these two groups and the sample yearly (particularly for the age group [18,25]). Nevertheless, the differences inter-waves are very low.

Gender

In 2000, the European rate of male with chronic physical or mental health, illness or disability represents 44% (42% for Portugal and Greece, 46% for Spain and Ireland). Furthermore, 32% of female responded yes to this question for only 27% of male. Germany-SOEP, the United-Kingdom-BHPS, Sweden and Finland have the highest rates for male and female groups.

Differences between considered samples (yearly, original or always) are not really significant across waves

Figure 18: Rate of people with chronic physical or mental health, illness or disability according to gender – Yearly respondents in 2000, Standardised data –

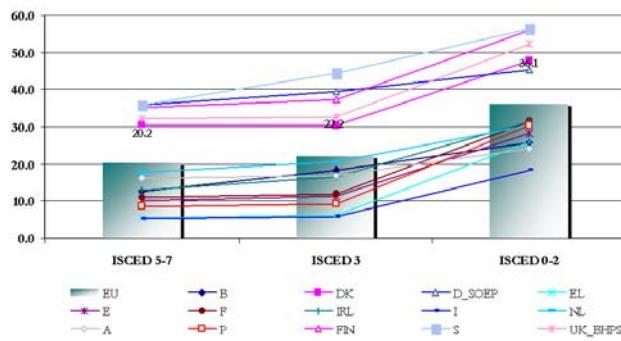


Education

In 2000, among European people having any chronic physical or mental health, illness or disability, 62% have a low level of education (ISCED 0-2) for only 44% of people without health

trouble. Sweden, Germany-SOEP, Finland, the United-Kingdom-BHPS, Denmark have the highest rate of people with chronic physical or mental health, illness or disability in 2000

Figure 19: Rate of people with chronic physical or mental health, illness or disability according to the education level – Yearly respondents in 2000, Standardised data –



whatever the education level considered (>45% for the lowest group). Contrary to these MS, Italy and Greece have the lowest rates (maximum of 24% for Greece, ISCED 0-2).

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 for ISCED 3 (-2.4 points) and ISCED 0-2 (2.7 points) (cf. figures in annex).

Activity

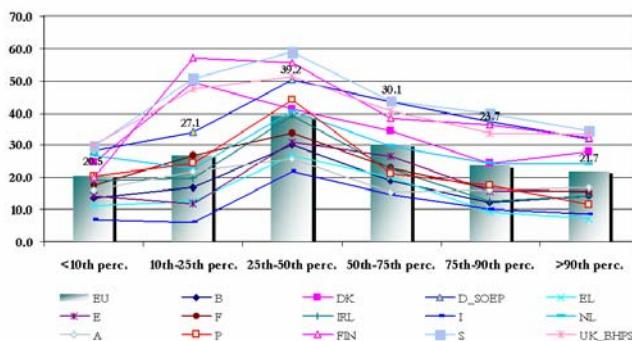
In 2000, among European people having any chronic physical or mental health, illness or disability, 43% were retired, 26% employed, 5% self-employed and 4% unemployed. The activity distribution is different for people without these health problems: 8% self-employed, 5% unemployed, 51% employed, 13% retired).

Retired group has the highest rate of people with chronic physical or mental health, illness or disability (55% at the European level in 2000). Finland, the United-Kingdom-BHPS and Germany-SOEP have the highest rates whatever the activity.

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 96/97 for retired and other.

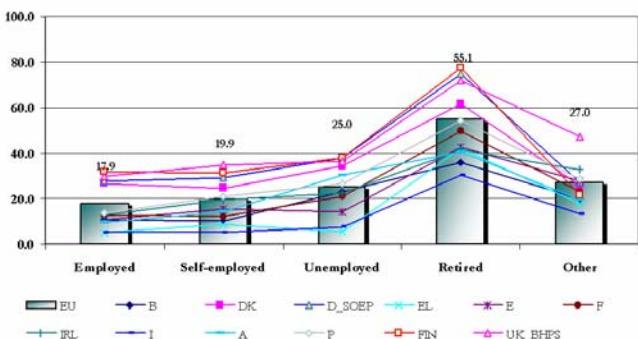
Income

Figure 21: Rate of people with chronic physical or mental health, illness or disability according to the income level – Yearly respondents in 2000, Standardised data –



In 2000, among European people with chronic physical or mental health, illness or disability, 7% have the highest income (>90th percentile) and 54% are below the median. On the contrary, among European without health trouble, 62% are below the median and 11% have the highest income (>90th percentile). The United-Kingdom-BHPS, Sweden, Finland and Germany-SOEP have the highest rate of people with health trouble included in the highest income groups (>75th percentile).

Figure 20: Rate of people with chronic physical or mental health, illness or disability according to the activity – Yearly respondents in 2000, Standardised data –



European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 and 99/00 for 10th-25th percentiles.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is 'No'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'No chronic physical or mental health, illness or disability' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1995 and 2000.

For numerous countries, retired group have about 3 to 6 more times likely to move from the 'no problem' to 'problem' status than the employed group. The biggest OR are recorded for Denmark ($OR_{retired} = 6.2$) and for Finland ($OR_{retired} = 5.0$).

Furthermore, the OR increases with ageing (with [25,50[the group of reference). This trend is the most marked for France ($OR_{>65} = 4.5$ in 1995) and Italy ($OR_{>65} = 5.5$ in 1995).

Greece, France and Portugal have the most marked OR for the education level (with ISCED 3 the level of reference): $OR_{ISCED\ 0-2} = 2.1$ in 2000 for Greece, $OR_{ISCED\ 0-2} = 2.0$ in 2000 for France and $OR_{ISCED\ 0-2} = 2.2$ in 1995 for Portugal.

Except for Ireland, the probability to move from the state 'no problem' to the state 'problem' does not depend strongly on the gender (OR between 0.8 and 1.2). But, Irish male have about 1.7 more times likely to move from the 'no problem' to the 'problem' status than the Irish female in 1995.

For numerous MS, the probability to move from the state 'no problem' to the state 'problem' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1).

Even if modifications of this health question were recorded in the questionnaires for Germany-SOEP, France, Italy and Sweden the results are similar to the other MS.

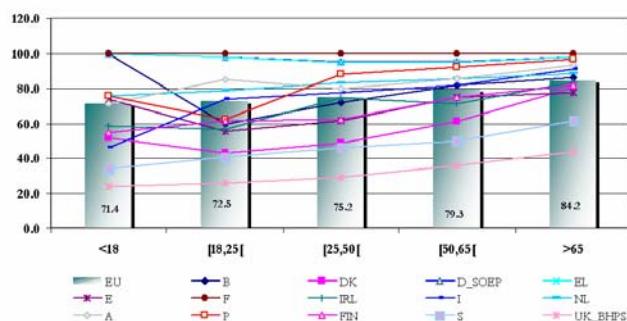
PH003: Hampered in daily activities by this physical or mental health problem, illness or disability

The original question is: “Are you hampered in your daily activities by this³ physical or mental problem, illness or disability?” (1) Yes severely, (2) Yes to some extend, (3) No. In the database (v. 06/2003), the data are available from 1995 to 2000 for all the MS. The study is restricted to the percentage of the population stating that they are hampered (severely or to some extend) or non-hampered.

Nevertheless, according to the questionnaires available, the answer for Belgium in 1995 and 1996 was on a 5-point scale and has been recoded to a 3-point scale. A more precise question was used in questionnaires for Germany-SOEP from 1997 to 2001 and for France from 1995 to 1996. For Sweden (from 1997 to 2001) and the United-Kingdom (from 1995 to 1998 and in 2000), several questions were used (cf. questionnaires to have the detail of these questions).

Age group

Figure 22: Rate of people hampered according to their age group
– Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 73% have more than 50 years old, for 61% among people non-hampered. In France, all people having any chronic physical or mental health, illness or disability are hampered in their daily activities. Results are almost the same for Greece and Germany-SOEP. The rate of European people hampered increases according to the ageing (from 71% for -18 to 84% for +65).

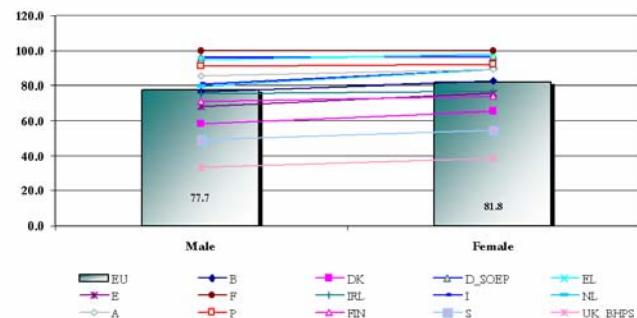
The European age distributions by health status look the same for original and always samples, but differences are recorded between these two groups and the sample yearly (particularly for the age group [18,25]). Nevertheless, the difference inter-waves is low.

Gender

In 2000, the European rate of male hampered represents 42% (45% for Ireland and 39% for the United-Kingdom-BHPS). Furthermore, 82% of female responded yes to this question for 78% of male. Germany-SOEP, the United-Kingdom-BHPS, Sweden and Finland have the highest rates for male and female groups.

Differences between considered samples (yearly, original or always) are not really significant across waves.

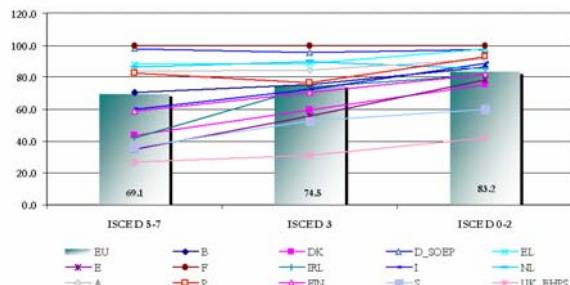
Figure 23: Rate of people hampered according to gender
– Yearly respondents in 2000, Standardised data –



³ “This” is a reference to the question PH002 “Do you have any chronic physical or mental health problem, illness or disability?”. Thus, PH003 was asked only if the answer for PH002 is ‘Yes’.

Education

Figure 24: Rate of people hampered according to the education level
– Yearly respondents in 2000, Standardised data –



In 2000, among European hampered, 66% have a low level of education (ISCED 0-2) for only 47% of people non-hampered. Portugal, Greece, Netherlands, Germany-SOEP, Austria and France have the highest rate of people hampered in 2000 for ISCED 5-7. Contrary to these MS, the United-Kingdom-BHPS has the lowest rates (maximum of 42%, ISCED 0-2).

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 for ISCED 0-2.

Activity

In 2000, among European hampered, 44% were retired, 22% employed, 4% self-employed and unemployed. The activity distribution is different for people non-hampered: 7% self-employed, 5% unemployed, 37% employed, 36% retired).

Other and retired groups have the highest rate of people hampered (97% and 83% respectively at the European level in 2000). Austria, Portugal, Greece, Germany-SOEP and France have the highest rates whatever the activity.

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 and 99/00 for retired.

Income

Figure 26: Rate of people hampered according to the income level
– Yearly respondents in 2000, Standardised data –

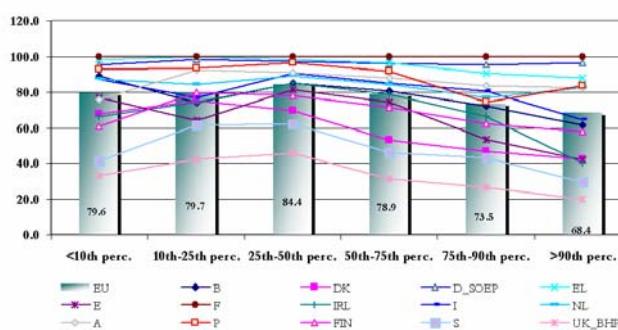
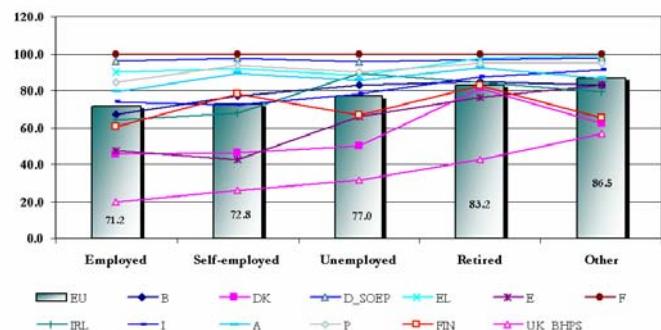


Figure 25: Rate of hampered according to the activity
– Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 6% have the highest income (>90th percentile) and 59% are below the median. On the contrary, among European non-hampered, 42% are below the median and 12% have the highest income (>90th percentile). France, Greece and Germany-SOEP have the highest rate of people hampered in the highest income groups (>75th percentile).

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 and 99/00 for 10th-25th percentiles.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is 'No'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'Yes, hampered severely or to some extend' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1994 and 2000.

For numerous countries, retired and other groups have about 3 more times likely to move from the 'no hampered' to 'yes' status than the employed group. The biggest OR are recorded for Denmark ($OR_{retired} = 4.2$ in 1994) and for Spain ($OR_{other} = 3.8$ in 1994). But, the OR for French self-employed is about 5 in 1994 to reach 1 in 2000.

Furthermore, the OR increases with ageing (with [25,50[the group of reference). This trend is the most marked for the United-kingdom-BHPS ($OR_{>65} = 4.4$ in 2000) and Germany-SOEP ($OR_{>65} = 4.8$ in 1994). But for France all the groups the trend is reversed for +50 in 1994 ($OR_{[50,65[} = 0.8$ and $OR_{>65} = 0.8$).

Greece has the most marked OR for the lowest education level (with ISCED 3 the level of reference): $OR_{ISCED\ 0-2} = 4.4$ in 2000 (1.2 in 1994). Germany-SOEP in 2000 has the most marked OR for the highest education level: $OR_{ISCED\ 5-7} = 2.5$.

Except for Belgium, Denmark, Italy and Austria, the probability to move from the state 'non-hampered' to the state 'hampered' does not depend strongly on the gender (OR between 0.8 and 1.2). The strongest variation between 1994 and 2000 is recorded for Austria: $OR_{female} = 1.3$ in 1994 and 0.7 in 2000).

For numerous MS, the probability to move from the state 'non-hampered' to the state 'hampered' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1).

Even if modifications of this health question were recorded in the questionnaires for Belgium, Denmark, Sweden and the United-Kingdom-BHPS data seem to be comparable to the other MS. Nevertheless, for some MS, hampered frequencies seem to be very high. Furthermore, all French people with any chronic physical or mental, illness or disability are hampered in their daily activities.

PH003A: Hampered in daily activities by any physical or mental health problem, illness or disability

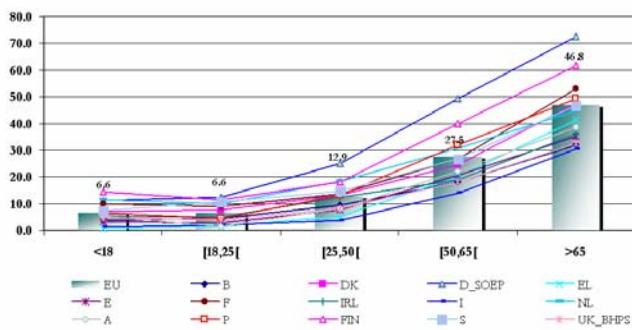
The original question is: "Are you hampered in your daily activities by any physical or mental problem, illness or disability?" (1) Yes severely, (2) Yes to some extend, (3) No. The study is restricted to the percentage of the population stating that they are hampered (severely or to some extend) or non-hampered.

In the database (v. 06/2003), the data are available from 1994 to 2000 for all the MS. PH003A existing only in 1994, this information has been reconstructed for numerous MS. Construction based on variables PH002 and PH003.

Nevertheless, according to the questionnaires available, the answer for Belgium in 1995 and 1996 was on a 5-point scale and has been recoded to a 3-point scale. A more precise question was used in questionnaires for Germany-SOEP from 1997 to 2001 and for France from 1994 to 1996. For Sweden (from 1997 to 2001) and the United-Kingdom (from 1995 to 1998 and in 2000), several questions were used (cf. questionnaires to have the detail of these questions).

Age group

Figure 27: Rate of people hampered according to their age group
– Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 73% have more than 50 years old, for 51% among people non-hampered. Finland has the highest rate of hampered people in 2000 whatever the age group considered (from 15% for <18 to reach 72% for >65). At the European level, 47% of >65 are hampered for only 7% for <18. The strongest variation is recorded between the age group [50,65[and +65 for numerous MS.

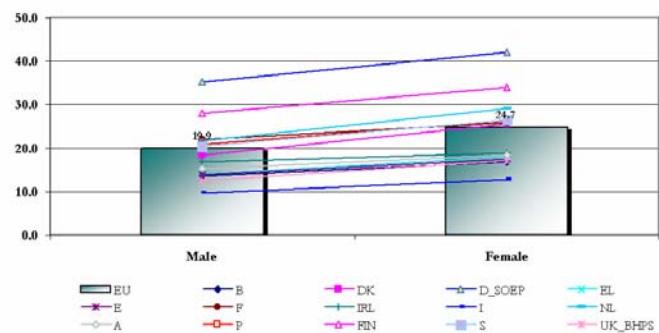
The European age distributions by health status look the same for original and always samples, but differences are recorded between these two groups and the sample yearly (particularly for the age group [18,25[). Nevertheless, the difference inter-waves is low.

Gender

In 2000, the European rate of male hampered represents 42% (46% for Ireland and 39% for the United-Kingdom-BHPS). Furthermore, 25% of female responded yes to this question for 20% of male. Germany-SOEP and Finland have the highest rates for male and female groups.

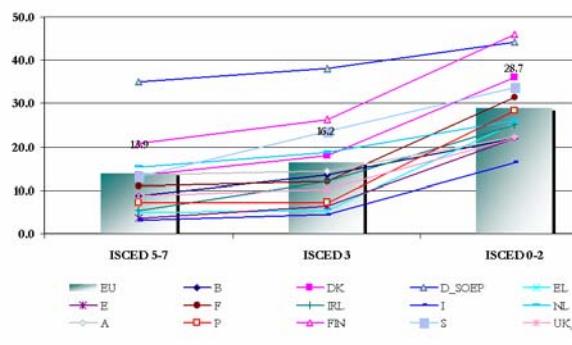
Differences between considered samples (yearly, original or always) are not really significant across waves.

Figure 28: Rate of people hampered according to gender
– Yearly respondents in 2000, Standardised data –



Education

Figure 29: Rate of people hampered according to the education level
– Yearly respondents in 2000, Standardised data –



In 2000, among European hampered, 66% have a low level of education (ISCED 0-2) for only 45% of people non-hampered. Germany-SOEP and Finland have the highest rate of people hampered in 2000 for all the education levels. Contrary to these MS, Italy has the lowest rates (maximum of 29%, ISCED 0-2).

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 for ISCED 0-2.

Activity

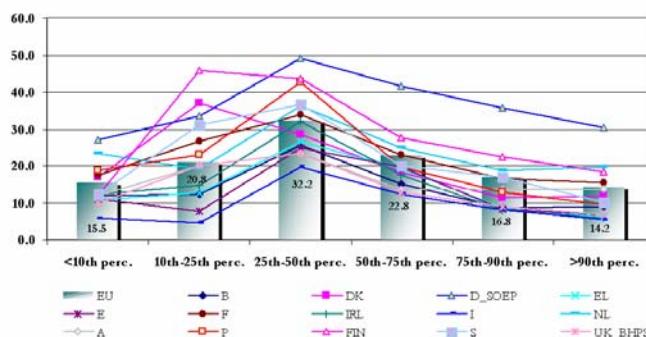
In 2000, among European hampered, 44% were retired, 22% employed, 4% self-employed and unemployed. The activity distribution is different for people non-hampered: 8% self-employed, 5% unemployed, 50% employed, 14% retired).

Retired group has the highest rate of people hampered (45% at the European level in 2000 for only 12% and 19% in the employed and unemployed groups). Austria, Portugal, France and Finland have the highest rates whatever the activity except ‘other’.

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 94/95 for retired.

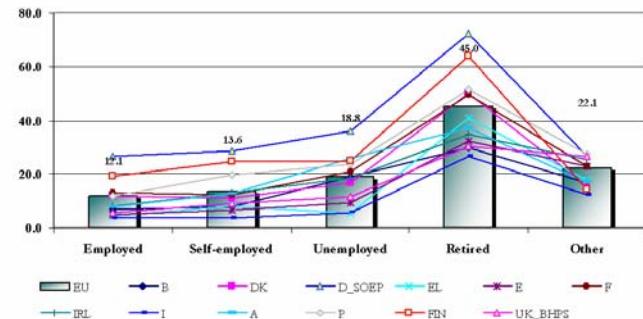
Income

Figure 31: Rate of people hampered according to the income level
– Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 6% have the highest income (>90th percentile) and 58% are below the median. On the contrary, among European non-hampered, 54% are below the median and 11% have the highest income (>90th percentile). Germany-SOEP, Netherlands and Finland have the highest rate of people hampered in the highest income groups (>75th percentile).

Figure 30: Rate of people hampered according to the activity
– Yearly respondents in 2000, Standardised data –



European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 94/95 for <10th percentile.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is 'No'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'Yes, hampered severely or to some extend' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1994 and 2000.

For numerous countries, retired and other groups have about 3 more times likely to move from the 'non-hampered' to 'hampered' status than the employed group. The biggest OR are recorded for Denmark ($OR_{retired} = 8.3$ in 1994) and for the United-Kingdom-BHPS ($OR_{other} = 7.6$ in 2000).

Furthermore, the OR increases with ageing (with [25,50[the group of reference). This trend is the most marked for Italy ($OR_{>65} = 4.9$ in 2000) and Spain ($OR_{>65} = 4.3$ in 1994).

Greece, Spain and Portugal have the most marked OR for the lowest education level (with ISCED 3 the level of reference): $OR_{ISCED\ 0-2}$ between 1.9 and 2.4. For Portugal in 1994, the trend for highest level education is different to the other MS with $OR_{ISCED\ 5-7} > 1$.

Except for Ireland, the probability to move from the state 'non-hampered' to the state 'hampered' does not depend strongly on the gender (OR between 0.8 and 1.2) for all the MS.

For numerous MS, the probability to move from the state 'non-hampered' to the state 'hampered' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1).

Even if modifications of this health question were recorded in the questionnaires for Belgium, Denmark, Sweden and the United-Kingdom-BHPS data seem to be comparable to the other MS. Nevertheless, for some MS, hampered frequencies seem to be very high.

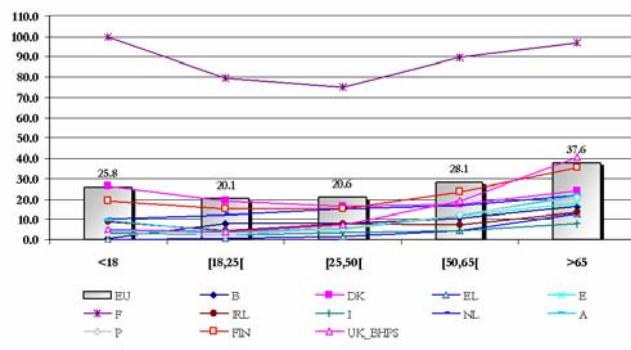
PH004: Problem concerning things done usually about the house, at work, or in free time because of illness or injury

The original question is: "During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of illness or injury?" (1) Yes (2) No. In the database (v. 06/2003), the data are available from 1994 to 2000 for all the MS.

Nevertheless, according to the questionnaires available, this question was not asked in Germany-SOEP survey (from 1997 to 2000), Sweden (from 1997 to 2000) and in the United-Kingdom-BHPS survey (from 1995 to 1998 and in 2000, but corresponding data are available in the database). Furthermore, in 1999, the question concerned the past 4 weeks for the UK-BHPS survey and the word 'indisposition' replaces 'injury' in all the Danish questionnaires.

Age group

Figure 32: Rate of people cutting down things usually done according to their age group – Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 67% have more than 50 years old, for 37% among people non-hampered. It is necessary to dissociate France to the other countries. Indeed, the rate of French people cutting down things usually done is exceptionally high in 1995, 1998, 1999 and 2000. But, on average with the other MS, about 17% of >65 are hampered in their activities because of illness or injury, about 7% for <18. The United-Kingdom-BHPS and Finland have the highest rates for the age group +65 (respectively 41% and 35%).

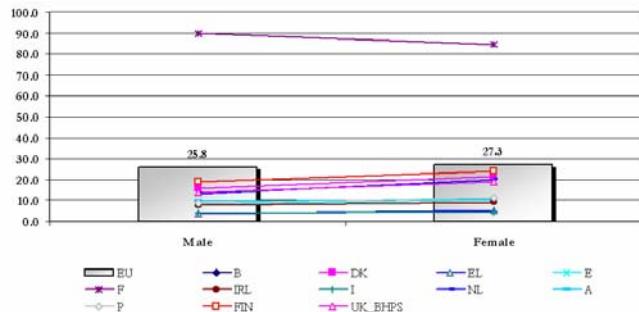
The European age distributions by health status look the same for original and always samples, but differences are recorded between these two groups and the sample yearly (particularly for the age group [18,25]. Nevertheless, the difference inter-waves is higher for the age group [25,50[and +65 than the others.

Gender

In 2000, the European rate of male hampered represents 41% (38% for Netherlands and the United-Kingdom-BHPS and 45% for Austria). Furthermore, 13% of female responded yes to this question for 10% of male (European average without France and without using country weights). Indeed, the rate of French people cutting down things usually done is exceptionally high in 1995, 1998, 1999 and 2000. Except France, the United-Kingdom-BHPS, Finland, Netherlands and Denmark have the highest rates of people hampered whatever the gender.

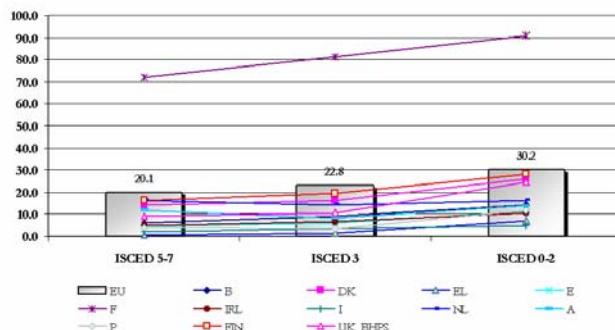
Differences between considered samples (yearly, original or always) are not really significant across waves.

Figure 33: Rate of people cutting down things usually done according to gender – Yearly respondents in 2000, Standardised data –



Education

Figure 34: Rate of people cutting down things usually done according to the education level – Yearly respondents in 2000, Standardised data –



In 2000, among European hampered, 73% have a low level of education (ISCED 0-2) for only 53% of people non-hampered. Finland, Denmark and the United-Kingdom-BHPS have the highest rate of people hampered in 2000 for all the education levels. Contrary to these MS, Italy has the lowest rates (maximum of 5%, ISCED 0-2).

European differences between considered samples (yearly, original or always) are not really significant in 2000. But differences are recorded between waves. The biggest one is recorded between 1996 and 1997 for ISCED 0-2 and ISCED 3.

Activity

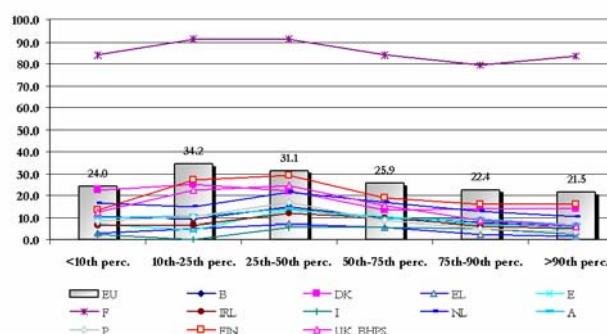
In 2000, among European hampered, 38% were retired, 26% employed, 5% self-employed and 3% unemployed. The activity distribution is different for people non-hampered: 9% self-employed, 4% unemployed, 49% employed, 15% retired).

Retired group has the highest rate of people hampered (about 21% at the European level without France and without country weight in 2000 for only 7% and 12% in the employed and unemployed groups). Except France, Denmark, Finland and the United-kingdom-BHPS have the highest rates whatever the activity.

European differences between considered samples (yearly, original or always) are not really significant in 2000. The biggest differences are recorded between waves 96/97 for employed and other.

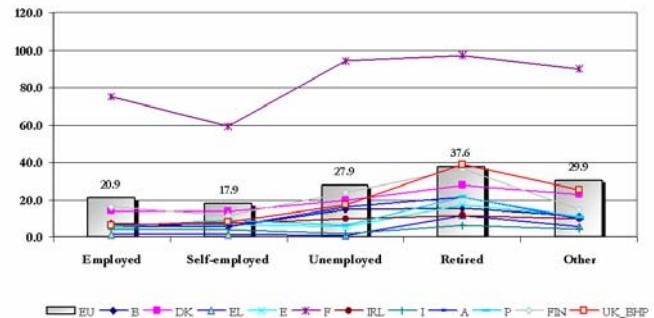
Income

Figure 36: Rate of people cutting down things usually done according to the income level – Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 5% have the highest income (>90th percentile) and 59% are below the median. On the contrary, among European non-hampered, 47% are below the median and 10% have the highest income (>90th percentile). Except France, the United-Kingdom-BHPS, Netherlands and Finland have the highest rate of people hampered in the highest income groups (>75th percentile).

Figure 35: Rate of people cutting down things usually done according to the activity – Yearly respondents in 2000, Standardised data –



European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 for 10th–20th percentiles.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is 'No'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'In the past two weeks, I had to cut down things I usually do about the house, at work, or in free time because of illness or injury' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1994 and 2000.

For numerous countries, retired and other groups have about 3 more times likely to move from the 'no' to 'yes' status than the employed group. The biggest OR is recorded for France ($OR_{retired} = 7.1$ in 2000 but in 1994, the associated OR was about 1). For the group 'other', some countries have significative OR: Greece in 2000 (3.0), France in 2000 (3.8) and the United-Kingdom-BHPS in 2000 (5.6). Contrary to the other MS, Italy have $OR < 1$ for retired and other groups in 1994 and 2000.

Furthermore, except for Denmark, the OR increases with ageing (with [25,50[the group of reference). This trend is the most marked for Italy ($OR_{>65} = 3.5$ in 2000), Greece ($OR_{>65} = 3.3$ in 1994) and the United-Kingdom-BHPS ($OR_{>65} = 3.5$ in 2000).

Greece and Portugal have the most marked OR for the lowest education level (with ISCED 3 the level of reference): $OR_{ISCED\ 0-2}$ between 1.6 and 4.3. For Portugal (in 1994 and 2000), Luxembourg-ECHP (in 1994) and Austria (in 2000), the trend for highest level education is different to the other MS with $OR_{ISCED\ 5-7} > 1$.

Except for Denmark, France and Finland, the probability to move from the state 'no' to the state 'yes' does not depend strongly on the gender (OR between 0.8 and 1.2) for all the MS.

For numerous MS, the probability to move from the state 'no' to the state 'yes' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1).

Even if modifications of this health question were recorded in the questionnaires for Denmark and the United-Kingdom-BHPS survey the results are similar to the other MS. But, it is necessary to dissociate France to the other countries. Indeed, the rate of French people cutting down things usually done is exceptionally high in 1995, 1998, 1999 and 2000.

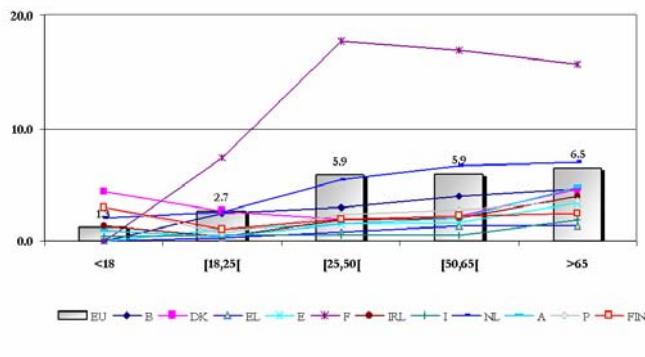
PH005: Problem concerning things done usually about the house, at work, or in free time because of an emotional or mental health problem

The original question is: "During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of an emotional or mental health problem?" (1) Yes (2) No. In the database (v. 06/2003), the data are available from 1994 to 2000 for all the MS.

Nevertheless, according to the questionnaires available, this question was not asked in Germany-SOEP survey (from 1997 to 2000), Sweden (from 1997 to 2000) and in the United-Kingdom-BHPS survey (from 1995 to 1998 and in 2000). In 1999, the question concerned the past 4 weeks for the United-Kingdom-BHPS questionnaire, but no data are available in the database for this country. In 1994, the question was split in two parts in the United-kingdom-ECHP questionnaire.

Age group

Figure 37: Rate of people cutting down things usually done according to their age group – Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 59% have more than 50 years old, for 47% among people non-hampered. It is necessary to dissociate France to the other countries. Indeed, the rate of French people cutting down things usually done is exceptionally high in 1995, 1998, 1999 and 2000. But, on average with the other MS, about 4% of >65 are hampered in their activities because of illness or injury, about 2% for <18. Netherlands has the highest rate for the age group +65 (7%).

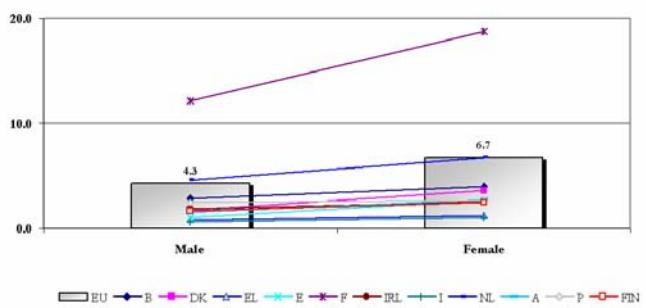
The European age distributions by health status look the same for original and always samples, but differences are recorded between these two groups and the sample yearly (particularly for the age group [18,25]). Nevertheless, the difference inter-waves is higher for the age group [25,50[and +65 than the others.

Gender

In 2000, the European rate of male hampered represents 34% (27% for Spain and 46% for Portugal). Furthermore, 3% of female responded yes to this question for 2% of male (European average without France and without using country weights). Indeed, the rate of French people cutting down things usually done is exceptionally high in 1995, 1998, 1999 and 2000. Except France, Netherlands has the highest rate of people hampered whatever the gender.

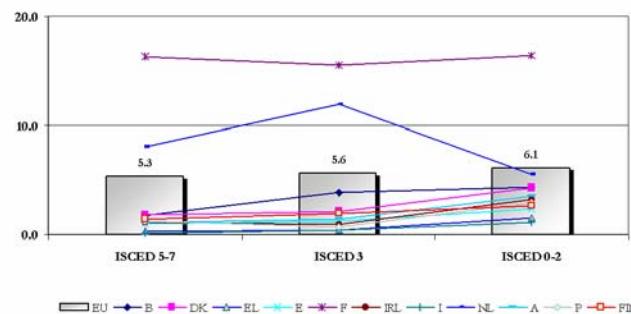
Differences between considered samples (yearly, original or always) are not really significant across waves.

Figure 38: Rate of people cutting down things usually done according to gender – Yearly respondents in 2000, Standardised data –



Education

Figure 39: Rate of people cutting down things usually done according to the education level – Yearly respondents in 2000, Standardised data –



In 2000, among European hampered, 77% have a low level of education (ISCED 0-2) for only 64% of people non-hampered. Netherlands and Denmark have the highest rate of people hampered in 2000 for all the education levels. Contrary to these MS, Italy and Greece have the lowest rates (maximum of 2%, ISCED 0-2).

European differences between considered samples (yearly, original or always) are not really significant in 2000. But differences are recorded between waves. The biggest one is recorded between 1996 and 1997 for ISCED 0-2 and ISCED 3.

Activity

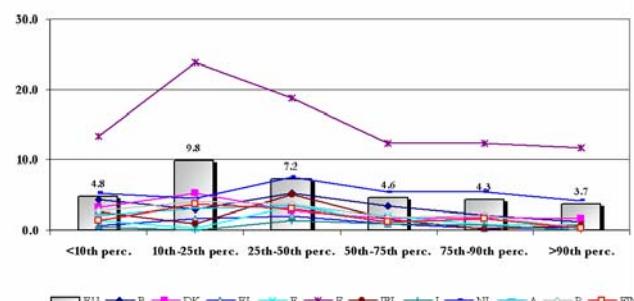
In 2000, among European hampered, 36% were retired, 19% employed, 3% self-employed and 8% unemployed. The activity distribution is different for people non-hampered: 8% self-employed, 5% unemployed, 37% employed, 26% retired).

Unemployed and retired groups have the highest rates of people hampered (about 4% at the European level without France and without country weight in 2000 for only 1% in the employed group). Greece and Italy have the lowest rates whatever the activity.

European differences between considered samples (yearly, original or always) are not really significant in 2000. The biggest differences are recorded between waves 96/97 for employed and other and between 95/96 for employed.

Income

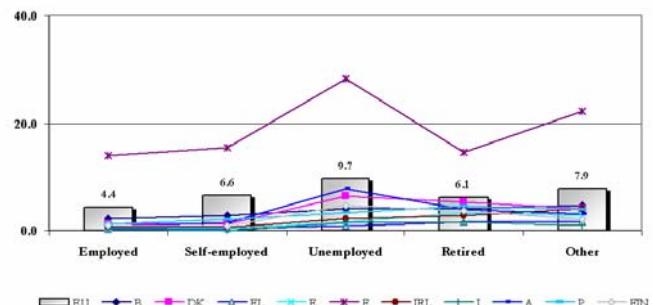
Figure 41: Rate of people cutting down things usually done according to the income level – Yearly respondents in 2000, Standardised data –



In 2000, among European people hampered, 3% have the highest income (>90th percentile) and 66% are below the median. On the contrary, among European non-hampered, 49% are below the median and 25% have the highest income (>90th percentile). Except France, Netherlands has the highest rate of people hampered in the highest income groups (>75th percentile).

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 96/97 for 10th-20th percentiles.

Figure 40: Rate of people cutting down things usually done according to the activity – Yearly respondents in 2000, Standardised data –



Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is 'No'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'In the past two weeks, I had to cut down things I usually do about the house, at work, or in free time because of an emotional or mental health problem' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1994 and 2000.

For Denmark, Greece, Spain, Ireland, Italy Austria and Finland, the groups 'unemployed', 'retired' and 'other' have between 5 to 18 more times likely to move from the 'no' to 'yes' status than the employed group. The biggest OR is recorded for Italy ($OR_{unemployed} = 18.2$ in 2000 but in 1994, the associated OR was about 1). For Greece, Spain and Italy, a huge variation of the OR between 1994 and 2000 can be observed.

Furthermore, except for Luxembourg-ECHP and Italy in 1994 and France, all the OR are under the threshold of 1 (with [25,50] the group of reference). But distinction between countries and age group is not obvious.

Greece and Portugal have the most marked OR for the lowest education level (with ISCED 3 the level of reference): $OR_{ISCED\ 0-2}$ about 3. For Portugal (in 1994 and 2000), Ireland (in 2000) and Germany-ECHP (in 1994), the trend for highest level education is different to the other MS with $OR_{ISCED\ 5-7} > 1$.

Greece, Ireland Portugal (in 1994 and 2000), and Italy in 1994 have a different profile to the other MS with an OR > 1 for the gender (reference = male). For these countries, males have about 1.5 more times likely to move from the 'no' to 'yes' status than females. The trend is reversed for the other MS.

For numerous MS, the probability to move from the state 'no' to the state 'yes' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1).

Even if modifications of this health question were recorded in the questionnaires for the United-Kingdom-ECHP survey in 1994, the results are similar to the other MS. But, it is necessary to dissociate France to the other countries. Indeed, the rate of French people cutting down things usually done is exceptionally high in 1995, 1998, 1999 and 2000.

Health cares received

Several variables concern the health cares received: PH006 to PH011.

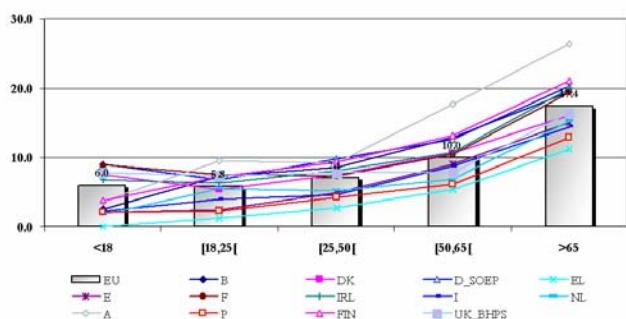
PH006: Hospital admission as in-patient

The original question is: "During the past 12 months, have you been admitted to a hospital as an in-patient?" (1) Yes (2) No. In the database (v. 06/2003), the data are available from 1994 to 2000 for all the MS.

Nevertheless, according to the questionnaires available, this question was not asked in Sweden (from 1997 to 2000) but data are available in the database in 1997 and 1998 for this country. The question was slightly reformulated in Germany-ECHP (from 1994 to 1996) and in the United-Kingdom-BHPS (from 1995 to 2000).

Age group

Figure 42: Rate of people admitted to hospital according to their age group
– Yearly respondents in 2000, Standardised data –



In 2000, among European people admitted to hospital, 61% have more than 50 years old, for 43% among people non-admitted. At the European level, 17% of >65 were admitted to a hospital as an in-patient, about 6% for <18. Austria has the highest rate for the age group +65 (27%) and Greece has the lowest rates whatever the age group considered.

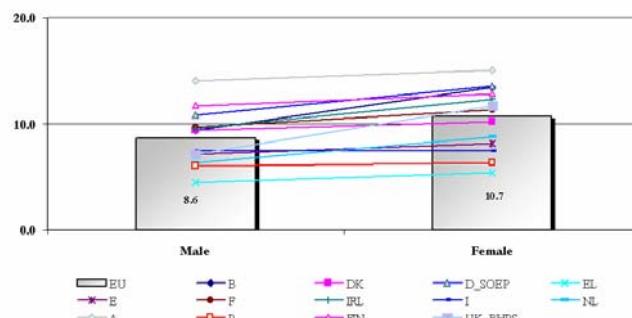
The European age distributions by health status look the same for original and always samples, but differences are recorded between these two groups and the sample yearly (particularly for the age group [18,25]). Nevertheless, the difference inter-waves is higher for the age group +65 than the others. The differences between waves are almost nil for the age group [16,18].

Gender

In 2000, the European rate of male admitted represents 43% (the rates are equivalent for all the MS). Furthermore, 11% of females responded yes to this question for 9% of males. Austria has the highest rate of people admitted whatever the gender, and Greece and Portugal, the lowest.

Differences between considered samples (yearly, original or always) are not really significant across waves.

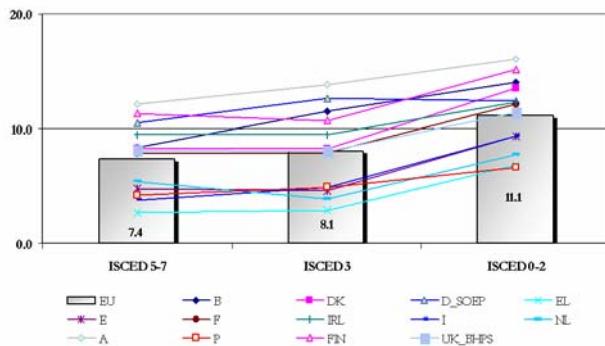
Figure 43: Rate of people admitted to hospital according to gender
– Yearly respondents in 2000, Standardised data –



Education

In 2000, among European admitted, 58% have a low level of education (ISCED 0-2) for only 49% of people non-admitted. Austria has the highest rate of people hampered in 2000 for all the

Figure 44: Rate of people admitted to hospital according to the education level –
Yearly respondents in 2000, Standardised data –



education levels. Contrary to this MS, Italy, Greece, Spain, Netherlands and Portugal have the lowest rates (maximum of 9%, ISCED 0-2).

European differences between considered samples (yearly, original or always) are not really significant in 2000. But differences are recorded between waves. The biggest one is recorded between 1998 and 1999 for ISCED 0-2 (4.6 points) and ISCED 3 (-4.1 points) (cf. figures in annex).

Activity

In 2000, among European admitted, 38% were retired, 30% employed, 5% self-employed and 4% unemployed. The activity distribution is different for people non-hampered: 8% self-employed, 5% unemployed, 45% employed, 20% retired).

Retired group has the highest rate of people admitted (about 17% at the European level in 2000 for only 7% in the employed group). Greece and Portugal have the lowest rates whatever the activity.

European differences between considered samples (yearly, original or always) are not really significant in 2000. The biggest differences are recorded between waves 94/95 for retired and other.

Income

Figure 46: Rate of people admitted to hospital according to the income level –
Yearly respondents in 2000, Standardised data –

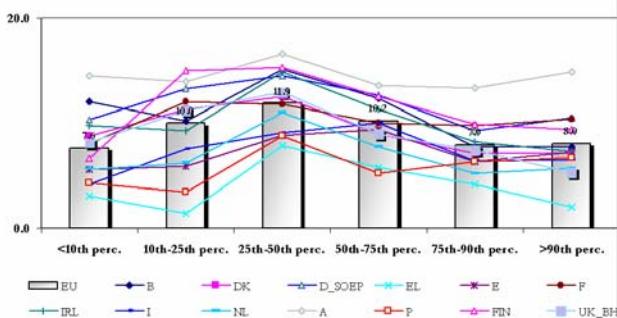
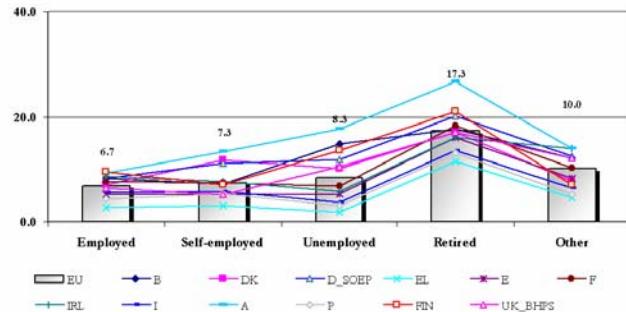


Figure 45: Rate of people admitted to hospital according to the activity
– Yearly respondents in 2000, Standardised data –



In 2000, among European people admitted, 8% have the highest income (>90th percentile) and 64% are below the median. On the contrary, among European non-hampered, 51% are below the median and 10% have the highest income (>90th percentile). Except for the group 10th-25th percentile, Austria has the highest rate of people admitted.

European differences between considered samples (yearly, original or always) are not really significant across waves. The biggest differences are recorded between waves 98/99 for 10th-20th percentiles.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is 'No'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'During the past 12 months, I have been admitted to a hospital as an in-patient' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1994 and 2000.

Globally, the groups 'unemployed', 'retired' and 'other' have about 2 more times likely to move from the 'no' to 'yes' status than the employed group. The biggest OR is recorded for the United-Kingdom-BHPS in 2000 ($OR_{retired} = 2.7$).

Furthermore, the OR increases with ageing (with [25,50] the group of reference). This trend is the most marked for Italy ($OR_{>65} = 2.2$ in 1994 and 2000) and Greece ($OR_{>65} = 2.5$ in 1994).

Denmark, Greece, Spain, France and Italy have the most marked OR for the lowest education level (with ISCED 3 the level of reference): $OR_{ISCED\ 0-2}$ about 1.3. Italy and Portugal (in 1994 and 2000) Italy have the most marked OR for the highest education level: $OR_{ISCED\ 5-7}$ about 0.7.

Except for Belgium and the United-Kingdom-BHPS in 2000, the probability to move from the state 'non-admitted' to the state 'admitted' does not depend strongly on the gender (OR between 0.8 and 1.2).

For numerous MS, the probability to move from the state 'no' to the state 'yes' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1). The strongest variation between 1994 and 2000 is recorded for Greece for the income group >90th percentile ($OR_{>90^{th}\ perc.} = 1.5$ in 1994 and $OR_{>90^{th}\ perc.} = 0.5$ in 2000).

Even if slightly modifications of this health question were recorded in the questionnaires for the United-Kingdom-BHPS survey the results are similar to the other MS.

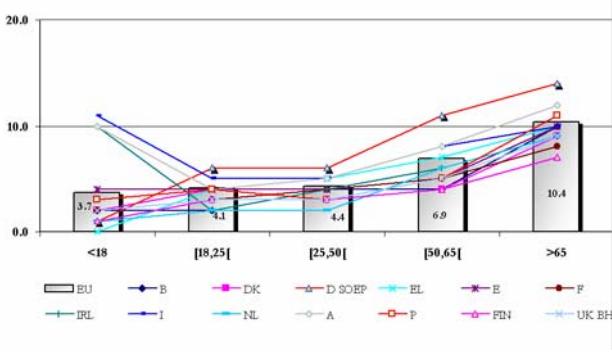
PH007: Number of nights spent in hospital

The original question is “Number of nights spent in hospital during the past 12 months”: quantitative answer. This question was asked only if the respondent was admitted to a hospital as an in-patient during the past 12 months (PH006 = ‘Yes’). In the database (v. 06/2003), the data are available from 1994 to 2000 for all the MS (except for Sweden).

Nevertheless, according to the questionnaires available, this question was not asked in Sweden (from 1997 to 2000) but data are available in the database in 1997 and 1998 for this country. Furthermore, a distinction was made in Spain between illness/accident and voluntary causes.

Age group

Figure 47: Number (median) of nights spent in hospital among in-patient by age group – Yearly respondents in 2000, Standardised data –



In 2000, among European people admitted to hospital, 50% of respondents aged >65 spent at most 10 nights in hospital, for only 4 nights for respondents younger than 50 years old. In Germany-SOEP, 50% of respondents aged >65 spent at most 14 nights in hospital, and only 7 nights in Finland for the same age group.

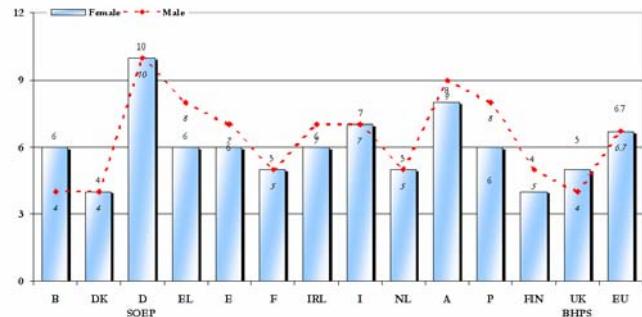
At the European level, the variations between waves are no very important, but a break is recorded for the age group [16,18[between 1995 and 1998.

Gender

In 2000, among European people admitted to hospital, 50% of male and female spent at most 7 nights in hospital. The number of nights spent in hospital does not seem to depend on the gender of the respondent. The strongest differences are recorded for Greece and Portugal (6 nights for female and 8 nights for male) and German people spent globally more nights in hospital than the other MS.

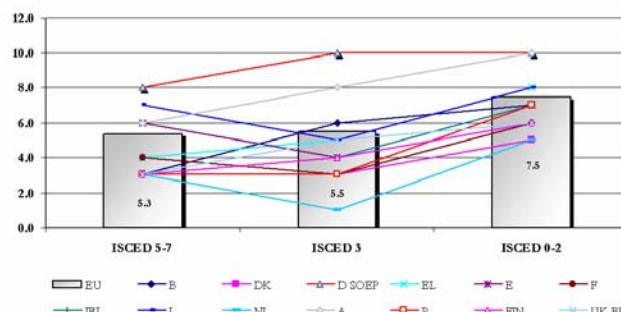
At the European level, the variations between waves are no very important. Between 1994 and 2000, the number of nights is about 7, whatever the gender.

Figure 48: Number (median) of nights spent in hospital among in-patient by gender – Yearly respondents in 2000, Standardised data –



Education

Figure 49: Number (median) of nights spent in hospital among in-patient by education level – Yearly respondents in 2000, Standardised data –

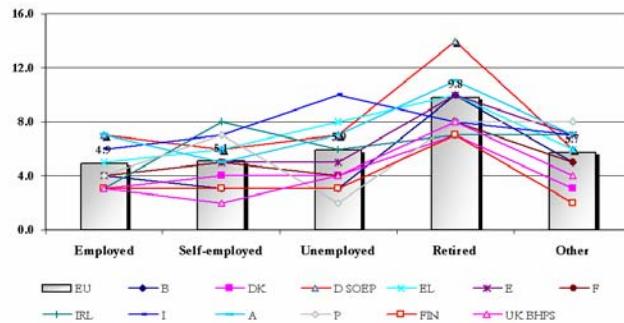


In 2000, among European people admitted to hospital, 50% of respondents with a low level of education spent at most 8 nights in hospital. While, respondents with a higher level of education spent at most 6 nights in hospital. German people with a low level of education spent twice more nights in hospital than Danish and Dutch people (10 and 5 nights).

People with the lowest level of education spent 2 or 3 nights more than the other groups whatever the wave considered.

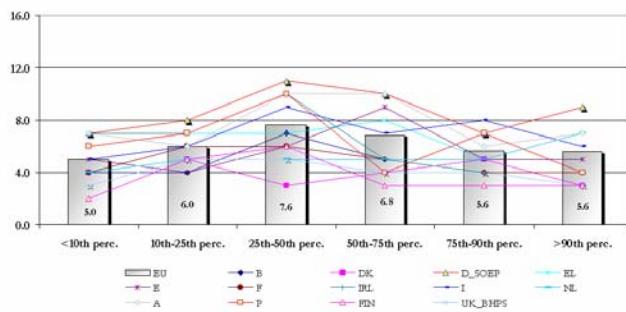
Activity

Figure 50: Number (median) of nights spent in hospital among in-patient by activity – Yearly respondents in 2000, Standardised data –



Income

Figure 51: Number (median) of nights spent in hospital among in-patient by income level – Yearly respondents in 2000, Standardised data –



In 2000, among European people admitted to hospital, 50% of respondents with a level of income included in 25th-50th percentile spent about 8 nights in hospital while people with lowest income (<10th percentile) spent no more than 5 nights.

The number of nights spent in hospital for the group 10th-25th percentile increased between 1994 (5 nights) and 1998 (8 nights) to reach the threshold or 7 nights in the following waves.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in

the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. In order to implement this analysis, the European median of the variable of interest was selected to define two groups: (1) More than 7 nights, (2) 7 or less.

The group of reference used for this multivariate analysis is '7 or less'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'More than 7 nights' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1994 and 2000.

Globally, the groups 'unemployed', 'retired' and 'other' have about 2 to 3 more times likely to move from the '7 or less' to 'more than 7 nights' status than the employed group. The biggest OR is recorded for Belgium in 2000 ($OR_{other} = 3.6$).

Furthermore, except for the United-Kingdom-ECHP in 1994, Belgium, Ireland, Italy and Austria in 2000, the OR increases with ageing (with [25,50] the group of reference). This trend is the most marked for Luxembourg-ECHP ($OR_{[50,65]} = 5.6$ and $OR_{>65} = 8.8$ in 1994). But for Belgium, Ireland, Italy, Austria in 2000 and the United-Kingdom-ECHP in 1994, the OR associated to the age group [16,18] is upper than 1.6 to reach 9.4 for Italy.

For numerous MS, the OR associated to the lowest educational level (ISCED 0-2) is upper than 1.5. Only Spain and Portugal have $OR > 1$ for the greatest education level (ISCED 5-7).

Except for Belgium and Denmark in 2000, the probability to move from the state '7 or less' to the state 'more than 7 nights' does not depend strongly on the gender (OR between 0.8 and 1.2).

For many MS, the probability to move from the state '7 or less' to the state 'more than 7 nights' is the highest for the income group 50th-75th percentile (OR associated to other groups < 1). The strongest variation between 1994 and 2000 is recorded for Denmark for the income group 75th-90th percentile ($OR_{75th-90th\ perc.} = 0.8$ in 1994 and $OR_{75th-90th\ perc.} = 2.9$ in 2000).

Even if slightly modifications of this health question were recorded in the questionnaires for Spain the results are similar to the other MS.

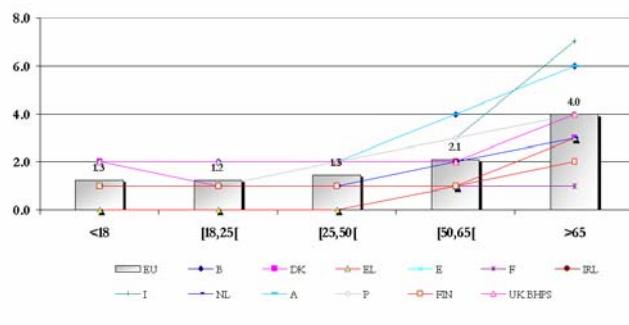
PH008: General practitioner consultation

The original question is “During the past 12 months, about how many times have you consulted a general practitioner”: quantitative answer. In the database (v. 06/2003), the data are available from 1995 to 2000 for all the MS (except for Sweden and Germany-SOEP).

Nevertheless, according to the questionnaires available, this question was not asked in France (from 1995 to 2000) but data are available in the database in 1995 and 2000 for this country.

Age group

Figure 52: Number (median) of consultations during the past 12 months by age group – Yearly respondents in 2000, Standardised data –



In 2000 at the European level, 50% of respondents aged >65 consulted a general practitioner at most 4 times in the past 12 months, for only twice in the other age groups. Oldest Italian people consulted a general practitioner at most 4 times, for only one time in France.

At the European level, the variations between waves are no very important, but a break is recorded for the age group [16,18] between 1999 and 2000.

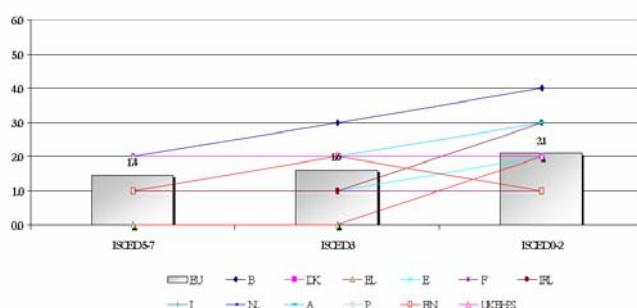
Gender

In 2000 at the European level, 50% of male people consulted a general practitioner at most 1.5 times while it is observed 2.1 times in female people. The biggest difference is recorded for Belgium: 4 for female and only 2 for male.

The number of consultations does not increase for male across waves while a decrease is recorded for female between 1996 (2.5) and 1997 (2.0).

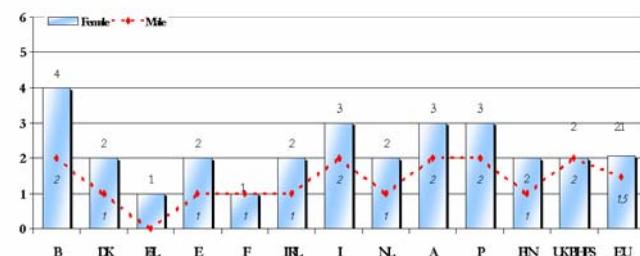
Education

Figure 54: Number (median) of consultations during the past 12 months by education level – Yearly respondents in 2000, Standardised data –



In 2000 at the European level, 50% of respondents with the lowest level of education consulted a general practitioner at most 2.1 times in the past 12 months while it is observed 1.4 in the highest level of education. Belgian people consult more often a general practitioner than the other European people whatever the education level.

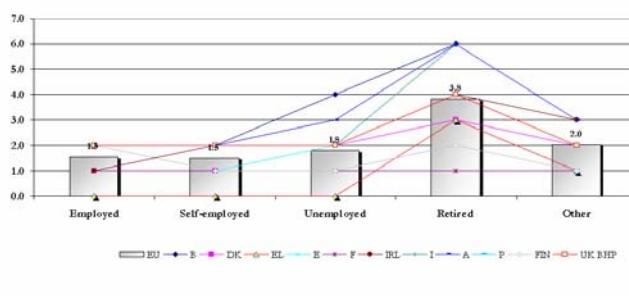
Figure 53: Number (median) of consultations during the past 12 months by gender – Yearly respondents in 2000, Standardised data –



At the European level, the variations between waves are no very important for the three level of education. But it appears clearly that a difference exists between the lowest education level and the others about the number of consultations of a general practitioner.

Activity

Figure 55: Number (median) of consultations during the past 12 months by activity – Yearly respondents in 2000, Standardised data –



In 2000 at the European level, 50% of retired people consulted a general practitioner at most 3.8 times in the past 12 months while it is observed 1.5 in the employed people. Belgian and Greek people have a profile completely different concerning the consultation of general practitioner. Indeed, employed, unemployed or self-employed Greek people do not seem to consult general practitioner.

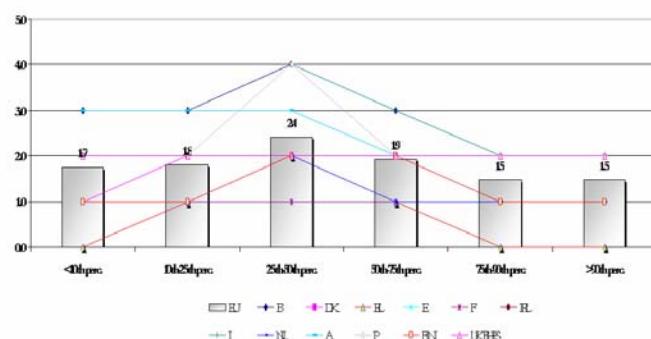
At the European level, the variations between waves are no very important for the five level of activity. But it appears clearly that a difference exists between retired people and the others about the number of consultations of a general practitioner.

Income

In 2000 at the European level, 50% of people included in the group 25th-50th percentile consulted a general practitioner at most 2.4 times in the past 12 months while it is observed 1.5 in the group of people with the highest level of income (>75th percentile).

At the European level, the variations between waves are no very important for all the income levels. But it appears clearly that a difference exists between people with the level of income 25th-50th percentile and the others about the number of consultations of a general practitioner.

Figure 56: Number (median) of consultations during the past 12 months by income level – Yearly respondents in 2000, Standardised data –



Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. In order to implement this analysis, the European median of the variable of interest was selected to define two groups: (1) More than 2 times, (2) 2 times or less.

The group of reference used for this multivariate analysis is '2 times or less'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'More than 2 times' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1995 and 2000.

Globally, the groups ‘unemployed’, ‘retired’ and ‘other’ have about 2 to 3 more times likely to move from the ‘2 times or less’ to ‘more than 2 times’ status than the employed group. The biggest OR is recorded for Greece in 2000 ($OR_{retired} = 2.6$).

Furthermore, except for the United-Kingdom-ECHP and Denmark in 1995 and Belgium in 1995 and 2000, the OR increases with ageing (with [25,50[the group of reference). This trend is the most marked for Greece ($OR_{>65} = 5.2$ in 1995 and $OR_{>65} = 4.4$ in 2000).

For numerous MS, the OR associated to the lowest educational level (ISCED 0-2) is upper than 1.2 and the OR associated to the highest educational level (ISCED 5-7) is lower than 0.9.

For all the MS, the probability to move from the state ‘2 times or less’ to the state ‘more than 2 times’ depends strongly on the gender (OR between 1.3 and 2.1).

For many MS, the probability to move from the state ‘2 times or less’ to the state ‘more than 2 times’ is the highest for the income group 50th-75th percentile (OR associated to other groups < 1). The strongest variation between 1994 and 2000 is recorded for Greece for the income group 10th-25th percentile ($OR_{10th-25th\ perc.} = 0.5$ in 1994 and $OR_{10th-25th\ perc.} = 1.3$ in 2000).

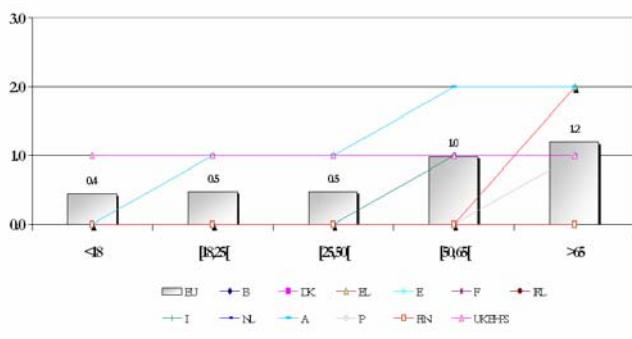
PH009: Medical specialist consultation

The original question is “During the past 12 months, about how many times have you consulted a medical specialist (including out-patient consultations but excluding any consultation during hospitalisation)”: quantitative answer. In the database (v. 06/2003), the data are available from 1995 to 2000 for all the MS (except for Germany-SOEP, France and Sweden in 1999 and 2000).

Nevertheless, according to the questionnaires available, this question was not asked in the United-Kingdom-BHPS survey (from 1995 to 2000) and in Sweden (from 1997 to 2000) but data are available in the database from 1995 to 2000 for UK and in 1997 and 1998 for Sweden.

Age group

Figure 57: Number (median) of consultations during the past 12 months by age group – Yearly respondents in 2000, Standardised data –



In 2000 at the European level, 50% of respondents aged >50 consulted a specialist at most 1.2 times in the past 12 months, for only 0.5 in the other age groups. Oldest Austrian and Greek people consulted a specialist at most 2 times, for only one time in Portugal and in UK-BHPS.

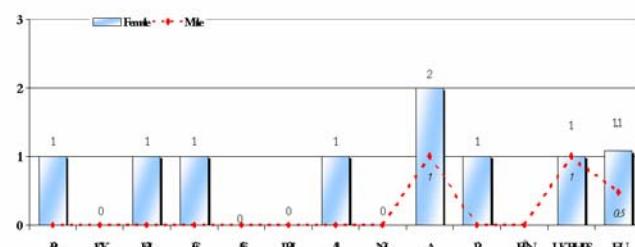
At the European level, the variations between waves are no very important, but two breaks are recorded for the age group [16,18] between 1998/1999 and between 1999/2000.

Gender

In 2000 at the European level, 50% of male people consulted a specialist at most 0.5 times while it is observed 1.1 times in female people. A strong majority of European male does not consult a specialist. But Austrian female are the most numerous to consult a specialist with a median of 2 consultations.

The number of consultations increases wave after wave to cross the threshold of 1 consultation for female and 0.5 consultation for male in 2000 at the European level.

Figure 58: Number (median) of consultations during the past 12 months by gender – Yearly respondents in 2000, Standardised data –

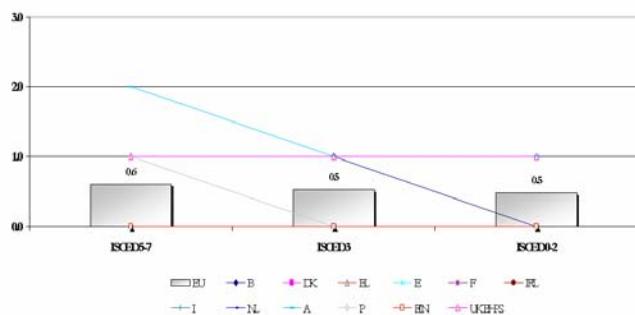


In 2000 at the European level, the number of consultation does not depend on the education level: 50% of respondents consult a 0.5 specialist during the past 12 months whatever the level of education. But the highest results are recorded for Austria for the highest level of education (ISCED 5-7).

At the European level, no variation is recorded between waves from 1995 to 1999, but the trend is to the upward in 2000 for the three levels of education.

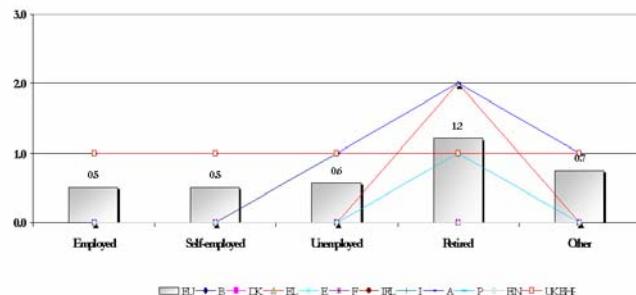
Education

Figure 59: Number (median) of consultations during the past 12 months by education level – Yearly respondents in 2000, Standardised data –



Activity

Figure 60: Number (median) of consultations during the past 12 months by activity – Yearly respondents in 2000, Standardised data –



In 2000 at the European level, 50% of retired people consulted a specialist at most 1.2 times in the past 12 months while it is observed 0.7 at most in the other groups of activity. Retired Greeks and Austrians consult specialists more often than the other European people.

The specialist consultation trend is to the upward across waves for all the activities. Evolutions are recorded between 1996/1997 and 1999/2000. Retired people consult more often specialists than the other groups of activity.

Income

In 2000 at the European level, the number of consultation does not depend on the income level: 50% of respondents consult at most 0.5 specialist during the past 12 months whatever the level of income. But English people are the most numerous to consult a specialist with a median of 1 consultation whatever the income level.

At the European level, no variation are recorded between waves from 1995 to 1999, but the trend is to the upward in 2000 for the income level, and especially for the group 25th-50th percentile.

Multivariate analysis

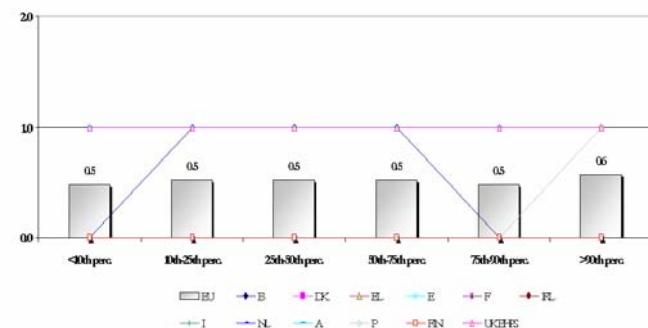
A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. In order to implement this analysis, the European median of the variable of interest was selected to define two groups: (1) More than 1 time, (2) 1 time or never.

The group of reference used for this multivariate analysis is '1 time or never'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'More than 1 time' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1995 and 2000.

Globally, the groups 'unemployed', 'retired' and 'other' have about 1.5 to 3 more times likely to move from the '1 time or never' to 'more than 1 time' status than the employed group. The biggest OR is recorded for Greece in 2000 ($OR_{retired} = 2.3$).

Furthermore, except for Germany-ECHP and Denmark in 1995 and Belgium in 1995 and 2000, the OR increases with ageing (with [25,50] the group of reference). This trend is the most marked for Greece ($OR_{>65} = 2.1$ in 1995 and $OR_{>65} = 2.5$ in 2000).

Figure 61: Number (median) of consultations during the past 12 months by income level – Yearly respondents in 2000, Standardised data –



Except for Austria and Portugal, the OR associated to the lowest and highest educational level (ISCED 0-2 and ISCED 5-7) are upper than 0.8 and lower than 1.2. But differences between education level are recorded for Austria and Portugal concerning the specialist consultation.

For all the MS, the probability to move from the state ‘1 time or never’ to the state ‘more than 1 time’ depends strongly on the gender (OR between 1.2 and 2.9) except for the United-Kingdom-BHPS.

For many MS, the probability to move from the state ‘1 time or never’ to the state ‘more than 1 time’ depends on the income level. Indeed, the higher is the income level, the more people consult specialists. Nevertheless, variations are not very strong (OR included in [0.8,1.2] for numerous MS).

According to the results obtained, the United-Kingdom-BHPS survey has different results to the other MS. But, initially no question was used in questionnaires to collect data (PH009) but information is available in the database for this country.

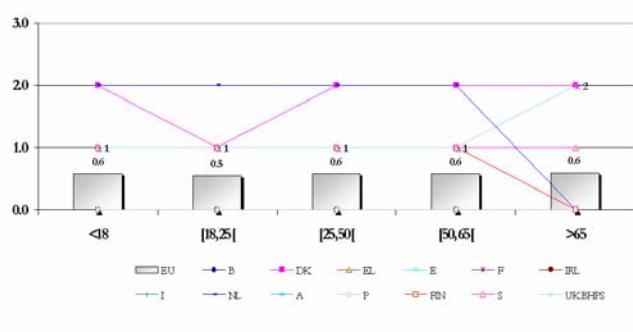
PH010: Dentist consultation

The original question is “During the past 12 months, about how many times have you consulted a dentist”: quantitative answer. In the database (v. 06/2003), the data are available from 1995 to 2000 for all the MS (except for Germany-SOEP, France).

Nevertheless, according to the questionnaires available, this question was not asked in the United-Kingdom-BHPS survey (from 1995 to 2000) and in Sweden (from 1997 to 2000) but data are available in the database from 1995 to 2000 for UK and from 1997 to 2000 for Sweden.

Age group

Figure 62: Number (median) of consultations during the past 12 months by age group – Yearly respondents in 2000, Standardised data –



In 2000 at the European level, 50% of respondents consulted a dentist at most 0.6 times in the past 12 months whatever the age group. Dutch and Danish people consulted a dentist at most 2 times, while numerous MS did not consult dentist at all (Greece, Spain, France, Italy, Ireland and Finland).

Globally, at the European level, a downward trend is recorded for the group [16,65] from 1995 to 1997, while the trend is reversed for oldest people (+65).

Gender

In 2000 at the European level, 50% of male and female consulted a specialist at most 0.6 times. A strong majority of European male does not consult a dentist. But Danish and Dutch people are the most numerous to consult a dentist with a median of 2 consultations.

The number of consultations decreases wave after wave to cross the threshold of 0.6 consultation for female and 0.5 consultation for male in 2000 at the European level.

Education

Figure 64: Number (median) of consultations during the past 12 months by education level – Yearly respondents in 2000, Standardised data –

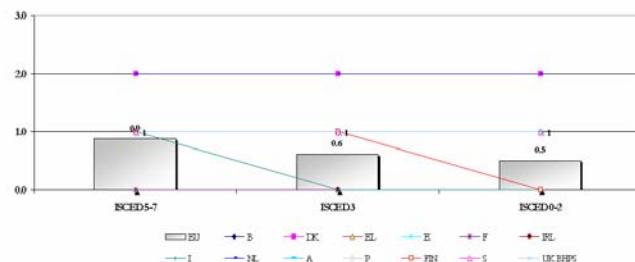
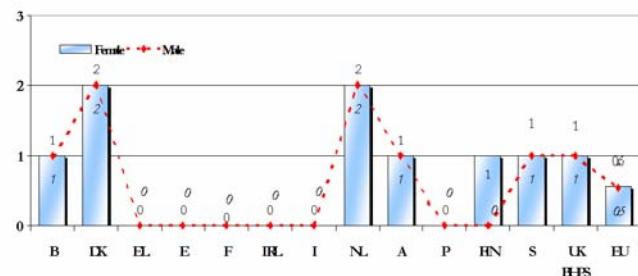


Figure 63: Number (median) of consultations during the past 12 months by gender – Yearly respondents in 2000, Standardised data –

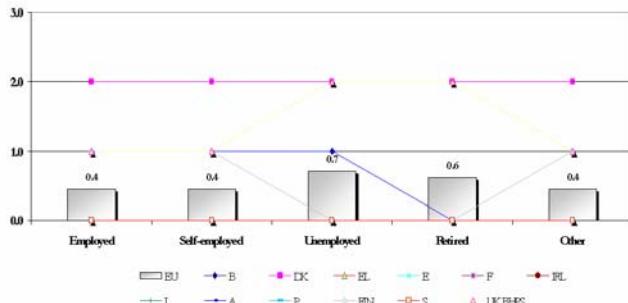


In 2000 at the European level, 50% of respondents with the lowest level of education consulted a dentist at most 0.5 time in the past 12 months while it is observed 0.9 in the highest level of education. But the highest results are recorded for Denmark and Netherlands whatever the level of education considered.

At the European level, a downward trend is observed for ISCED 0-2 while the trend seems to be reversed for ISCED 5-7 and ISCED 3 across waves. In 2000, the results seem to be similar for the three levels of education: the number of consultations is included in [0.5,0.9].

Activity

Figure 65: Number (median) of consultations during the past 12 months by activity – Yearly respondents in 2000, Standardised data –



In 2000 at the European level, 50% of unemployed and retired people consulted a dentist at most 0.7 time in the past 12 months while it is observed 0.4 at most in the other groups of activity. The activity level does not influence the consultation of dentists for Danish people with a European maximum of 2 consultations.

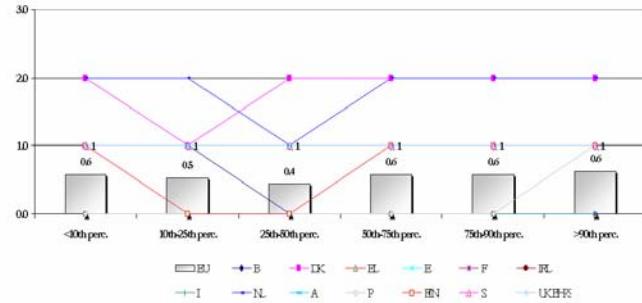
The dentist consultation trend is to the upward across waves for unemployed people while the trend is reversed for all the other activities. In 2000, the initial differences between concerning dentist consultations seem to be reduced.

Income

In 2000 at the European level, the number of consultation does not depend on the income level: 50% of respondents consult at most 0.6 dentist during the past 12 months whatever the level of income. But Danish and Dutch people are the most numerous to consult a dentist with a median of 2 consultation whatever the income level.

At the European level, a downward trend is observed for all the income levels across waves to reach the threshold of 0.5 consultation.

Figure 66: Number (median) of consultations during the past 12 months by income level – Yearly respondents in 2000, Standardised data –



Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. In order to implement this analysis, the European median of the variable of interest was selected to define two groups: (1) More than 1 time, (2) 1 time or never.

The group of reference used for this multivariate analysis is '1 time or never'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'More than 1 time' according to usual variables as activity, age, education, gender and income. The results presented concern the yearly sample in 1995 and 2000.

Globally, a strong majority of the OR associated to the groups of activity are include in [0.8,1.2]. Thus it is not obvious to conclude on differences between these groups. Highest OR are

recorded for Irish retired people in 2000 ($OR_{retired} = 1.8$), English unemployed people in 2000 ($OR_{unemployed} = 1.8$).

Furthermore, except for the United-Kingdom-BHPS, Denmark and Finland in 2000, the OR decreases with ageing (with [25,50[the group of reference). This trend is the most marked for Belgium and Italy.

Except for Greece, Spain, the United-Kingdom-BHPS and Luxembourg-ECHP, the OR associated to the highest educational level (ISCED 5-7) is upper than 1 and the OR associated to the lowest educational level (ISCED 0-2) is lower than 0.8.

For all the MS, the probability to move from the state ‘1 time or never’ to the state ‘more than 1 time’ depends strongly on the gender (OR between 1.2 and 2.9) except for the United-Kingdom-BHPS.

Except for the United-Kingdom-BHPS, the majority of the OR associated to the income levels are upper than 1. That means that people with income levels different to 50th-75th percentile have a higher probability to consult a dentist.

According to the results obtained, the United-Kingdom-BHPS survey has different results to the other MS. But, initially no question was used in questionnaires to collect data (PH010) but information is available in the database for this country.

PH011: Consultation of doctor, dentist or optician (aggregated)

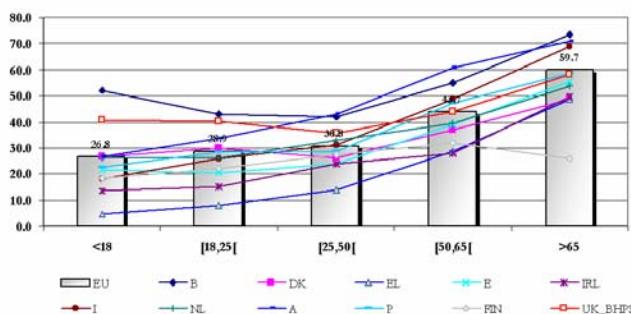
The original question is: "Number of times the person has been to a doctor or a dentist or optician, during the past 12 months" (1) Not at all, (2) 1-2times, (3) 3-5 times, (4) 6-9 times, (5) 10 times or more. The study is restricted to the percentage of the population stating that they consulted a doctor or a dentist or optician 6 times at least or 5 times at most.

In the database (v. 06/2003), the data are available from 1994 to 2000 for all the MS. But, starting from 1995, this information was reconstructed on variables PH008⁴, PH009⁵ and PH010⁶. Nevertheless, some differences were recorded for many countries: Denmark, Greece Italy, Netherlands, Germany, France, Luxembourg and Portugal.

Age group

In 2000, among European people having consulted 6 times at least, 57% have more than 50 years old, among population having consulted 5 times at most, 44% have more than 50. The age distribution of the population having consulted 6 times at least seems to be the same for each MS. But Finland has a highest rate for the age group [25,50[(44% for Finland while the European average is about 26%) and the age group >65 (19% for Finland while the European average is about 43%). Differences do not seem to be so huge for this country in the group '5 times at most'.

Figure 67: Rate of people with +6 consultations according to their age group
– Yearly respondents in 2000, Standardised data –



The rate of people having consulted 6 times at least increases with ageing. 60% of European people aged +65 consulted 6 times at least in 2000. But, it concerns only 27% of European people aged [16,18]. Austria, Belgium, Italy and United-Kingdom-BHPS have the highest rates among people being more than 25 years old. Greece has the lowest rates whatever the age group considered.

The European age distributions by group of consultation look the same for the samples original and always in 2000, but some differences are recorded between these two samples and 'yearly sample'. Most of the differences are recorded for the age groups [25,50[and 65+. Differences between waves can occur. But the strongest variations are recorded between 1994/1995 and 1996/1997 (at the European level with yearly respondents).

Gender

In 2000, the European rate of male having consulted 6 times at least represents 38% (36% for Portugal and 40% for Ireland), for 54% in the other group (5 times at most).

⁴ During the past 12 months, about how many times have you consulted a general practitioner (including home visits by the doctor)?

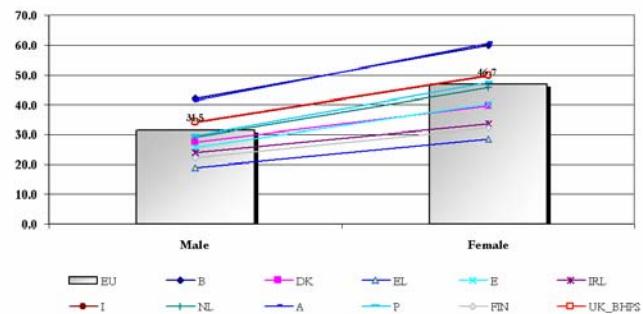
⁵ During the past 12 months, about how many times have you consulted a medical specialist (including outpatient consultations but excluding any consultations during hospitalization)?

⁶ During the past 12 months, about how many times have you consulted a dentist?

In 2000, 47% of European females consulted 6 times at least and it concerns only 32% of European males. The highest rates are recorded for Austria and Belgium, and the lowest for Greece.

The European gender distribution by health status look the same whatever the sample considered (yearly, original or always) in all the waves (from 1994 to 2000).

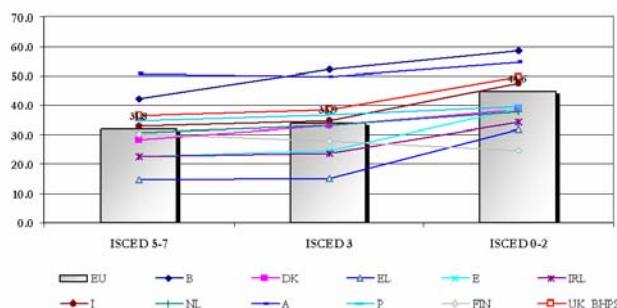
Figure 68: Rate of people with +6 consultations according to gender
– Yearly respondents in 2000, Standardised data –



Education

In 2000, among European people having consulted 6 times at least, 17% have a high level of education (ISCED 5-7) and among the other group (5 times at most) 52% have a low education level (ISCED 0-2). Distribution differences could occur between MS.

Figure 69: Rate of people with +6 consultations according to the education level
– Yearly respondents in 2000, Standardised data –



At the European level, in 2000, 32% of people of the lowest education level (ISCED 0-2) consulted 6 times at least for 45% for the highest education level (ISCED 5-7). Austria and Belgium have the highest rates whatever the group considered. Greece has the lowest rates for the three groups.

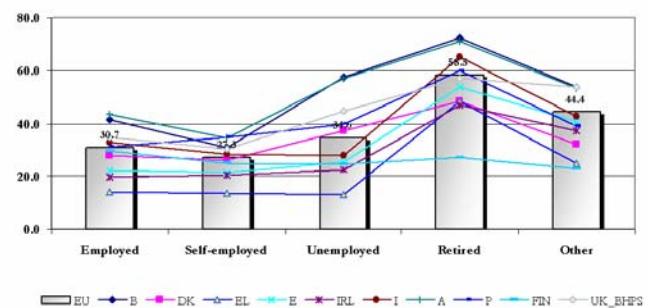
The European distribution by education level according to the number of consultations in 2000 gives similar results whatever the sample considered (yearly, original or always). Nevertheless, the strongest variation inter-waves, at the European level, are recorded between 96/97 and 97/98 for ISCED 3, between 97/98 for ISCED 5-7, between 96/97 for ISCED 0-2. For differences between 1997 and 1998, it can be explained by the update of the information (in the beginning of the ECHP (up to 1997) the question on highest level of education was asked only the first time when a person was interviewed. Consequently, even if a person finished a higher level of education, the information was not updated).

Activity

In 2000, among European people having consulted 6 times at least, 32% were employed, 29% retired, 6% self-employed and 4% unemployed. The activity distribution is different for people having consulted 5 times at most (11% self-employed, 5% unemployed, 47% of employed, 13% retired).

In 2000, 59% of European retired consulted 6 times at least, for only 27% of self-employed and 31% of employed. Retired Finnish have a lower rate of consultation than the other MS.

Figure 70: Rate of people with +6 consultations according to the activity – Yearly respondents in 2000, Standardised data –

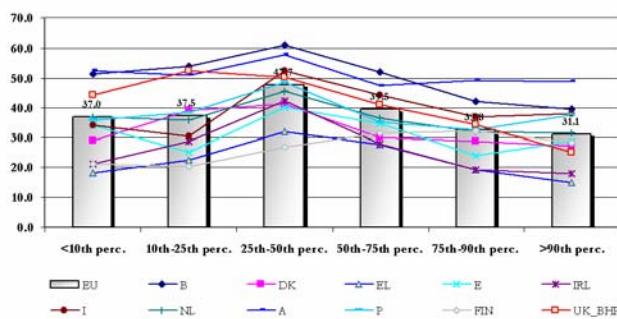


The European distribution by activity gives similar results in 2000 whatever the sample considered (yearly; original or always). The strongest variation inter-waves are recorded between 94/95 and 96/97 for the employed and between 94/95 for retired.

Income

In 2000, among European people having consulted 6 times at least, 8% have the highest income ($>90^{\text{th}}$ percentile) and 54% are below the median. On the contrary, among European people having consulted 5 times at most, 47% are below the median and 12% have the highest income ($>90^{\text{th}}$ percentile).

Figure 71: Rate of people with +6 consultations according to the income level – Yearly respondents in 2000, Standardised data –



The income group 25th-50th has the highest rate of people having consulted 6 times at least at the European level in 2000 (48%). This rate decreases to reach the threshold of 37% in the lowest income group and 31% in the highest one. The consultation rate varies strongly according to the MS, but globally they have the same income distribution.

Differences between considered samples (yearly, original or always) are not really significant. The strongest variation inter-waves is recorded between 98/99 for the income group 10th-25th percentile.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is ‘5 times at most’. Thus, the odds ratio adjusted give the probability to move from this state to the state ‘6 times at least’ according to usual variables as activity, age, education, gender and income.

For numerous countries, unemployed or retired groups have about 1.5 to 3 more times likely to move from the ‘5 times at most’ status than the employed group. The biggest OR are recorded for Portugal (OR_{retired} = 2.9 in 1994) and for Denmark (OR_{retired} = 2.7 in 1994).

Furthermore, the OR increases with ageing (with [25,50[the group of reference). This trend is the most marked for Greece (OR_{>65} = 4.7 in 1994), Spain (OR_{>65} = 3.1 in 1994) and Italy (OR_{>65} = 3.4 in 1994).

Greece and Italy have the most marked OR for the lowest level of education (with ISCED 3 the level of reference): OR_{ISCED 0-2} = 1.3 in 1994 and 1.4 in 2000 for Greece, OR_{ISCED 0-2} = 1.4 in 1994 for Italy.

The probability to move from the state ‘5 times at most’ to the state ‘6 times at least’ seems to depend on the gender (OR between 1.2 and 2.4). Female consults more often than male.

Differences between income levels are not obvious to synthesise. Indeed, the results depend of each MS considered. But globally, all the OR are included in 0.8 and 1.2, synonymous of low variation between the group of interest and the group of reference [50th-75th percentile].

During this study it appears that the results depend strongly of the Member State. The trends observed are similar, but the rates associated can vary strongly from a country to another. Indeed, numerous variations were made in the questionnaires for the question PH011. Thus, comparisons between countries are not obvious.

Tobacco consumption

Several variables concern the tobacco consumption status: PH016 to PH019.

PH016: Smoker or not

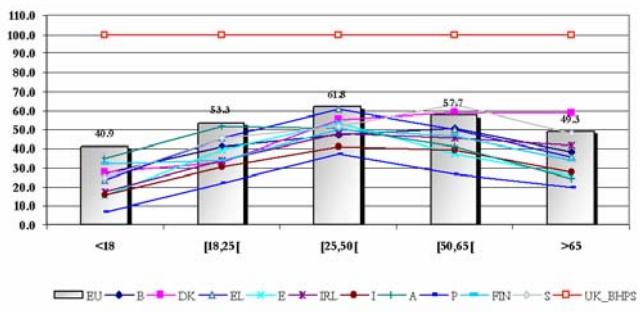
The original question is: “Do you smoke or did you ever smoke?” (1) Smoke daily, (2) Smoke occasionally, (3) Do not smoke, used to smoke daily, (4) Do not smoke, used to smoke occasionally, (5) Never smoked. The study is restricted to the percentage of the population stating that they ‘Smoke daily, occasionally or do not smoke but used to smoke daily’ (smokers) or ‘Never smoked, do not smoke but used to smoke occasionally’ (non-smokers).

In the database (v. 06/2003), the data are available from 1998 to 2000 for numerous MS. But, some differences could be indexed in the questionnaires. Indeed, in Sweden, the question was “Do you smoke daily? Yes/No” from 1997 to 2001. In Germany, in the SOEP survey the question was not asked in 2000, and several questions were used in 1998, 1999 and 2001. In 1999, the questionnaire used in the United-Kingdom survey (BHPS) asked only one question on cigarettes consumption. The information is not available for this country in 1998 and 2000 but data are available for these two waves in the database.

Age group

In 2000, among European smokers, 12% have less than 25 years old, among non-smokers, 47% have more than 50. The age distribution seems to be the same for all the MS whatever the group considered (smokers/non-smokers) (cf. figures in annexes).

Figure 72: Rate of smokers according to their age group
– Yearly respondents in 2000, Standardised data –



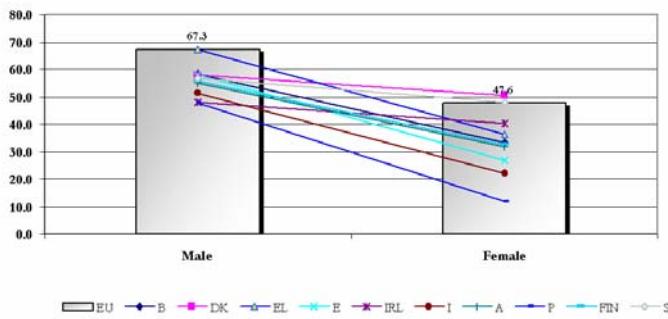
It is necessary to dissociate the United-Kingdom-BHPS to the other countries. Indeed, the rate of English smokers is exceptionally high in 1998 and 2000 (100% of smokers for these two waves, but the question was not asked in questionnaires). But, on average with the other MS, about 50% of [25,50] are smokers, for only 23% of [16,18]. The lowest rates are recorded for Portugal (7% for [16,18] and 37% for [25,50]).

The European age distributions by group smoker/non-smoker look the same for the samples original and always in 2000, but some differences are recorded between these two samples and ‘yearly sample’. Most of the differences are recorded for the age group [18,25]. Differences between waves can occur. But the strongest variations are recorded between 1998/1999 (at the European level with yearly respondents).

Gender

In 2000, among smokers, the European rate of male represents 61% (67% for Spain, 68 for Italy and 78% for Portugal), for 37% in the other group (non-smokers).

Figure 73: Rate of smokers according to gender
– Yearly respondents in 2000, Standardised data –



In 2000, the European average rate of smokers (without UK) is 56% for male, and 34% for female. The European gender distribution by group of tobacco consumption look the same whatever for ‘original’ and ‘always’ samples but differences are recorded between these two groups the yearly respondents.

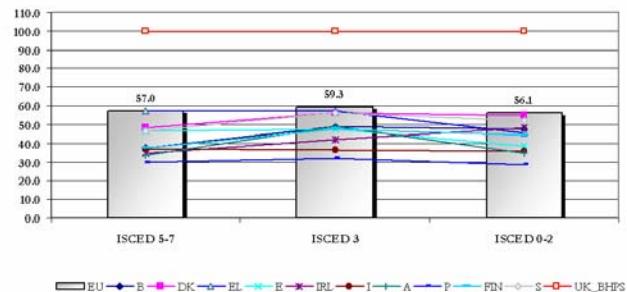
Education

In 2000, among European smokers, 21% have a high level of education (ISCED 5-7) and among the non-smokers 57% have a low education level (ISCED 0-2). Distribution differences could occur between MS.

It is necessary to dissociate the United-Kingdom-BHPS to the other countries. Indeed, the rate of English smokers is exceptionally high. But, on average with the other MS, about 43% of people of the lowest education level (ISCED 0-2) smoke, for 41% for the highest education level (ISCED 5-7).

The European distribution by education level according to the tobacco consumption in 2000 gives similar results whatever the sample considered (yearly; original or always). Nevertheless, the strongest variation inter-waves, at the European level, are recorded between 99/00 for ISCED 3 and ISCED 0-2.

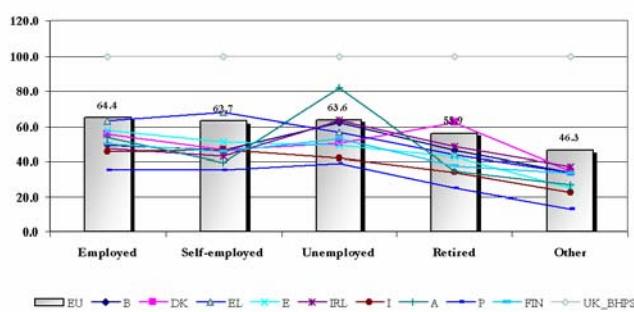
Figure 74: Rate of smokers according to the education level
– Yearly respondents in 2000, Standardised data –



Activity

In 2000, among European smokers, 49% were employed, 16% retired, 10% self-employed and 6% unemployed. The activity distribution is different for non-smokers (8% self-employed, 5% unemployed, 31% of employed, 20% retired).

Figure 75: Rate of smokers according to the activity – Yearly respondents in 2000, Standardised data –



It is necessary to dissociate the United-Kingdom-BHPS to the other countries. Indeed, the rate of English smokers is exceptionally high. But, on average with the other MS, about 55% of unemployed and 51% of employed smoke, for only 42% of retired and 47% of self-employed.

The European distribution by activity gives similar results in 2000 whatever the sample considered (yearly; original or always). The strongest variation inter-waves are recorded between 98/99 for retired people, and between 99/00 for ‘other’.

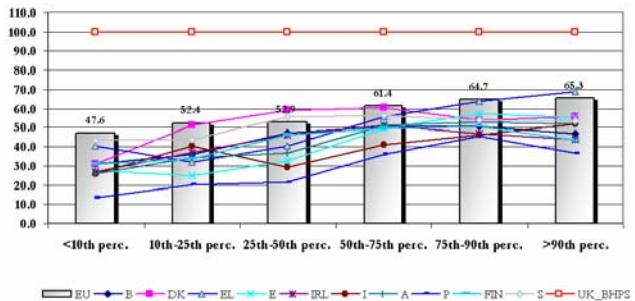
Income

In 2000, among European smokers, 11% have the highest income ($>90^{\text{th}}$ percentile) and 43% are below the median. On the contrary, among European non-smokers, 57% are below the median and 8% have the highest income ($>90^{\text{th}}$ percentile).

It is necessary to dissociate the United-Kingdom-BHPS to the other countries. Indeed, the rate of English smokers is exceptionally high. But, on average with the other MS, about 51% of people with the highest level of income smoke, for only 30% for people with the lowest one.

Differences between considered samples (yearly, original or always) are not really significant (cf. figures in annexes). The strongest variation inter-waves is recorded between 98/99 for the income group 10th-25th percentile.

Figure 76: Rate of smokers according to the income level – Yearly respondents in 2000, Standardised data –



Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is ‘Never smoked, do not smoke but used to smoke occasionally’. Thus, the odds ratio adjusted give the probability to move from this state to the state ‘Smoke daily, smoke occasionally, do not smoke but used to smoke daily’ according to usual variables as activity, age, education, gender and income.

For numerous countries, unemployed or retired groups have about 1.5 to 3 more times likely to move from the ‘non-smoker’ status than the employed group. The biggest OR are recorded for Austria ($\text{OR}_{\text{unemployed}} = 6.0$ in 2000) and for Belgium ($\text{OR}_{\text{unemployed}} = 2.3$ in 1998).

Furthermore, the age group [25,50[have the highest probability to move from the group ‘non-smoker’ to the group ‘smoker’ according to the OR ($\text{OR} < 1$ for the other groups). It is strongly marked for the groups [16,18[and +65.

Austria has the most marked OR for the highest level of education (with ISCED 3 the level of reference): $\text{OR}_{\text{ISCED 5-7}} = 0.5$ in 1998 and 2000. Ireland has the most marked OR for the lowest level of education: $\text{OR}_{\text{ISCED 0-2}} = 1.4$ in 1998 and 1.3 in 2000.

The probability to move from the state ‘non-smoker’ to the state ‘smoker’ seems to depend highly on the gender (OR between 0.1 and 0.9). The probability to smoke is stronger for male than female.

According to the results obtained in the OR table, the probability to move from the state ‘non-smoker’ to the state ‘smoker’ depends on the level of income: this probability increase with the level of income (the higher the income level is, the stronger the probability to smoke is).

Differences between income levels are not obvious to synthesise. Indeed, the results depend of each MS considered. But globally, all the OR are included in 0.8 and 1.2, synonymous of low variation between the group of interest and the group of reference [$50^{\text{th}}\text{-}75^{\text{th}}$ percentile].

During the study, it appeared that rate of English smokers is exceptionally high in 1998 and 2000 (100% of smokers for these two waves, but the question was not asked in questionnaires, cf. documents in annex). Thus, it is necessary to dissociate the United-Kingdom-BHPS to the other countries for the comparison.

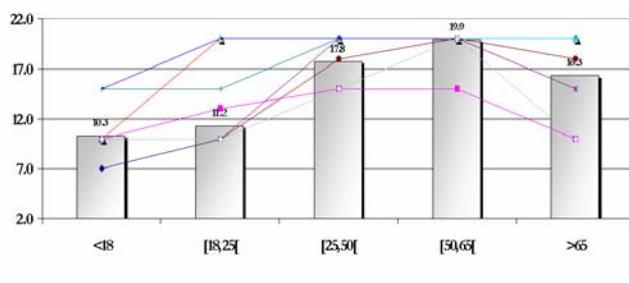
PH017: Cigarette consumption

The original question is “Number of cigarettes smoked per day (currently or in the past)”: quantitative answer. This question was asked only if the respondent is or was a smoker (PH016 = ‘Smoke daily’ or ‘Do not smoke, used to smoke daily’). In the database (v. 06/2003), the data are available from 1998 to 2000 for all the MS (except for Spain, Sweden in 1998 and Germany-SOEP in 2000).

Nevertheless, according to the questionnaires available, this question was never asked in Spain and was not asked in Germany-SOEP in 1999 and 2000 but data are available in the database in 1999 for this country. Furthermore, the question concerned only the currently consumption in UK-BHPS (in 1998 and 2000) and the question concerned the consumption of cigarettes and cigarillos in Sweden for all the period of interest.

Age group

Figure 77: Number (median) of cigarettes smoked per day (currently or in the past) among smokers by age group – Yearly respondents in 2000, Standardised data –



In 2000, among European smokers, 50% of respondents aged +50 smoked at most 20 cigarettes per day, for only 12 cigarettes for respondents younger than 25 years old. Oldest Finnish smoke 20 cigarettes per day for only 10 in the United-Kingdom and in Denmark for the same age group (+65).

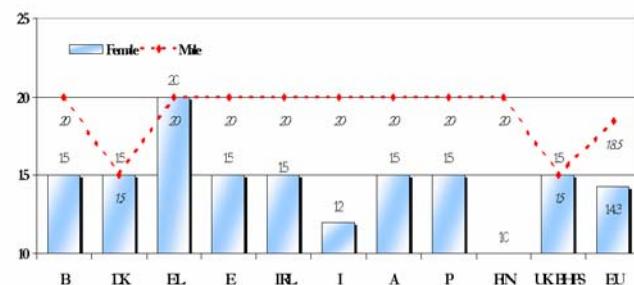
At the European level, the cigarette consumption is about 17 per day at most for [25,65] and less than 15 at most for youngest people. The differences between waves are not significative.

Gender

Except in Denmark, Greece and the United-Kingdom-BHPS, in 2000, among smokers, the cigarette consumption is higher for male than female (European average of 14.3 cigarettes at most per day for female and 18.5 for male). The consumption of cigarettes among female smokers is the lowest in Finland and Italy.

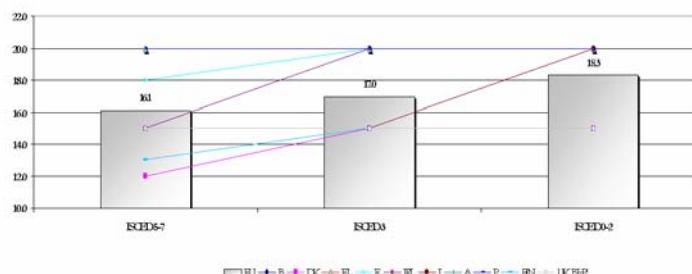
The consumption of cigarettes seems to increase for female across waves, while the trend is reversed for male.

Figure 78: Number (median) of cigarettes smoked per day (currently or in the past) among smokers by gender – Yearly respondents in 2000, Standardised data –



Education

Figure 79: Number (median) of cigarettes smoked per day (currently or in the past) among smokers by education level – Yearly respondents in 2000, Standardised data –

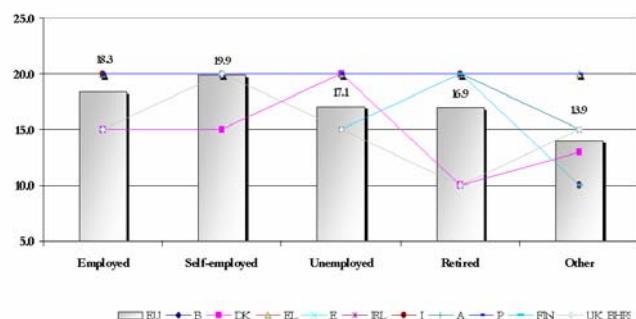


In 2000, among European smokers, the higher the level of education is, the lower the cigarette consumption is (19 at most for ISCED 0-2, 17 at most for ISCED 3 and ISCED 5-7).

Furthermore, the number of cigarettes consumed per day seems to decrease across waves.

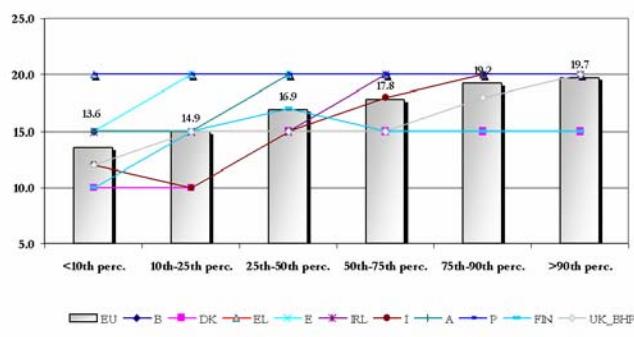
Activity

Figure 80: Number (median) of cigarettes smoked per day (currently or in the past) among smokers by activity – Yearly respondents in 2000, Standardised data –



Income

Figure 81: Number (median) of cigarettes smoked per day (currently or in the past) among smokers by income level – Yearly respondents in 2000, Standardised data –



In 2000, among European smokers, the cigarette consumption increase with the level of income (the highest the income level is, the highest cigarettes consumption is). Smokers with the lowest income level smoke 14 cigarettes at most per day, for 20 cigarettes for the highest level of income.

The cigarette consumption decreases for smokers with a level of income lower than 75th percentile while the trend is reversed for the highest ones.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is ‘18 cigarettes at most per day’. Thus, the odds ratio adjusted give the probability to move from this state to the state ‘More than 18 cigarettes per day’ according to usual variables as activity, age, education, gender and income.

For numerous countries, self-employed, unemployed or retired groups have about 1.2 to 2.5 more times likely to move from the ‘<18 cigarettes’ status than the employed group. The biggest OR are recorded for Portugal (OR_{unemployed} = 2.3 in 2000).

Furthermore, the age group [25,50[have the highest probability to move from the group ‘<18 cigarettes’ to the group ‘>18 cigarettes’ according to the OR of the age groups [16,18[, [18,25[and >65. But the trend is reversed for the age group [50,65[.

As discussed in the part above, it appears that the higher the level of education is, the lower the cigarette consumption is ($OR_{ISCED\ 0-2} > 1$ and $OR_{ISCED\ 5-7} < 1$).

The probability to move from the state ‘<18 cigarettes’ to the state ‘>18 cigarettes’ seems to depend highly on the gender (OR between 0.3 and 0.9). The probability to move from the initial state to the other one is stronger for male than female.

According to the results obtained in the OR table, the probability to move from the <18 cigarettes’ to the state ‘>18 cigarettes’ depends on the level of income: this probability increase with the level of income (the higher the income level is, the stronger the probability to smoke is).

Even if slightly modifications of this health question were recorded in the questionnaires for Sweden and the United-Kingdom-BHPS, the results are similar to the other MS.

PH018: Cigar consumption

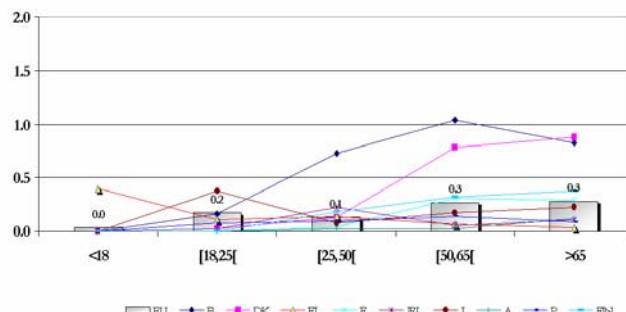
The original question is “Number of cigars smoked per day (currently or in the past)”: quantitative answer. This question was asked only if the respondent is or was a smoker (PH016 = ‘Smoke daily’ or ‘Do not smoke, used to smoke daily’). In the database (v. 06/2003), the data are available from 1998 to 2000 for all the MS (except for Spain, Sweden in 1998 and Germany-SOEP in 2000, the United-Kingdom in 2000).

Nevertheless, according to the questionnaires available, this question was never asked in Spain and was not asked in Germany-SOEP in 1999 and 2000 but data are available in the database in 1999 for this country. The same case is observed for the United-Kingdom in 1998 and 1999. Furthermore, the question used for Germany-SOEP in 1998 concerns the cigarettes, pipes and cigarillos consumption (aggregated).

Age group

In 2000, among European smokers, 50% of respondents aged +50 smoked at most 0.3 cigars per day. Oldest Belgian and Danish smoke 1 cigar at most per day. According to the results, the cigar consumption is very low for all the MS.

Figure 82: Number (median) of cigars smoked per day (currently or in the past) among smokers by age group – Yearly respondents in 2000, Standardised data –



The results for 1997 and 1998 are very surprising. But Germany explains these values. Indeed, Germany gives surprising results compared to the other MS (for example, for the age group [18,25], the consumption of cigars is about 15 at most for Germany in 1998, while the consumption is about 0.1 in the other MS).

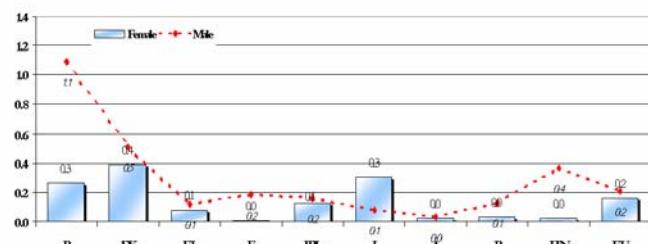
Indeed, in 1998, the question used in Germany-SOEP concerned the cigarettes, pipes and cigars consumption (aggregated). Furthermore, in 1998, 96% of the information is missing in the database for this country (and 50% in 1999).

Gender

Except in Italy and Austria, in 2000, among smokers, the cigar consumption is higher for male than female. Nevertheless, the differences are lower than 0.8 (maximum for Belgium).

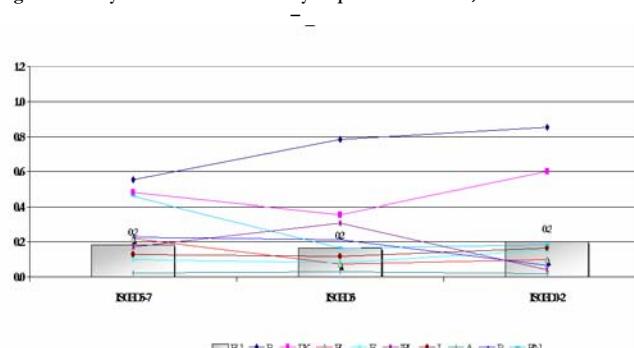
As for the age groups, Germany gives surprising results compared to the other MS.

Figure 83: Number (median) of cigars smoked per day (currently or in the past) among smokers by gender – Yearly respondents in 2000, Standardised data –



Education

Figure 84: Number (median) of cigars smoked per day (currently or in the past) among smokers by education level – Yearly respondents in 2000, Standardised data



In 2000, among European smokers, no distinction between the levels of education can be made. The cigar consumption is about 0.2 at most per day for the three groups. Belgium and Denmark have the highest results whatever the level of education.

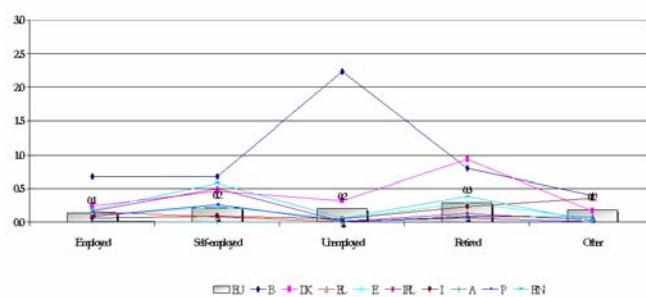
As for the age groups Germany gives surprising results compared to the other MS.

Activity

In 2000, among European smokers, retired people smoke 0.3 cigar at most per day, while self-employed and unemployed smoke 0.2 cigar at most. As for the employed people, the cigar consumption is about 0.1 cigars at most per day.

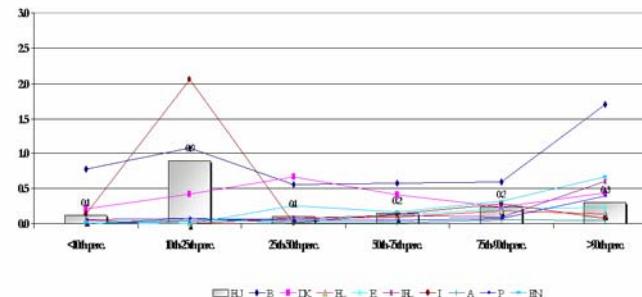
As for the age groups Germany gives surprising results compared to the other MS.

Figure 85: Number (median) of cigars smoked per day (currently or in the past) among smokers by activity – Yearly respondents in 2000, Standardised data –



Income

Figure 86: Number (median) of cigars smoked per day (currently or in the past) among smokers by income level – Yearly respondents in 2000, Standardised data –



In 2000, among European smokers, the cigar consumption is the highest for the income group [10th-25th percentile] with 0.9 cigar at most per day. All the other groups are below the threshold of 0.3.

As for the age groups Germany gives surprising results compared to the other MS.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is '2 cigars at most per day'. Thus, the odds ratio adjusted give the probability to move from this state to the state 'More than 2 cigars per day' according to usual variables as activity, age, education, gender and income.

However the comparisons are not really obvious because of the threshold selected for the creation of classes: '2 cigars at least per day' or '2 cigars at most per day'. Indeed, the selection of this value was highly influenced by Germany. Because the number was selected as the global European median during the descriptive analysis implemented previously. But, for a majority of

MS, the cigar consumption is almost null. It is not relevant to comment the OR obtained. Nevertheless, the table is given in annex for information purposes.

During the study, it appeared that the number of cigars smoked by German people is exceptionally high in 1998 and 1999 compared to the other MS. Indeed, the question used in 1998 concerned the cigarettes, pipes and cigars consumption (aggregated). Thus, it is necessary to dissociate Germany to the other countries for the comparison.

PH019: Pipe consumption

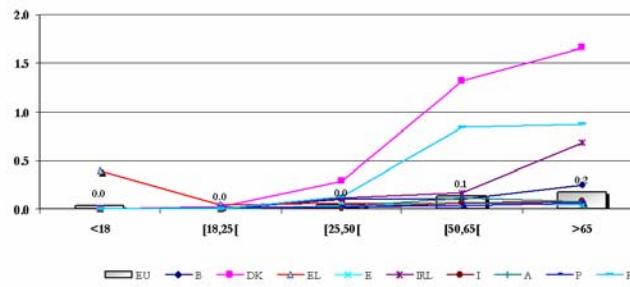
The original question is “Number of pipes smoked per day (currently or in the past)”: quantitative answer. This question was asked only if the respondent is or was a smoker (PH016 = ‘Smoke daily’ or ‘Do not smoke, used to smoke daily’). In the database (v. 06/2003), the data are available from 1998 to 2000 for all the MS (except for Spain, Sweden in 1998 and Germany-SOEP in 2000, the United-Kingdom in 2000).

Nevertheless, according to the questionnaires available, this question was never asked in Spain and was not asked in Germany-SOEP in 1999 and 2000 but data are available in the database in 1999 for this country. The same case is observed for the United-Kingdom in 1998 and 1999. Furthermore, the question used for Germany-SOEP in 1998 concerned the cigarettes, pipes and cigars consumption (aggregated).

Age group

In 2000, among European smokers, 50% of respondents aged +50 smoked at most 0.2 pipes per day. Oldest Danish smoke 2 pipes at most per day. According to the results, the pipe consumption is very low for all the MS.

Figure 87: Number (median) of pipes smoked per day (currently or in the past) among smokers by age group – Yearly respondents in 2000, Standardised data –



As for the cigar consumption, results for 1997 and 1998 are very surprising. But Germany explains these values. Indeed, in 1998, the question used in Germany-SOEP concerned the cigarettes, pipes and cigars consumption (aggregated).

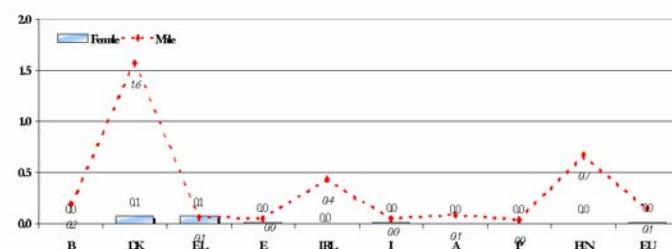
Furthermore, in 1998, 96% of the information is missing in the database for this country (and 50% in 1999).

Gender

In Denmark, Ireland and Finland, the pipe consumption is higher for male than female. Nevertheless, except for Denmark, differences are very low (near to 0).

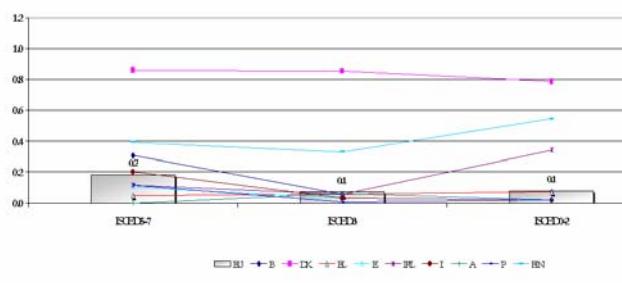
As for the age groups Germany gives surprising results compared to the other MS.

Figure 88: Number (median) of pipes smoked per day (currently or in the past) among smokers by gender – Yearly respondents in 2000, Standardised data –



Education

Figure 89: Number (median) of pipes smoked per day (currently or in the past) among smokers by education level – Yearly respondents in 2000, Standardised data –



In 2000, among European smokers, smokers with the highest level of education smoke more pipes than the others: 0.2 pipe at most per day for ISCED 5-7, 0.1 pipe at most per day for ISCED 3 and ISCED 0-2. Finland and Denmark have the highest results whatever the level of education.

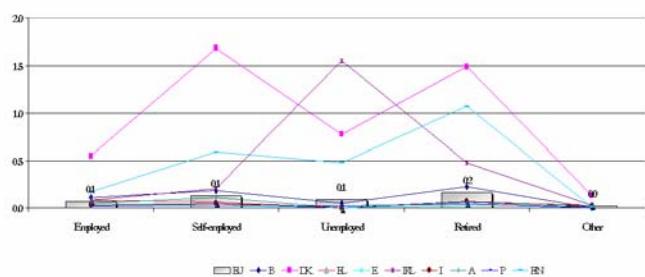
As for the age groups Germany gives surprising results compared to the other MS.

Activity

In 2000, among European smokers, retired people smoke 0.2 pipe at most per day, while employed, self-employed and unemployed smoke 0.1 pipe at most.

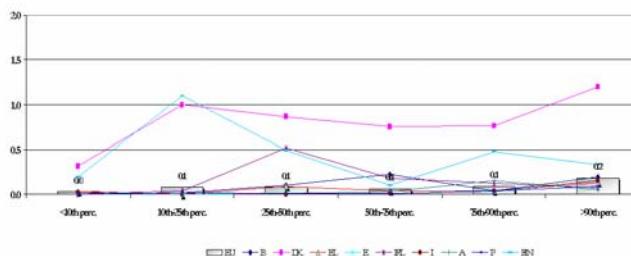
As for the age groups Germany gives surprising results compared to the other MS.

Figure 90: Number (median) of pipes smoked per day (currently or in the past) among smokers by activity – Yearly respondents in 2000, Standardised data –



Income

Figure 91: Number (median) of pipes smoked per day (currently or in the past) among smokers by income level – Yearly respondents in 2000, Standardised data –



In 2000, among European smokers, the pipe consumption is the highest for the income group >90th percentile (0.2 pipe at most per day). But differences are not very significative between income groups.

As for the age groups Germany gives surprising results compared to the other MS.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is ‘2 pipes at most per day’. Thus, the odds ratio adjusted give the probability to move from this state to the state ‘More than 2 pipes per day’ according to usual variables as activity, age, education, gender and income.

Before all, it is necessary to precise that the comparisons are not really obvious because of the threshold selected for the creation of classes: ‘2 pipes at least per day’ or ‘2 pipes at most per day’. Indeed, the selection of this value was highly influenced by Germany. Because the number was selected as the global European median during the descriptive analysis implemented previously. But, for a majority of MS, the pipe consumption is almost null. It is not relevant to comment the OR obtained. Nevertheless, the table is given in annex for information purposes.

During the study, it appeared that the number of pipes smoked by German people is exceptionally high in 1998 and 1999 compared to the other MS. Indeed, the question used in 1998 concerned the cigarettes, pipes and cigars consumption (aggregated). Thus, it is necessary to dissociate Germany to the other countries for the comparison.

Anthropometry

In the questionnaires, the height (PH020) and the weight (PH021) were collected in order to compute the Body Mass Index (PH022): Weight/Height²

Underweight	BMI below 18.5
Normal weight	BMI = [18.5 – 25[
Overweight	BMI = [25 – 30[
Obesity	BMI = 30 and above

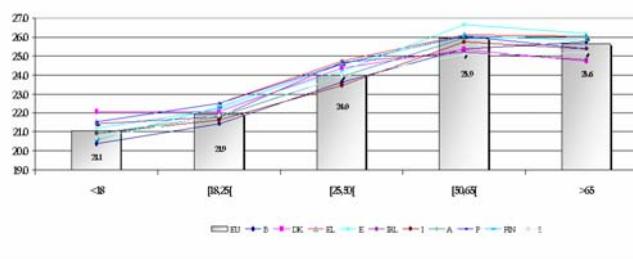
PH022: Body Mass Index

This indicator was computed with PH020 and PH021. In the database (v. 06/2003), the data are available from 1998 to 2000 for all the MS (except for Germany-SOEP, France, Netherlands, and The United-Kingdom-BHPS from 1998 to 2000, Sweden in 1998).

Nevertheless, according to the questionnaires available, this question was never asked in Spain but data are available in the database from 1998 to 2000. The same case is observed for Sweden in 1998 and 1999.

Age group

Figure 92: BMI (median) by age group – Yearly respondents in 2000, Standardised data –



In 2000, among European people BMI is the most important for the age group [50,65[with a median of 25.9. For this age group, Spain has the highest value (26.6) while Sweden has the lowest (25.1).

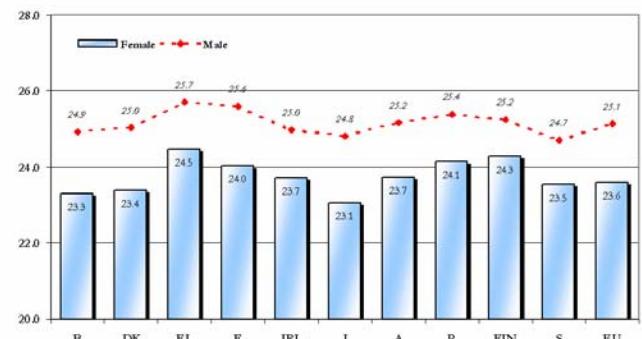
No evolution of the BMI is recorded across waves for all the age group.

Gender

In 2000, among European people, the BMI for male is about 25.1 at most, and 23.6 at most for female. The BMI is the highest for Greece, Portugal, Finland and Spain (about 24-24.5 for female and 25.2-25.7 for male). Belgium, Denmark and Italy have the lowest ones (about 23.1-23.4 for female and about 24.8-24.9 for male).

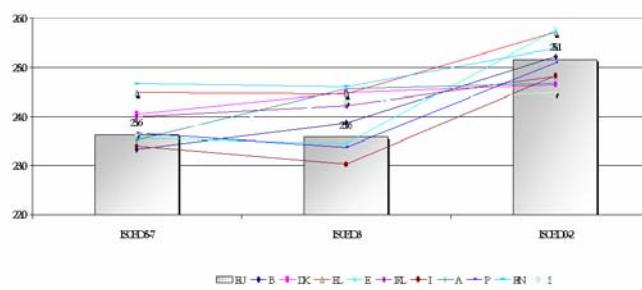
A slightly evolution is observed between 1998/2000 for male (25.4/25.5) and female (23.9/24.0).

Figure 93: BMI (median) by gender – Yearly respondents in 2000, Standardised data –



Education

Figure 94: BMI (median) by education level – Yearly respondents in 2000,
Standardised data –



In 2000, among European people, the BMI associated to the lowest level of education is higher than the other groups: 25.1 at most for ISCED 0-2, 23.6 at most for ISCED 3 and ISCED 5-7. Greece and Finland have the highest values whatever the level of income considered.

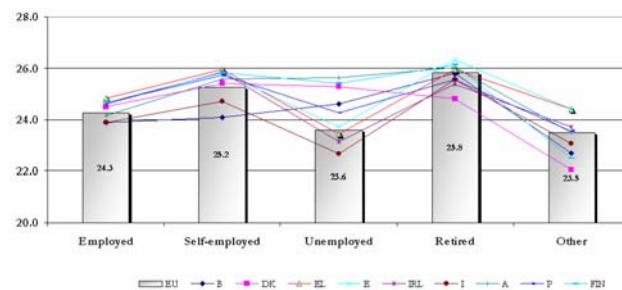
A difference exists between the lowest level of education and the others. Furthermore, a slight increase is observed for all the levels.

Activity

In 2000, among European people, the BMI associated to self-employed (25.2 at most) and retired (25.8 at most) people are higher than the other activities. For unemployed people, differences between MS are recorded: Austria, Finland and Denmark have a higher BMI than Spain, Greece, Ireland and Italy.

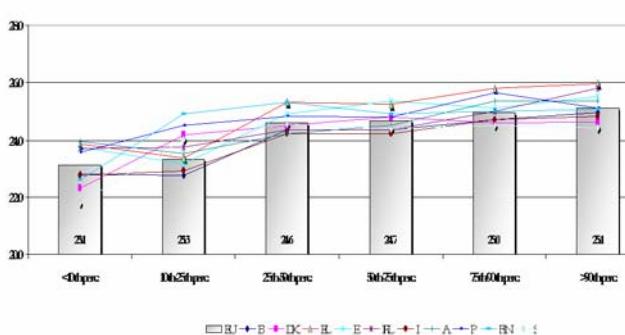
An evolution across waves is recorded for all the activities. Except for the group ‘other’, all the activities increase slightly between 1998 and 2000.

Figure 95: BMI (median) by activity – Yearly respondents in 2000,
Standardised data –



Income

Figure 96: BMI (median) by income level – Yearly respondents in 2000,
Standardised data –



The BMI seems to increase according to the income level. People with the highest level of income have the highest BMI.

An evolution across waves is recorded for all the income level. The strongest variation between 1998 and 2000 is recorded for the income level 25th-50th percentile.

Multivariate analysis

A multivariate analysis was implemented in order to compute Odds Ratio adjusted with the variable age group, gender, activity, income and education. But, activity data are not available in the database for Sweden and the Netherlands. Thus, the study could not be carried out for these two countries. The group of reference used for this multivariate analysis is ‘BMI < 25’. Thus, the odds ratio adjusted give the probability to move from this state to the state ‘Overweight’ according to usual variables as activity, age, education, gender and income.

For numerous countries, self-employed or retired groups have about 1.1 to 1.6 more times likely to move from the ‘BMI < 25’ status than the employed group. The biggest OR are recorded for Finland ($OR_{retired} = 1.6$ in 2000).

Furthermore, the OR increases with ageing (with [25,50[the group of reference). This trend is the most marked for Austria ($OR_{>65} = 2.3$ in 1998 and 3.1 in 2000) and Spain ($OR_{>65} = 2.5$ in 1998 and 2.6 in 2000).

As discussed in the part above, it appears that people with the lowest level of education have the highest BMI ($OR_{ISCED\ 0-2} > 1$).

The probability to move from the state ‘BMI < 25’ to the state ‘Obesity’ seems to depend highly on the gender (OR between 0.4 and 0.7). The probability to move from the initial state to the other one is stronger for male than female.

According to the results obtained in the OR table, the probability to move from the state ‘BMI < 25’ to the state ‘obesity’ depends on the level of income: for the highest level of income ($>75^{\text{th}}$ percentile), the OR are globally included in [1.2,2.0].

2.1.3. Member States comparability according to the health-related variables

During the study of each health-related variable, it appeared that the comparability was not possible for some countries. This part aims to synthesise the comparability of Member States on the basis of the health-related variables. Before all, it is necessary to precise that **the ‘Always respondents’ and ‘Original participants’ have similar distributions whatever the health-related variable considered.** The following part gives an overview of the answers comparability (according to the availability of each country across waves):

Total comparability

PH001 (1994-2001)	How is your health in general?
PH002 (1995-2001)	Do you have any chronic physical or mental health problem, illness or disability?
PH006 (1994-2001)	During the past 12 months, have you been admitted to a hospital as an in-patient?
PH007 (1994-2001)	Number of nights spent in hospital during the past 12 months
PH008 (1995-2001)	During the past 12 months, about how many times have you consulted a general practitioner (including home visits by the doctor)?
PH017 (1998-2001)	Number of cigarettes smoked per day (currently or in the past)
PH022 (1998-2001)	Body mass index
All the data are comparable for the Member States with observed data.	

Problem of comparability for some Member States

PH003 (1995-2001)	Are you hampered in your daily activities by <u>this</u> physical or mental health problem, illness or disability? (Only for persons with a physical or a mental health problem, illness or disability)
PH003A* (1994-2001)	Are you hampered in your daily activities by <u>any</u> physical or mental health problem, illness or disability? (Only for persons with a physical or a mental health problem, illness or disability)
For some MS , hampered frequencies seem to be very high.	
Furthermore (<u>only for PH003</u>), all French people having any chronic physical or mental health, illness or disability, are hampered in their daily activities. Thus, this country can not be compared to the others.	

*: Built with PH002 and PH003 from 1995 to 2001

PH004 (1994-2001)	During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of <u>illness or injury</u> ?
PH005 (1994-2001)	During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of an <u>emotional or mental health problem</u> ?
The rate of French people cutting down things usually done is exceptionally high in 1995, 1998, 1999 and 2000. Thus, this country can not be compared to the others.	

PH009 (1995-2001)	During the past 12 months, about how many times have you consulted a medical specialist (including out-patient consultations but excluding any consultation during hospitalisation)?
PH010 (1995-2001)	During the past 12 months, about how many times have you consulted a dentist?
According to the results obtained, the United-Kingdom-BHPS survey has results different to the other Member States. But, initially no question was used in questionnaires to collect data but information is available in the database for this country. Thus, this country can not be compared to the others.	

PH016 (1998-2001)	Do you smoke or did you ever smoke?
During the study, it appeared that rate of English smokers is exceptionally high in 1998 and 2000 (100% of smokers for these two waves, but the question was not asked in questionnaires, cf. documents in annex). Thus, it is necessary to dissociate the United-Kingdom-BHPS to the other countries for the comparison.	

PH018 (1998-2001)	Number of cigars smoked per day (currently or in the past)
PH019 (1998-2001)	Number of pipes smoked per day (currently or in the past)
<p>During the study, it appeared that the number of cigars and pipes smoked by German people is exceptionally high in 1998 and 1999 compared to the other MS (cf. documents in annex). Indeed, the question used in 1998 concerned the cigarettes, pipes and cigars consumption (aggregated). Thus, it is necessary to dissociate Germany to the other countries for the comparison.</p>	

Problem of comparability for all the Member States

PH011* (1994-2001)	Number of times the person has been to a doctor or a dentist or optician, during the past 12 months. (aggregated)
<p>During this study it appears that the results depend strongly of the Member State. The trends observed are similar, but the rates associated can vary strongly from a country to another. Indeed, numerous variations were made in the questionnaires for this question (cf. annexes). Thus, comparisons between countries are not obvious.</p>	

*: Built with PH008, PH009 and PH010 from 1995 to 2001

2.2. Introduction to the longitudinal study

This part aims to perform a **cross-sectional analysis by year on the time frame period 1998-2001**. The same data as those used for the longitudinal study were used in order to keep a link between these two approaches (cross-sectional and longitudinal). Thus a comparison could be made on the results in the third part of this document. The study was implemented on the **health-related variables of paramount interest**. Only interviewed people from 1998 to 2001 were conserved in the study. Furthermore, data were **standardised on the basis of the WHO's European Standard Population Table**. This is a standardisation implemented on age group, but it does not concern the gender. Every health-related variable of interest was **tabulated by gender, age group, education, income and economic activity**. Calculations were made on the basis of the data available in the **ECHP UDB v. 12/2003, the latest version available during the study**. To complete this analysis, **regressions were carried out** in order to obtain model parameters according to each health-related variable and to compute Odds Ratio giving the probability to move from a state to another.

2.2.1. Methodology

The methodology used in this part is based on that described in the previous one with some modifications. The variations concern essentially the classes created for the descriptive variables and those used for some health-related variables.

Variables used for the tabulations

All the health-related variables were **tabulated by age group, gender, economic activity, education and income**. The following table gives the classes used in the study according to each variable of interest. Reference classes are in bold (used in logistic regression).

Table 9: Classes' definition of variables of interest

Gender		Age Group	
Male	1	< 25	1
Female	2	[25 , 35[	2
Education		[35 , 45[	3
PT022: Highest level of general or higher education completed		[45 , 55[	4
Recognised 3 rd level education (ISCED 5-7)	1	[55 , 65[	5
Second stage of 2nd level education (ISCED 3)	2	[65 , 75[	6
Less than second stage of 2 nd education (ISCED 0-2)	3	>= 75	7
Income		Economic activity	
<i>Creation of classes* based on PI100: "Total net personal income"</i>		<i>PC013: Most frequent activity, last year</i>	
<= 20 th percentile	1	Employee	1
20 th – 40 th percentile	2	Self-employed	2
40th – 60th percentile	3	Unemployed	3
60 th – 80 th percentile	4	Retired	4
> 80 th percentile	5	Other economically inactive	5

*: Classes for income created according to each country

Health-related variables selected recoded in 2-point scale

A comparison was made between the 18 HIS items⁷, the Minimum European Health Module (MEHM) and the health-related variables in the ECHP database, in order to select the variables of paramount interest. The following table gives the health-related variables selected. Some variables were recoded in 2-point scale to simplify the analysis.

Table 10: Classes' definition of health-related variables

PH001* : How is your health in general?	
Bad, Very Bad, Fair	1
Very Good, Good	2
PH002: Do you have any chronic physical or mental health problem, illness or disability?	
Yes	1
No	2
PH003*: Are you hampered in your daily activities by this physical or mental health problem, illness or disability?	
Yes severely, Yes to some extend	1
No	2
PH006: During the past 12 months, have you been admitted to a hospital as an in-patient?	
Yes	1
No	2
PH008*: During the past 12 months, about how many times have you consulted a general practitioner (including home visits by the doctor)?	
More than 2 times	1
2 times or less	2
PH016*: Do you smoke or did you ever smoke?	
Smoke daily, Smoke occasionally, Do not smoke but used to smoke daily	1
Never smoked, Do not smoke but used to smoke occasionally	2
PH022*: Body mass index	
Overweight or Obesity (BMI >= 27)	1
“Normal” weight (BMI < 27)	2

*: Classes recoded in 2-point scale

Sample considered and countries studied

The sample used for the analysis concerns **responding people from 1998 to 2001**. However, for some health-related variables, data is not available for some Member States. The following table gives the MS studied in the analysis by health-related variable:

Table 11: Member States with available data by health-related variable

Health-related variable studied	MS availability*
PH001	BE, DK, DE SOEP, EL, ES, FR, IE, IT, NL, AT, PT, FI, UK BHPS
PH002	BE, DK, DE SOEP, EL, ES, FR, IE, IT, NL, AT, PT, FI, UK BHPS
PH003	BE, DK, DE SOEP, EL, ES, IE, IT, NL, AT, PT, FI, UK BHPS
PH006	BE, DK, DE SOEP, EL, ES, FR, IE, IT, NL, AT, PT, FI, UK BHPS
PH008	BE, DK, EL, ES, FR, IE, IT, NL, AT, PT, FI, UK BHPS
PH016	BE, DK, DE SOEP, EL, ES, IE, IT, AT, PT, FI
PH022	BE, DK, EL, ES, IE, IT, AT, PT, FI

*: No data available for NL concerning “Activity” – SE is not studied, people are not followed up from a wave to the next (Swedish Living Conditions Survey)

The European aggregate was built with the weight of the countries available for each variable considered.

⁷ “Health in Europe: Results from 1997-2000 surveys”, Detailed Tables, Theme 3: Population and social conditions, European Commission, 2003

Weight used in calculations

Several weights are used to compute frequencies associated to health-related variables. An **individual weight** is associated to each respondent (UDB variable: PG002). All interviewed persons receive the same cross-sectional weight, computed as the average of base weights (UDB variable: PG003) of all interviewed household members. This means that the sum of cross-sectional weights of persons in a household equals the sum of their base weights, which also implies that for the whole sample the cross-sectional weights are scaled such that their sum equals the total number of interviewed persons in households, i.e. the average per person is 1.

Furthermore, data were **standardised on the basis of the WHO's European Standard Population Table⁸**. This table allows standardising the age group in Europe.

Descriptive indicators

Each topic was **tabulated by class of usual variables** (age group, gender, activity, education, income level). Thus, frequencies were computed in order to visualise the distribution of the health status by year.

Multivariate analyses were implemented on the strengths **of correlations between health-related variables and usual variables** (agegroup, sex, education, activity and income). All the analyses were carried out by country for 1998 and 2001. Logistic models were used in order to compute Odds Ratio. This indicator allows giving the probability to move from a state to another ('good health status' to 'bad health status' for example with the variable PH001). The models computed contain all the usual variables, thus the OR are adjusted.

In order to group countries on the basis of the adjusted OR computed, **a hierarchical clustering approach⁹** was carried out.

2.2.2. Descriptive analysis of the selected health-related variables in 1998 and 2001

This analysis aims to give an overview of the global responses evolution to each health-related variable by age group, gender, income, activity and educational level. The results are presented for 1998 and 2001 in order to evaluate differences between MS across these two years.

⁸ "Statistics of health – Atlas of mortality in the Euroepan Union", Annex 1, European standard population

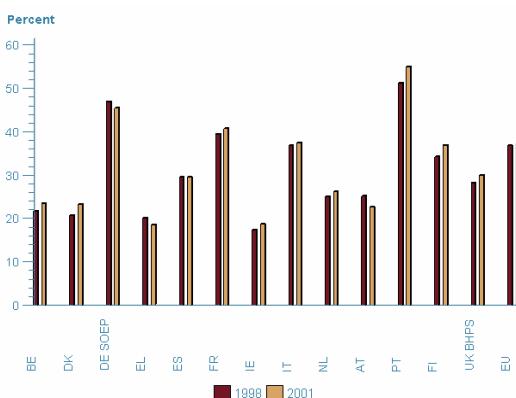
⁹ "The cluster procedure – SAS/STAT User's Guide", <http://www.macrosr.com/sasv8/sashtml/stat/chap23/index.htm>

PH001: Global overview of health

The question studied is: "How is your health in general?" (1) Fair, Bad, Very bad (2) Very Good, Good. The study is restricted to the percentage of the population stating that they perceive their health as fair, bad or very bad.

Overall level

Figure 97: Rate of people perceiving their health as fair, bad or very bad



At the overall level, 37% of the European people perceived their health as fair, bad or very bad in 2001. An increase of this rate is recorded for all the countries except for Germany, Greece and Austria. The frequencies of people perceiving their health as fair, bad or very bad is higher in Germany (45%), France (41%) and Portugal (55%). The lowest rates are recorded in Greece (18%) and in Ireland (19%).

Age and Gender

Starting from 45 years, more than 50% of German (58%) and Portuguese (67%) females perceived their health as fair, bad or very bad. The same trend is observed for Danish, English and Irish females but starting from 75 years. At the European level, the rate of females perceiving their health as fair, bad or very bad is decreasing between 1998 (40%) and 2001 (39%), while this trend is reversed for males across the same period (33% in 1998 and 35% in 2001). Furthermore, Portuguese males have the highest growth on this period starting from 45% to reach 51%, and German females have the greatest decrease with 51% in 1998 and 44% in 2001.

Figure 98: Rate of female perceiving their health as fair, bad or very bad in 2001

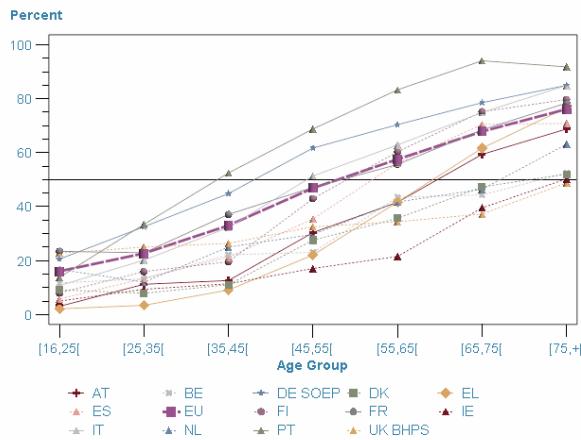
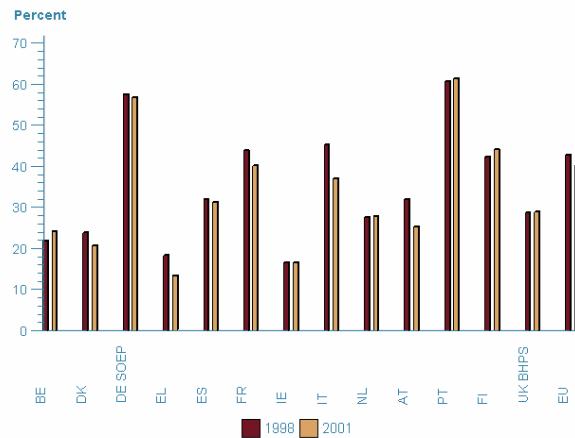
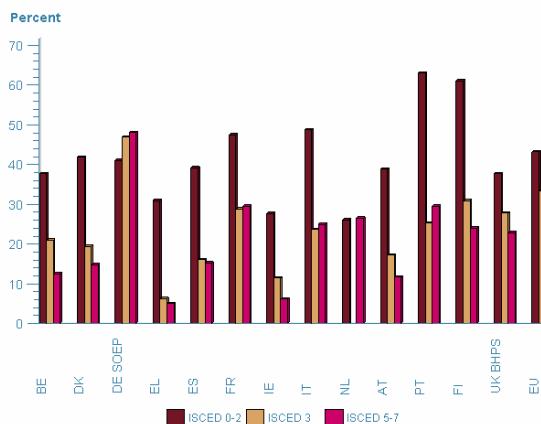


Figure 99: Rate of people in the age group 45-55 perceiving their health as fair, bad or very bad



Educational level

Figure 100: Rate of people perceiving their health as fair, bad or very bad according to the educational level in 2001



Except for Germany and the Netherlands, people with the lowest level of education are more numerous than the other groups to perceive their health as fair, bad or very bad. The highest rates are recorded for Finland (61%) and Portugal (63%). The more significative differences could be found in Greece and in Ireland

Among people with the highest level of education (ISCED 5-7), the strongest evolution is recorded for the Netherlands with 10% in 1998 and 26% in 2001.

Activity status

Whatever the country considered, retired people are the least numerous to perceive their health as good or very good. The same trend is observed for unemployed people in Belgium, Denmark and Germany.

Nevertheless, a descending trend is recorded between 1998 and 2001 for retired people in Greece (59% – 53%) and in Ireland (43% – 36%) and for unemployed in Greece (8% – 5%) and in the United-Kingdom (39% – 32%).

Unemployed Irish people were 23% to perceive their health as fair, bad or very bad in 1998 to reach 40% in 2001.

Income level

Figure 102: Rate of people perceiving their health as fair, bad or very bad according to the income level in 2001

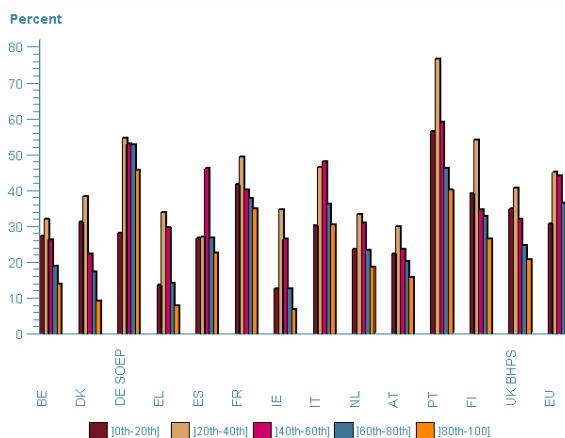
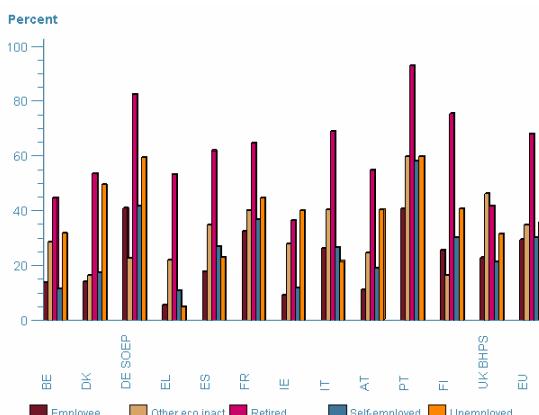


Figure 101: Rate of people perceiving their health as fair, bad or very bad according to the activity status in 2001



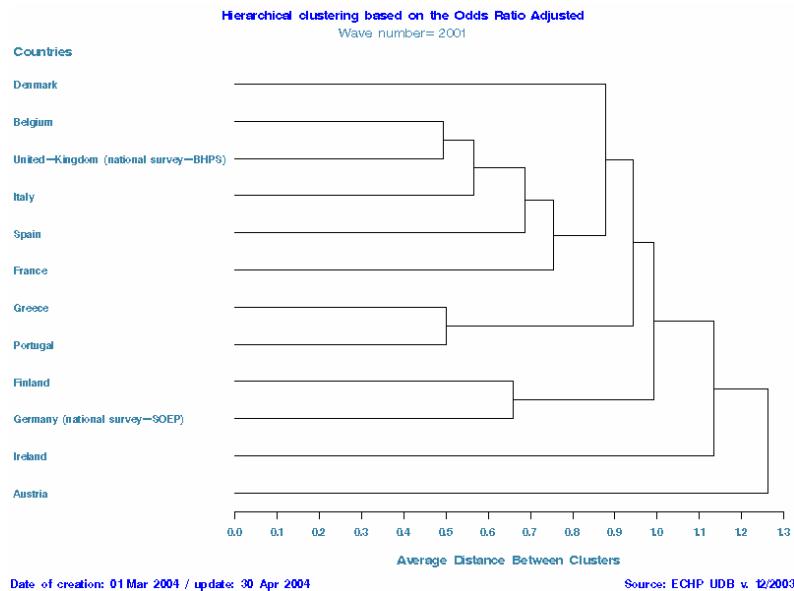
People with the highest income level are more numerous to perceive their health as good or very good.

Among people with the lowest income level, a large increase of the bad health status perception is recorded for Portugal (43% in 1998 and 56% in 2001) and for Finland (27% in 1998 and 39% in 2001). The trend is reversed for Germany with 37% in 1998 and 28% in 2001.

Comparative study of countries

The following figure is a tree diagram¹⁰ of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses.

Figure 103: Hierarchical clustering of Odds Ratio adjusted, 2001



The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Belgium seems to be close to the United-Kingdom. The same relation is observed between Greece and Portugal. In the opposite, the Ireland and the Austria seem to have results contrasted.

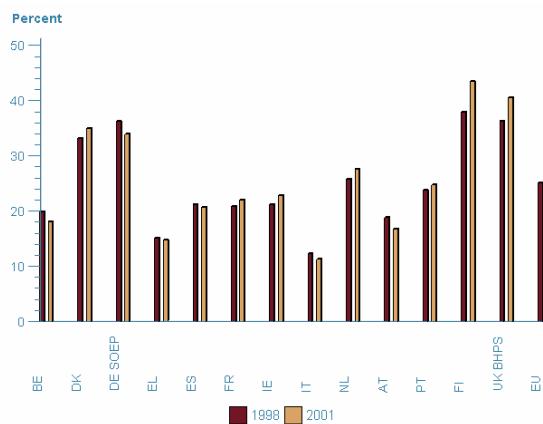
¹⁰ "The tree procedure – SAS/STAT User's Guide", <http://www.macrosr.com/sasv8/sashml/stat/chap66/index.htm>

PH002: Chronic physical or mental health problem, illness or disability

The question studied is: "Do you have any chronic or mental health problem, illness or disability?" (1) Yes, (2) No. The study is restricted to the percentage of the population stating that they have illness or disability.

Overall level

Figure 104: Rate of people with chronic physical or mental health problem, illness or disability



At the overall level, 25% of the European people stated that they have chronic or mental health problem, illness or disability in 2001. An increase is recorded for all the countries except for Belgium, Germany, Greece, Spain, Italy and Austria. The highest frequencies are recorded for Denmark (35%), Finland (44%), Germany (34%) and the United-Kingdom (41%). The lowest for Greece (15%) and Italy (11%).

Age and Gender

Starting from 55 years, more than 50% of Finnish (63%), English (56%), Danish (53%) and German (54%) females had chronic physical or mental health problem, illness or disability in 2001. Greek, Italian and Belgian females did not exceed 50% whatever the age group considered. At the European level, the rate of females with chronic physical or mental, illness or disability is decreasing between 1998 (27%) and 2001 (26%), while this trend is reversed for males across the same period (23% in 1998 and 24% in 2001). Furthermore, Finnish males have the highest growth on this period starting from 35% to reach 40%, and German females have the greatest decrease with 39% in 1998 and 34% in 2001

Figure 105: Rate of female with chronic physical or mental health problem, illness or disability in 2001

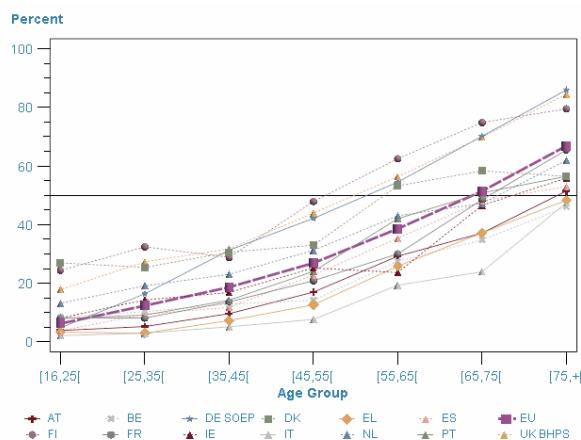
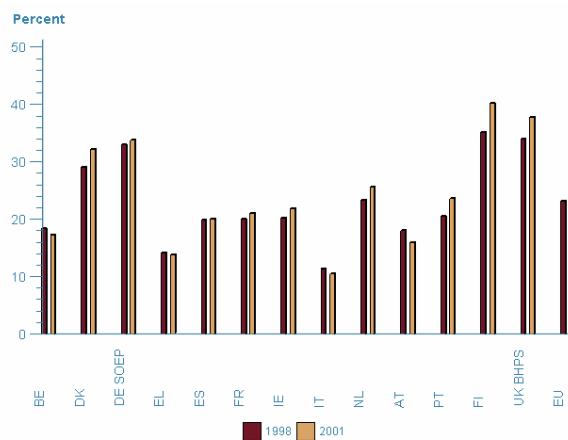


Figure 106: Rate of male with chronic physical or mental health problem, illness or disability

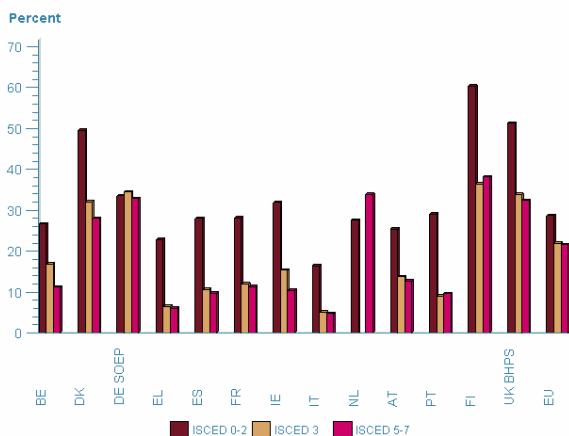


Educational level

Except for Germany and the Netherlands, people with the lowest level of education are more numerous than the other groups to have chronic physical or mental health problem, illness or disability. The highest rates are recorded for Finland (60%), the United-Kingdom (51%) and Denmark (50%). The more significative differences could be found in Greece, Spain, France, Ireland, Italy and Portugal.

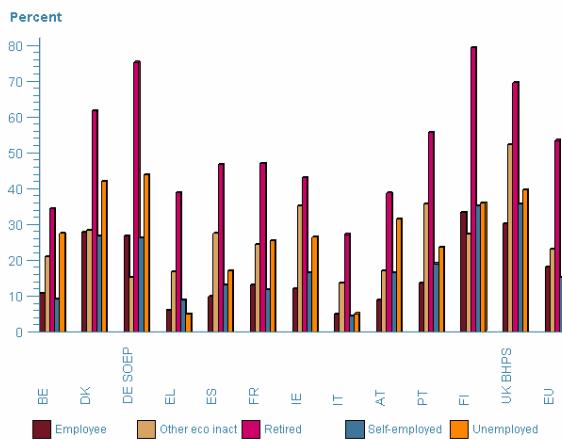
Among people with the highest level of education (ISCED 5-7), the strongest evolution is recorded for the Netherlands with 16% in 1998 and 34% in 2001.

Figure 107: Rate of people with chronic physical or mental health problem, illness or disability according to the educational level in 2001



Activity status

Figure 108: Rate of people with chronic physical or mental health problem, illness or disability according to the activity status in 2001



Income level

People with the highest income level are more numerous to do not have chronic physical or mental health problem, illness or disability.

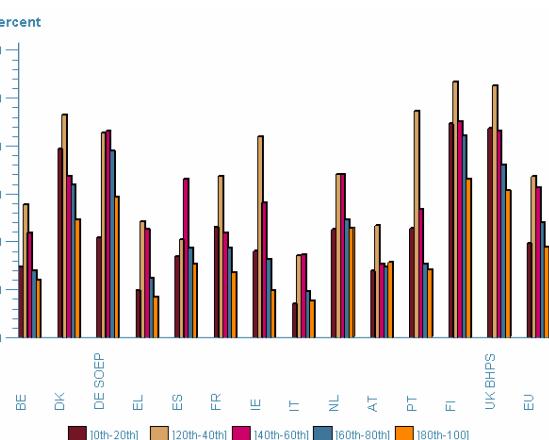
Among people with the lowest income level, a large increase of the group with chronic physical or mental health problem, illness or disability is recorded for Portugal (16% in 1998 and 23% in 2001), for Finland (33%/45%) and the United-Kingdom (31%/44%). The trend is reversed for Germany with 26% in 1998 and 21% in 2001.

For the highest income level, a decrease of the rate of people with chronic physical or mental health problem, illness or disability is recorded for Belgium (17% in 1998, 12% in 2001) and for Germany (31%/29%).

Whatever the country considered, retired people are the most numerous to have chronic physical or mental health problem, illness or disability. The same trend is observed for unemployed people in Belgium, Denmark and Germany.

At the European level, the rate of employees and self-employed with chronic physical or mental health problem, illness or disability is decreasing between 1998 and 2001. On the same period, the highest increase is recorded for retired people (52% in 1998 and 54% in 2001). A slight growth is noticed for unemployed people and the other economical inactive group (22% in 1998 and 23% in 2001 for both).

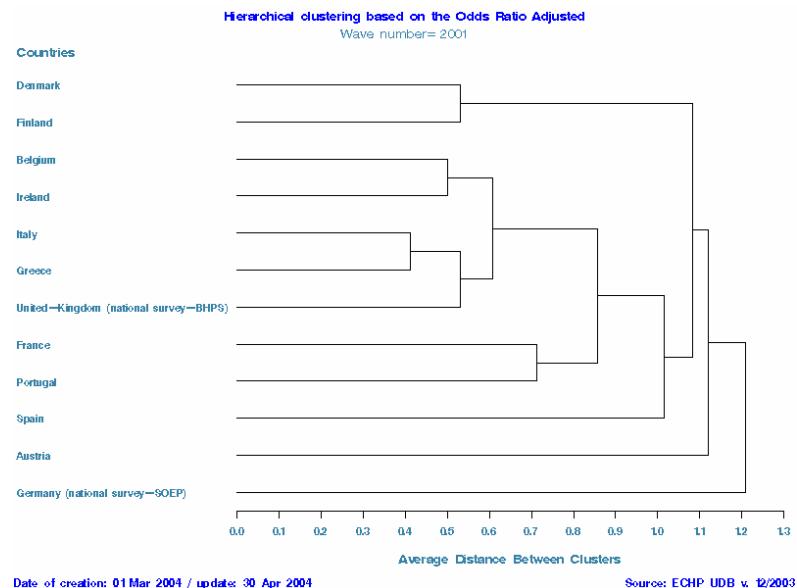
Figure 109: Rate of people with chronic physical or mental health problem, illness or disability according to the income level in 2001



Comparative study of countries

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Belgium seems to be close to the Ireland. The same relation is observed between Italy and Greece. In the opposite, the Austria and the Germany seem to have results contrasted.

Figure 110: Hierarchical clustering of Odds Ratio adjusted, 2001

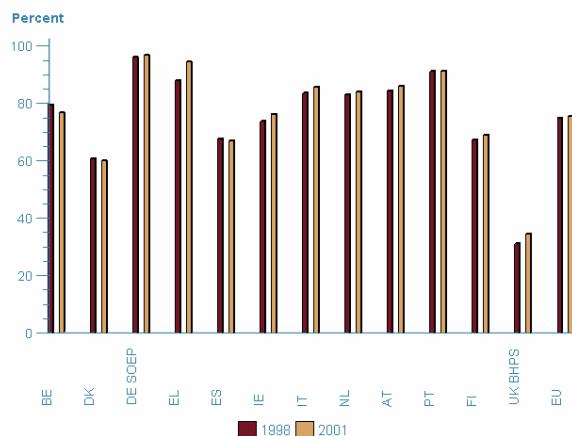


PH003: Hampered in daily activities by this physical or mental health problem, illness or disability

The original question is: "Are you hampered in your daily activities by this¹¹ physical or mental health problem, illness or disability?" (1) Yes severely, Yes to some extend, (2) No. The study is restricted to the percentage of the population stating that they are hampered (severely or to some extend) or non-hampered.

Overall level

Figure 111: Rate of people hampered



At the overall level, 75% of the European people with chronic or mental health problem, illness or disability were hampered in their daily activities. An increase is recorded for all the countries except for Belgium, Denmark and Spain. The highest frequencies are recorded for Germany (97%), Greece (95%) and Portugal (91%). The lowest for Denmark (60%) and the United-Kingdom (35%).

Age and Gender

At the European level in 2001, this physical or mental health problem, illness or disability hampered 77% of female and 74% of male. The largest differences between male and female are recorded for Belgium (82% of female, 70% of male), Denmark (65%/55%) and the Netherlands (88%/80%). The trend is reversed for Austria with 86% of female and 87% of male.

Figure 112: Rate of female hampered in 2001

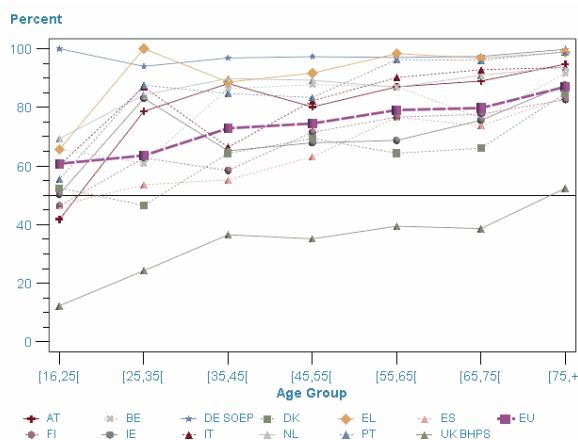
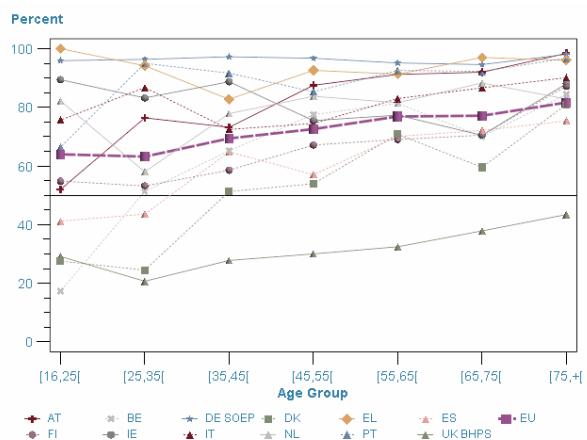


Figure 113: Rate of male hampered in 2001



The highest rates are recorded in Germany (97% of female, 96% of male), Greece (96%/93%) and Portugal (91% for both). For the United-Kingdom, less than 37% of female and less than 32% of male were hampered by this physical or mental health problem, illness or disability in 2001.

¹¹ "This" is a reference to the question PH002 "Do you have any chronic physical or mental health problem, illness or disability?". Thus, PH003 was asked only if the answer for PH002 is 'Yes'.

Across the time frame period 1998-2001, the strongest variations are recorded for male in Greece (85% in 1998 and 93% in 2001) and in Belgium (77%/70%). For female, it concerns Greece (90%/96%) and the United-Kingdom (31%/37%).

Educational level

Except for Germany, people with the lowest level of education are more numerous than the other groups to be hampered by this physical or mental health problem, illness or disability.

The highest rates are recorded for Germany (98%), Greece (97%) and Portugal (93%).

Among people with the highest level of education (ISCED 5-7), the strongest evolution is recorded for the Netherlands with 82% in 1998 and 66% in 2001, for Austria (68%/83%) and Portugal (60%/72%).

Figure 114: Rate of people hampered according to the educational level in 2001



Activity status

Figure 115: Rate of people hampered according to the activity status in 2001



Income level

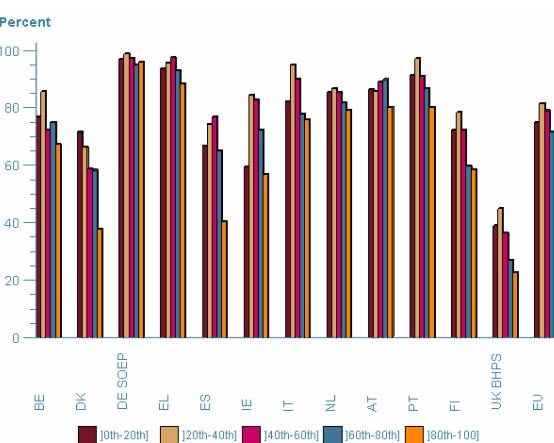
People with the highest income level are more numerous to do not be hampered by this chronic physical or mental health problem, illness or disability.

Among people with the lowest income level, a large increase of people hampered is recorded for Denmark (63% in 1998 and 72% in 2001), for Finland (66%/72%), the United-Kingdom (31%/39%) and Greece (88%/94%). The trend is reversed for Germany with 98% in 1998 and 97% in 2001. For the highest income level, a huge decrease of people hampered is observed for Denmark (53% in 1998, 38% in 2001).

Whatever the country considered, retired and unemployed people are the most numerous to be hampered by this chronic physical or mental health problem, illness or disability.

At the European level, the rate of unemployed and retired people hampered is increasing between 1998 and 2001. The trend is reversed for self-employed (68% in 1998 and 65% in 2001).

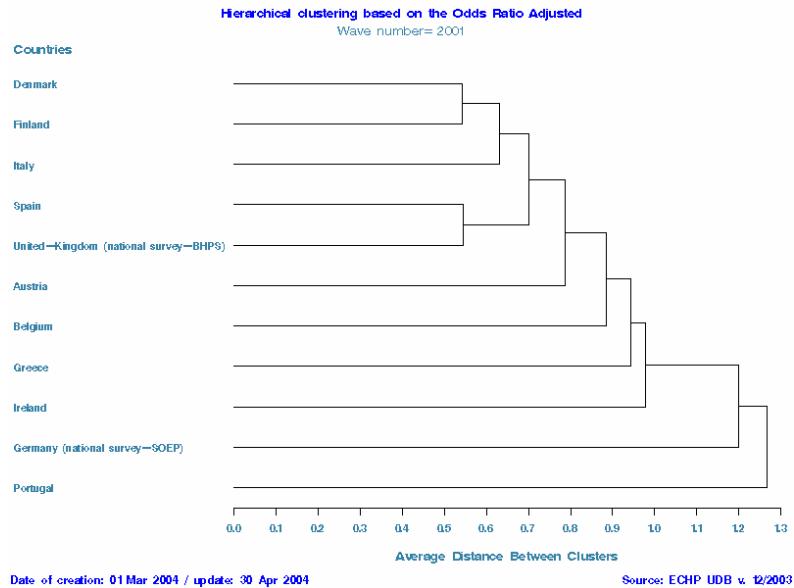
Figure 116: Rate of people hampered according to the income level in 2001



Comparative study of countries

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Denmark seems to be close to Finland. The same relation is observed between Spain and the United-Kingdom. In the opposite, Germany and Portugal seem to have results contrasted.

Figure 117: Hierarchical clustering of Odds Ratio adjusted, 2001

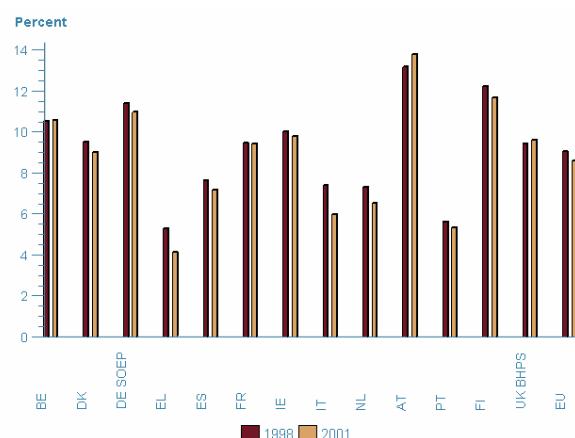


PH006: Hospital admission as in-patient

The original question is: "During the past 12 months, have you been admitted to a hospital as an in-patient?" (1) Yes (2) No.

Overall level

Figure 118: Rate of people admitted



At the overall level, 9% of the European people were admitted to a hospital as an in-patient. A decrease is recorded for all the countries except for Belgium, Austria and the United-Kingdom. The highest frequencies are recorded for Austria (14%), and Finland (12%). The lowest for Greece (4%) and Portugal (5%).

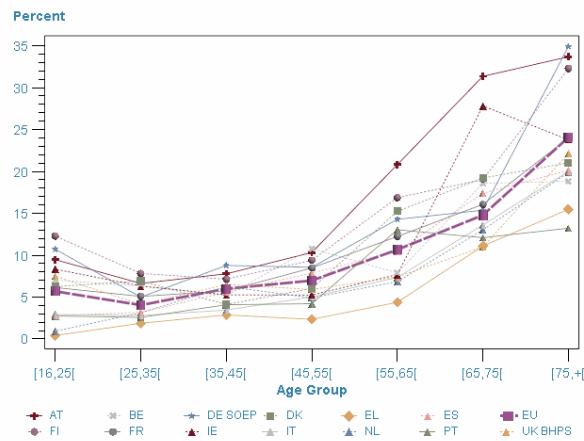
Age and Gender

At the European level in 2001, 9% of female and 8% of male were admitted to a hospital as an in-patient. The largest differences between male and female are recorded for Belgium (12% of female, 9% of male) and the United-Kingdom (12%/7%). The trend is reversed for Portugal with 5% of female and 6% of male.

Figure 119: Rate of female admitted in 2001



Figure 120: Rate of male admitted in 2001



The highest rates are recorded for Austria (15% of female, 13% of male), Finland (12%/12%), the United-Kingdom (12%/7%) and Belgium (12%/9%). For Greece, only 4% of female and male were admitted to a hospital as an in-patient in 2001.

Across the time frame period 1998-2001, the strongest variations are recorded for male in Italy (7% in 1998 and 6% in 2001), Austria (12%/13%), Denmark (8%/9%) and Greece (5%/4%). For female, it concerns Denmark (11%/9%) and Germany (13%/11%).

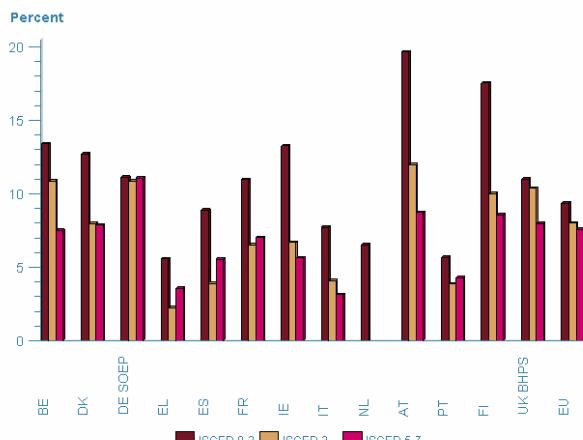
Educational level

Except for Germany, people with the lowest level of education are more numerous than the other groups to be admitted at the hospital as an in-patient.

The highest rates are recorded for Austria (20%) and Finland (18%). The lowest for Greece and Portugal with 6%.

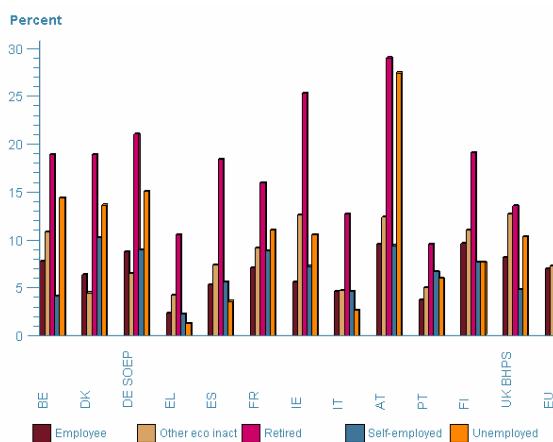
Among people with the highest level of education (ISCED 5-7), the strongest evolution is recorded for Austria with 15% in 1998 and 9% in 2001, and for Finland (11%/9%).

Figure 121: Rate of people admitted according to the educational level in 2001



Activity status

Figure 122: Rate of people admitted according to the activity status in 2001



Whatever the country considered, retired people are the most numerous to be admitted at the hospital as an in-patient. In Austria, unemployed people have also an important rate of admission.

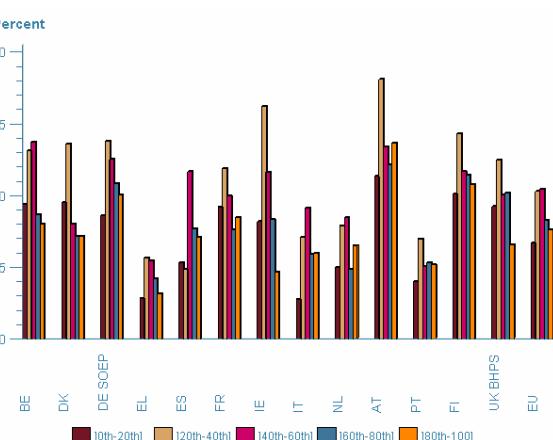
At the European level, the rate of unemployed and employed admitted is increasing between 1998 and 2001. The trend is reversed for retired (15% in 1998 and 17% in 2001). It is important to notice a large growth of admitted people among Austrian unemployed with 8% in 1998 and 27% in 2001.

Income level

For a large majority of Member States, the income level]20th-40th] has the highest rate of people admitted at the hospital as an in-patient. For Spain, it concerns mainly people included in the income group]40th-60th[.

Among people inside the income level]20th-40th[, a large increase of people admitted is recorded for Ireland (10% in 1998 and 16% in 2001). The same trend is observed for Austria in the highest income level (10% in 1998 and 14% in 2001).

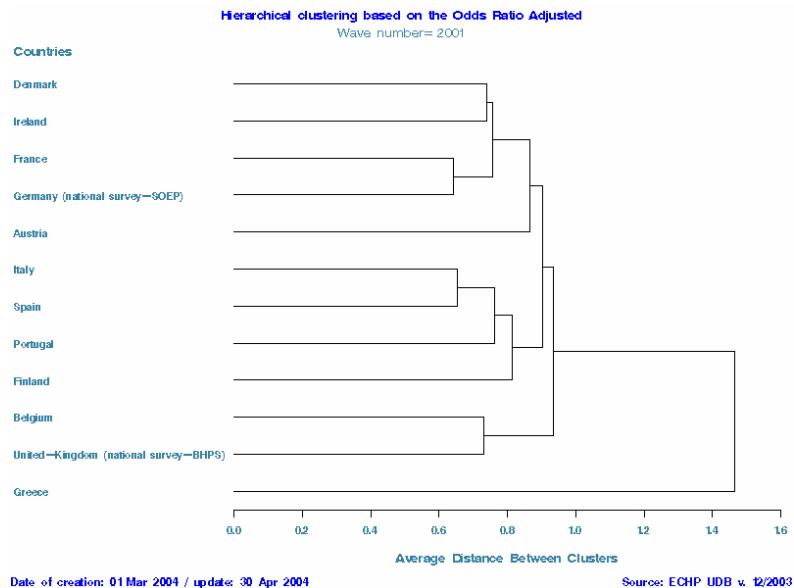
Figure 123: Rate of people admitted according to the income level in 2001



Comparative study of countries

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, France seems to be close to Germany. The same relation is observed between Spain and Italy. In the opposite, Greece seems to have results contrasted.

Figure 124: Hierarchical clustering of Odds Ratio adjusted, 2001

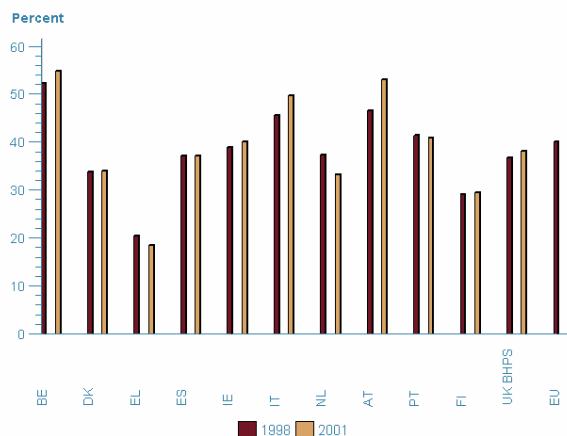


PH008: General practitioner consultation

The original question is “During the past 12 months, about how many times have you consulted a general practitioner”: quantitative answer. The European median was computed in order to create a two-point scale variable. The classes selected are the following: (1) more than 2 times, (2) 2 times or less.

Overall level

Figure 125: Rate of people admitted



At the overall level, 42% of the European people had consulted a general practitioner more than 2 times in 2001. An increase is recorded for all the countries except for Greece, the Netherlands and Portugal.

The highest frequencies are recorded for Belgium (55%), Italy (50%) and Austria (53%). The lowest for Greece (19%).

Age and Gender

At the European level in 2001, 49% of female and 34% of male had consulted a general practitioner more than 2 times. The largest differences between male and female are recorded for Denmark (42% of female, 26% of male), Ireland (48%/31%) and the United-Kingdom (46%/29%).

Figure 126: Rate of female with more than 2 consultations in 2001

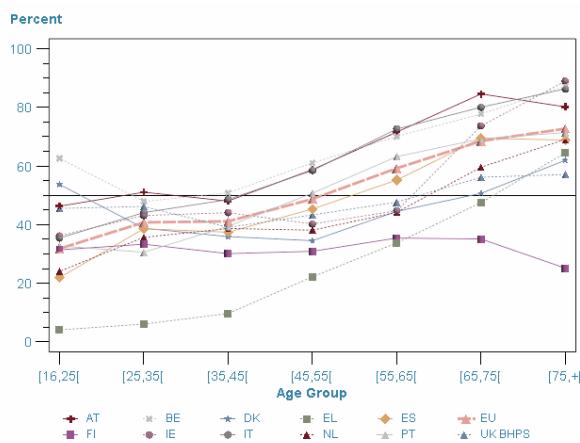
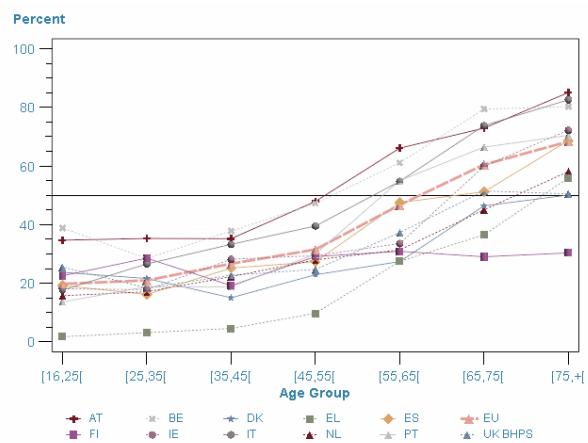


Figure 127: Rate of male with more than 2 consultations in 2001



The highest rates are recorded for Belgium (61% of female, 47% of male), Italy (58%/41%) and Austria (59%/47%). For Greece, only 22% of female and 15% of male had consulted a general practitioner more than 2 times in 2001.

Across the time frame period 1998-2001, the strongest variations are recorded for male in Austria (40% in 1998 and 47% in 2001), Italy (37%/41%) and Belgium (43%/47%). For female, it concerns Italy (54%/58%), Austria (53%/59%) and the Netherlands (46%/40%).

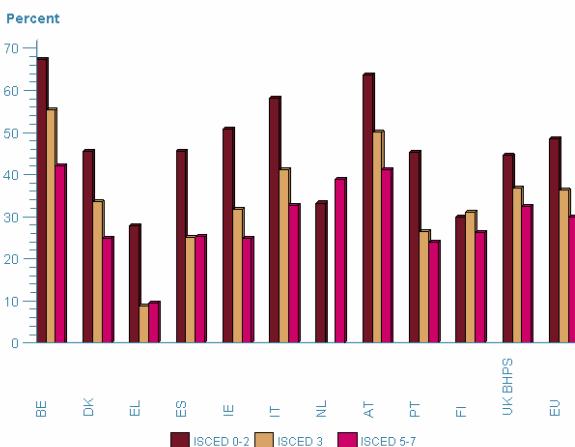
Educational level

Except for Finland and the Netherlands, people with the lowest level of education consult more often a general practitioner than the other groups.

The highest rates are recorded for Belgium (67%), Austria (64%) and Italy (58%). The lowest for Greece (28%), Finland (30% and the Netherlands (33%).

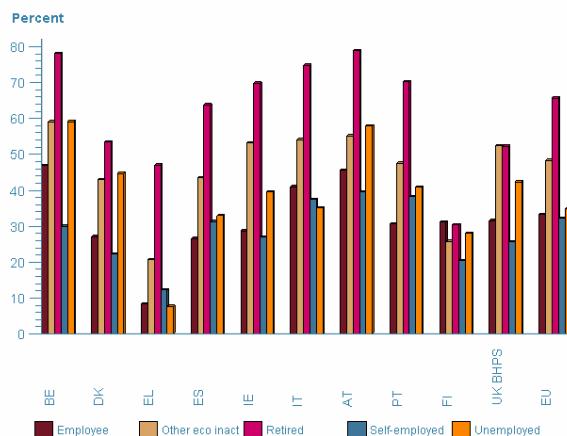
Among people with the highest level of education (ISCED 5-7), the strongest evolution is recorded for the Netherlands with 25% in 1998 and 39% in 2001. For the lowest educational level (ISCED 0-2), an increase of 11 points was recorded for Austria to reach 64% in 2001.

Figure 128: Rate of people with more than 2 consultations according to the educational level in 2001



Activity status

Figure 129: Rate of people with more than 2 consultations according to the activity status in 2001



Income level

Except for Finland, people with the highest income level consult less often a general practitioner.

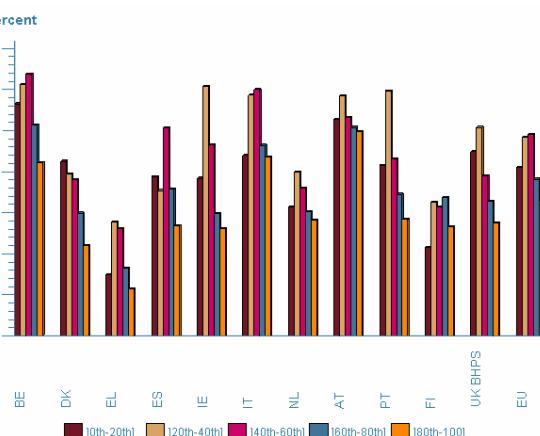
Among people with the highest income level, a large increase of the consultations is recorded for Austria (with 40% in 1998 and 50% in 2001) and a large decrease for Greece (17%/11%).

Among people with the lowest income level, a large increase is observed for Portugal (36%/42%) and for Austria (43%/53%). An opposite trend is recorded for the Netherlands (39%/31%).

Except for Finland and the United-Kingdom, retired people consult more often the general practitioner. In Belgium and Austria, this rate is greater than 78%, for only 30% in Finland.

At the European level, an increase is recorded in all the groups whatever the status considered.

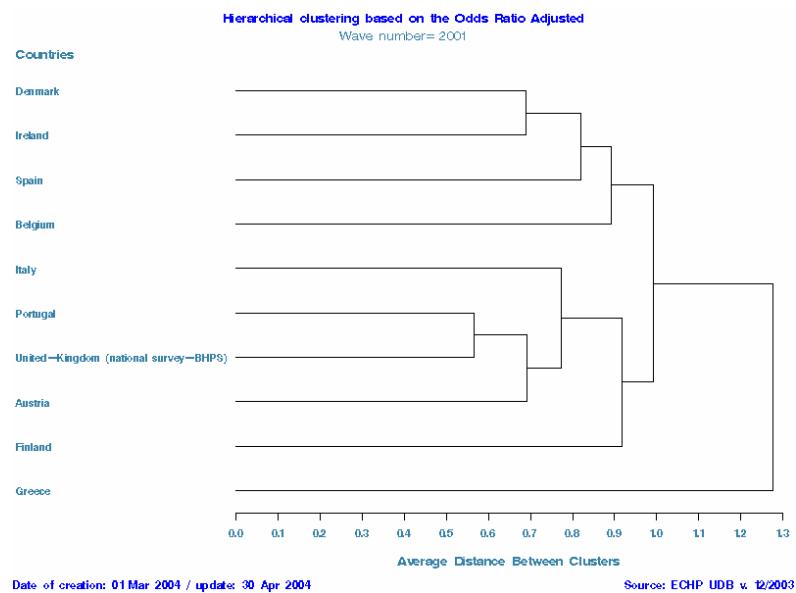
Figure 130: Rate of people with more than 2 consultations according to the income level in 2001



Comparative study of countries

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Denmark seems to be close to Ireland. The same relation is observed between Portugal and the United-Kingdom. In the opposite, Greece, Finland and Belgium seem to have results contrasted.

Figure 131: Hierarchical clustering of Odds Ratio adjusted, 2001

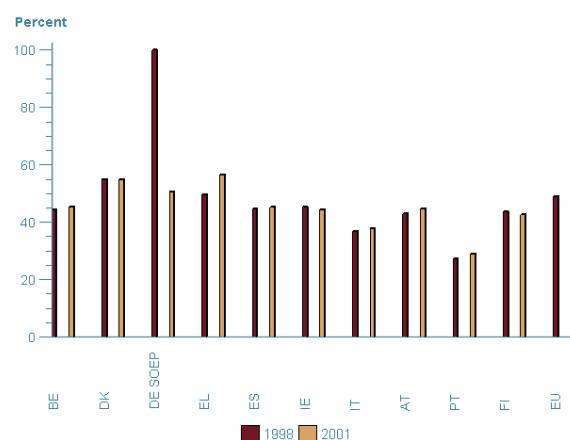


PH016: Smoker or not

The original question is: "Do you smoke or did you ever smoke?" The answers are: Smoke daily, Smoke occasionally, Do not smoke but used to smoke daily, Do not smoke but used to smoke occasionally, Never smoked. The study is restricted to the percentage of the population stating that they (1) 'Smoke daily, occasionally or do not smoke but used to smoke daily' (smokers) or (2) 'Never smoked, do not smoke but used to smoke occasionally' (non-smokers).

Overall level

Figure 132: Rate of smokers



It appeared that the rate of German smokers was exceptionally high (100%) in 1998. And for the same country, no data was available for 2000.

More than 50% of Greek and Danish people smoke or were smokers.

The lowest rate of smokers is recorded for Portugal (27% in 1998 and 29% in 2001).

A decrease of the rate of smokers is observed only in Ireland, Finland and Denmark between 1998 and 2001.

Age and Gender

The trend of tobacco consumption is strongly associated to the gender. Indeed, 60% of European males are smokers against 32% of females in 2001. In 2001, the rate of smokers among European males group increases strongly from 16-25 (48%) to 45-55 (68%), and a slight decrease is observed from 45-55 to reach 58% for the age group 75+. A different trend is observed for European females. A strong acceleration of tobacco consumption is observed from 16-25 (22%) to 35-45 (47%) and a huge fall is recorded from 35-45 to 75+ (12%).

The largest differences between males and females are recorded for Germany (38% of females, 67% of males), Portugal (12%/47%), Greece (43%/72%), Spain (32%/60%) and Italy (24%/52%). The lowest differences are recorded for Ireland (42%/48%) and Denmark (51%/59%).

Figure 133: Rate of smokers among females in 2001

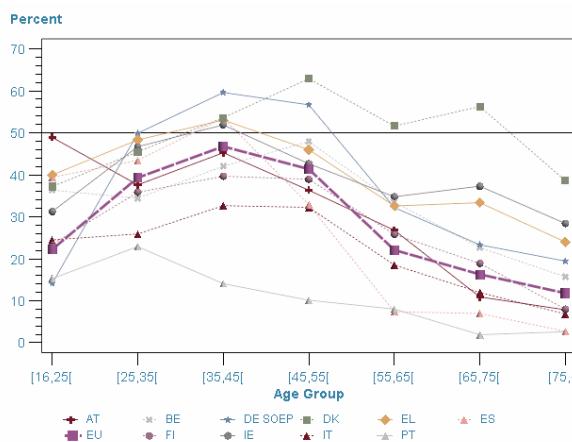
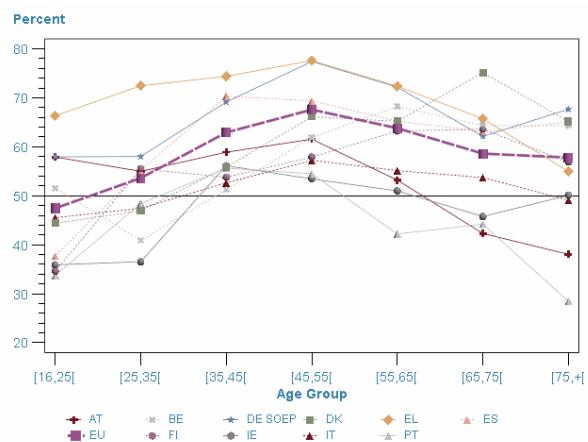


Figure 134: Rate of smokers among males in 2001



The highest rates are recorded for Denmark (51% of females, 60% of males), Greece (43%/72%) and Germany (38%/67%). For Portugal, only 12% of females and 47% of males smoked or were smokers in 2001.

Across the time frame period 1998-2001, the strongest variations are recorded for Greece. An increase of 5 points is observed for males (67% in 1998 and 72% in 2001) and an augmentation of 8 points for females (35% in 1998 and 43% in 2001).

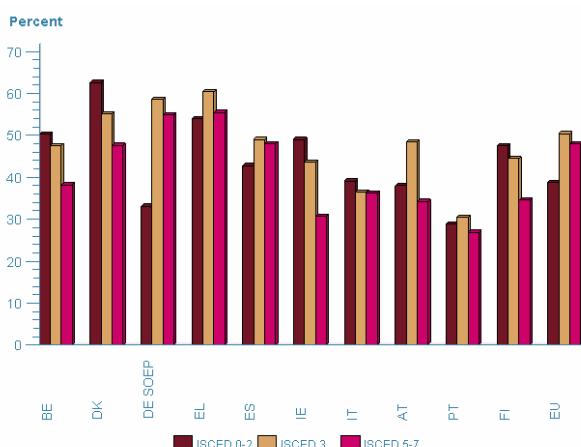
Educational level

Two groups of countries could be dissociated. Indeed, for Germany, Greece, Spain, Austria and Portugal, the rate of smokers is the more important for the educational level ISCED 3. While, for Belgium, Denmark, Ireland, Italy and Finland, it concerns people with the lowest level of education (ISCED 0-2).

At the European level, 48% of people with the highest level of education smoke or were smokers, for only 39% of people with the lowest educational level.

The highest differences between groups according to the educational level are recorded for Germany and the lowest ones for Italy and Portugal.

Figure 135: Rate of smokers according to the educational level in 2001



Activity status

Figure 136: Rate of smokers according to the activity status in 2001



Unemployed people have the highest rate of smokers in Austria (78%), Belgium (62%), Finland (50%), Germany (63%), Ireland (64%) and Portugal (36%).

In Denmark, 63% of retired people are smokers or were smokers. In Spain, it concerns 58% of employees. This trend is observed for 69% of self-employed in Greece, and 46% in Italy.

The strongest variations between 1998 and 2001 are recorded for unemployed in Denmark (62% in 1998, 45% in 2001) and in Finland (62%/50%).

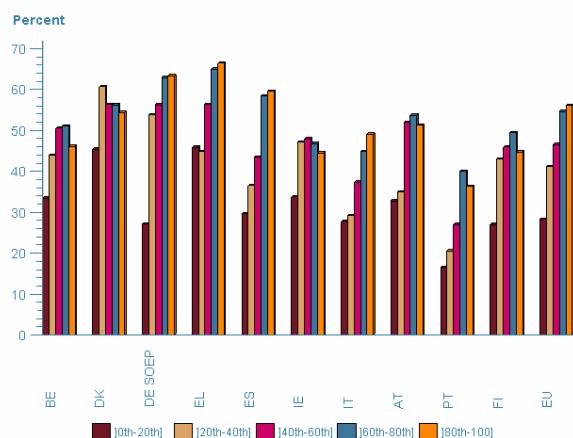
Income level

At the European level, the rate of smokers increases according to the income level. The higher the income level, the higher the rate of smokers. 28% of smokers among people with the lowest level of income for 56% with the highest one.

For some countries, between 1998 and 2001, the biggest increases are recorded for the lowest groups. It concerns essentially Greek, Danish and Portuguese people.

Among people with the lowest income level, a large increase is observed for Denmark (39%/45%) and for Greece (37%/46%). An opposite trend is recorded for Finland (31%/27%).

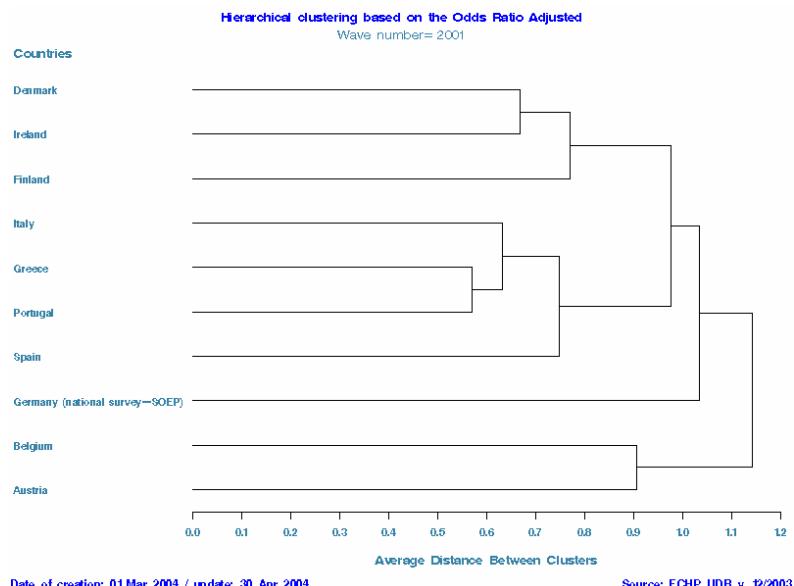
Figure 137: Rate of smokers according to the income level in 2001



Comparative study of countries

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Denmark seems to be close to Ireland. The same relation is observed between Portugal and Greece. In the opposite, Germany, Austria and Belgium seem to have results contrasted.

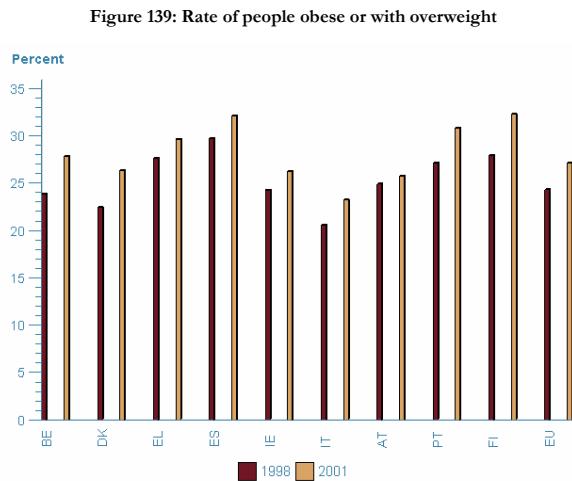
Figure 138: Hierarchical clustering of Odds Ratio adjusted, 2001



PH022: Body Mass Index

In the questionnaires, the height (PH020) and the weight (PH021) were collected in order to compute the Body Mass Index (PH022): Weight/Height². Two classes were built according to the threshold 27: (1) BMI ≥ 27 , Overweight or obesity, (2) BMI < 27 , "Normal" weight.

Overall level



At the European level, 24% of European people were obese or had overweight in 1998 (27% in 2001).

In 2001, the highest rates are recorded in Spain (32%), Finland (32%) and Portugal (31%). The lowest rates are observed in Italy (23%), Ireland, Austria and Denmark with 26%.

An increase is observed in all the countries between 1998 and 2001. But the highest augmentations are recorded for Portugal (27% in 1998, 31% in 2001), Finland (28%/32%), Belgium (24%/28%) and Denmark (22%/26%).

Age and Gender

The trend of obesity/overweight is strongly associated to the age evolution. Indeed, in 2001 the rate of obese/overweight among European people increases strongly from 16-25 (8%) to 65-75 (44%), and a decrease is observed from 65-75 to reach 33% for the age group 75+.

The strongest differences between males and females in 2001 are recorded for Belgium (23% of females, 33% of males), Spain (28%/36%) and Italy (19%/28%). The lowest differences concern Portuguese people with 30% for females and 32% for males.

Figure 140: Rate of females obese or with overweight in 2001

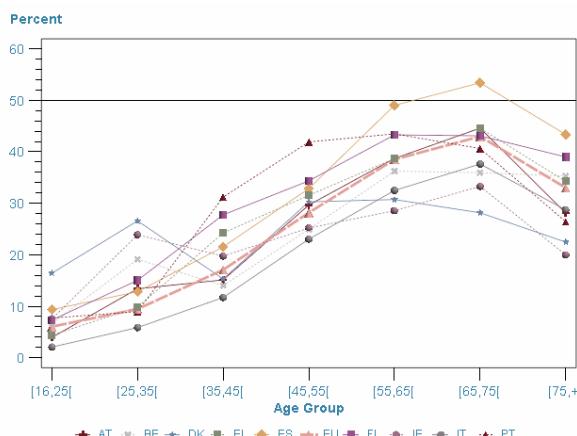
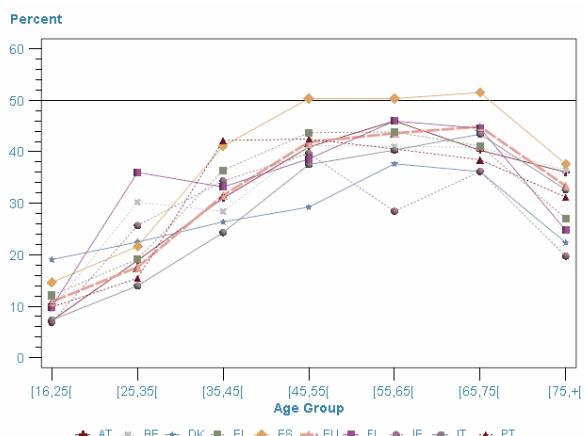


Figure 141: Rate of males obese or with overweight in 2001



In 2001, the highest rates were recorded for Portugal, Greece, Finland and Spain. The lowest rates were observed for Ireland, Austria, Denmark and Italy. Between 1998 and 2001, the strongest variations are recorded for males in Belgium (26% in 1998, 33% in 2001) and Finland (29%/35%) and for females in Denmark (19%/25%) and Portugal (25%/30%).

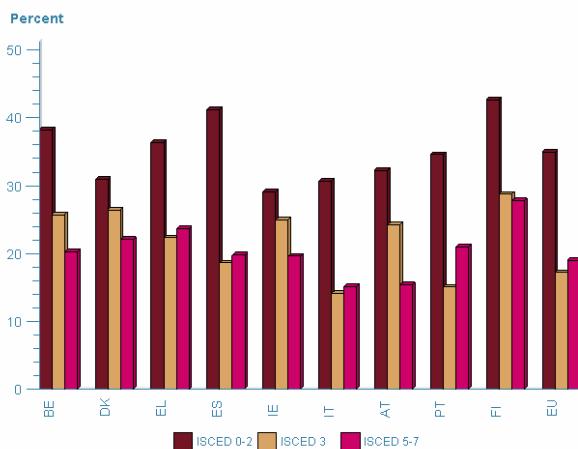
Educational level

People with the lowest level of education are most concerned by overweight problems. It concerns 35% of European in 2001 (30% in 1998). The strongest augmentations are recorded for Finland (32% in 1998, 43% in 2001), Belgium (30%/38%) and Denmark (24%/31%).

The highest differences between groups according to the educational level are recorded for Spain, Portugal and Italy. In Ireland and Denmark, the differences do not seem to be so strong.

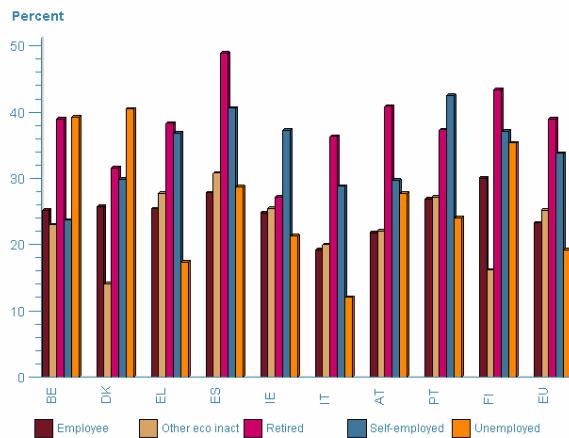
Nevertheless, an increase is recorded for all the countries from 1998 to 2001 whatever the educational level considered.

Figure 142: Rate of obese people or with overweight according to the educational level in 2001



Activity status

Figure 143: Rate of obese people or with overweight according to the activity status in 2001



In 2001, compared to the other activity statuses, unemployed group has the highest rate of obese people or with overweight in Belgium (39%) and Denmark (41%).

The rates are the highest for retired people in Greece (38%), Spain (49%), Italy (36%), Austria (41%) and Finland (43%).

In Ireland and in Portugal, it concerns essentially self-employed with respectively 37% and 43%.

The strongest variations between 1998 and 2001 are observed for unemployed in Denmark (21% in 1998, 41% in 2001) and in Belgium (32%/39%).

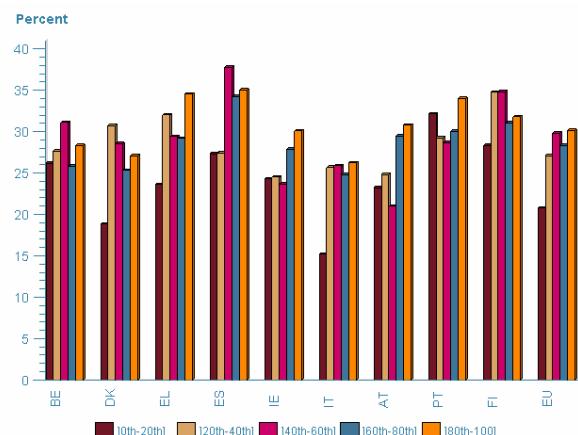
Income level

At the European level, the rate of obese people or with overweight is the lowest for people with the lowest income level (21%).

This trend is essentially pronounced for Denmark (19%), Greece (24%) and Italy (15%).

The strongest variations between 1998 and 2001 are observed for the lowest income level. It concerns Belgium (17% in 1998, 26% in 2001), Denmark (14%/19%), Ireland (19%/24%), Portugal (20%/32%) and Finland (19%/28%).

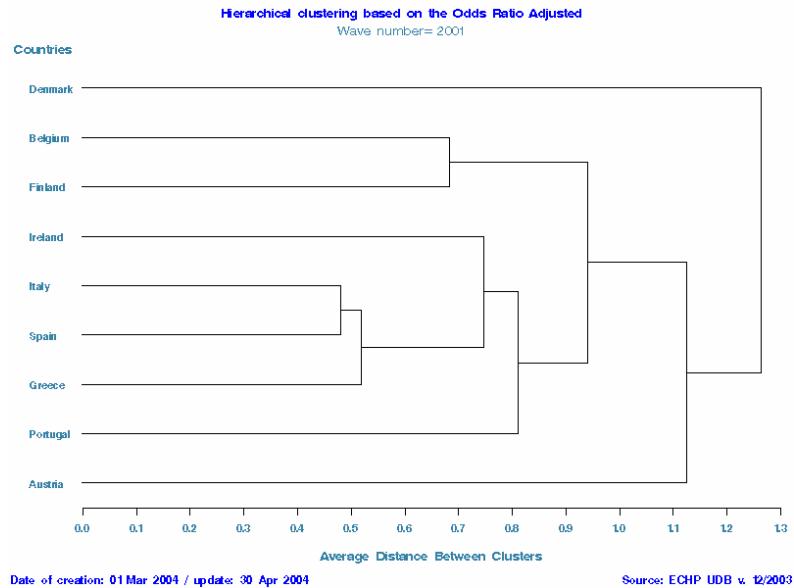
Figure 144: Rate of obese people or with overweight according to the income level in 2001



Comparative study of countries

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Greece seems to be close to Italy and Spain. The same relation is observed between Belgium and Finland. In the opposite, Austria and Denmark seem to have results contrasted.

Figure 145: Hierarchical clustering of Odds Ratio adjusted, 2001



3. Longitudinal multivariate analysis of the health-related ECHP-data

The longitudinal approach is not limited to the observation of transitions from a state to another or in the study of individual trajectory. Indeed, the longitudinal dimension allows taking into account the “**unobserved heterogeneity**”. This term regroups all the differences existing between individuals, which are unobserved. In cross-sectional studies, a bias could be introduced by this heterogeneity: some effects could be attributed to an explicative factor then they concern only unobserved differences between individuals. In this way, it is more relevant **to use a longitudinal approach with successive observations**. With this method, it is possible to dissociate the effect of each explicative factor and the effects of the unobserved heterogeneity. However, the length of series could act directly on the quality of the results. The effects of explicative factors could depend strongly on the size of the series. Thus, cross-sectional and longitudinal approaches are complementary and results could be compared.

After to have implemented a cross-sectional analysis by year on the time frame period 1998-2001, it is now necessary to carry out **a longitudinal approach in order to study the series** observed through 4 years and thus, **to take into account the time factor**. In the previous part of this document, a cross-sectional analysis was implemented in order to have an overview of the trends by year and by country. All the health-related variables were tabulated by age group, gender, economic activity, education and income level. Furthermore, multivariate analyses were implemented on the strengths of correlation between health-related variables and usual variables. Adjusted odds ratio were computed and a hierarchical clustering approach was carried out on the basis of these parameters. Hence, countries were grouped according to their trends for a given year.

In this part, a step forward is done by using observed series. Indeed, multivariate analyses are implemented like in the previous part but a time factor is included by using all the observations for a given person. Furthermore, **the OR computed earlier are compared to the new ones in order to confront the cross-sectional and the longitudinal approaches**. Calculations were made on the basis of the data available in the **ECHP UDB v. 12/2003, the latest version available during the study**.

3.1. Methodology

The methodology used in this part is based on that described in the part “Introduction to the longitudinal study”.

Variables and sample used

- **5 explanatory variables** were discussed to implement logistic regressions (age group, gender, economic activity, education and income level) (Table 9).
- **7 health-related variables were selected** according to the Minimum European Health Module (MEHM) and the 18 HIS items (PH001, PH002, PH003, PH006, PH008, PH016, PH022). Some of them were recoded in 2-point scale to simplify the analysis (Table 10).
- The sample used for the analysis concerns **responding people from 1998 to 2001**. However, for some health-related variables, data is not available for some MS (Table 11).

Weight used in calculations

Several weights were used to build models. Two individual weights are associated to each respondent. The first one has to be used for the **cross-sectional approach** (UDB variable:

PG002) while the second one has to be used for the **longitudinal approach** (UDB variable: PG003)¹². Furthermore, **data were standardised** on the basis of the WHO's European Standard Population Table¹³. This table allows standardising the age group in Europe.

Modelling

Multivariate analyses were implemented on the strengths of correlation between health-related variables and usual variables (age group, sex, education, activity and income). But two approaches were carried out:

- Firstly, a **logistic regression**¹⁴ was implemented by country and by year (1). Several adjusted Odds Ratio were derived from the parameters of the model (2). But, in order to obtain a global overview of the trends in the time frame period 1998-2001, **the yearly Odds Ratio were averaged** (3).

$$Y_i = \text{Age}(i), \text{Gender}(i), \text{Education}(i), \text{Activity}(i), \text{Income}(i) \quad (1)$$

where Y_i is the health-related variable with a binary answer for the year i .

$$\text{OR}_{\text{var},i} = \exp(X_{\text{var},i}) \quad \text{where var in (Age, ..., Income)} \quad (2)$$

$$\overline{\text{OR}}_{\text{var}} = \frac{1}{4} \sum_{i=1998}^{2001} \text{OR}_{\text{var},i} \quad (3)$$

- Secondly, a **logistic regression with repeated measures**¹⁵ (4) was carried out in order to take into account the time factor in the analysis by using all the observations through the time frame period 1998-1001 for a given person. Thus, the global Odds Ratio obtained are adjusted on time factor. These new indicators could be compared to the averaged Odds Ratio computed in the first analysis. Furthermore, the confidence interval computed for each adjusted OR could be compared at those estimated by year for the cross-sectional study in order to compare the quality of the approaches. Moreover, in order to group countries on the basis of the adjusted OR computed with the longitudinal analysis, a **hierarchical clustering approach** was carried out.

$$\begin{aligned} Y = & (\text{Age}, \text{Gender}, \text{Education}, \text{Activity}, \text{Income})_{1998}, \\ & \dots, \\ & (\text{Age}, \text{Gender}, \text{Education}, \text{Activity}, \text{Income})_{2001} \end{aligned} \quad (4)$$

¹² "Construction of weights in the ECHP", European Commission, DOC. PAN 165/2002-12, p15-16

¹³ "Statistics of health – Atlas of mortality in the European Union", Annex 1, European standard population

¹⁴ "The logistic procedure –SAS/STAT User's Guide", <http://www.macrosr.com/sasv8/sashmt/stat/chap39/index.htm>

¹⁵ "The genmod procedure – SAS/STAT User's Guide", <http://www.macrosr.com/sasv8/sashmt/stat/chap29/index.htm>

3.2. Analysis of health-related variables

This analysis aims to implement a longitudinal study on health-related variables according to several usual variables (age group, gender, income, activity and educational level). Furthermore, the results will be compared to those of the cross-sectional approach and a hierarchical clustering analysis will be implemented in order to group countries on the basis of the adjusted OR computed.

PH001: Global overview of health

The question studied is: “How is your health in general?” (1) Fair, Bad, Very bad (2) Very Good, Good. Each graph shows the probability to move from the state (2) to the state (1) for the health related-variable PH001.

Age group

Except for the oldest Danish people, the probability to move from the state “good health status” to the state “bad health status” increases with the ageing (Figure 147). The strongest differences between the classes are recorded for Greece and Austria with an adjusted OR upper than 50 for the oldest people. The lowest variations between classes are recorded for the United-Kingdom with an OR lower than 3 for +75. An equivalent structure is observed for Belgium, France and Ireland ($OR_{+75} < 13$) and for Germany, Spain, Italy, Portugal and Finland ($OR_{+75} < 30$).

Figure 146: Adjusted Odds Ratio averaged on the period 1998-2001 – Age group, ref: <25 – Cross sectional approach

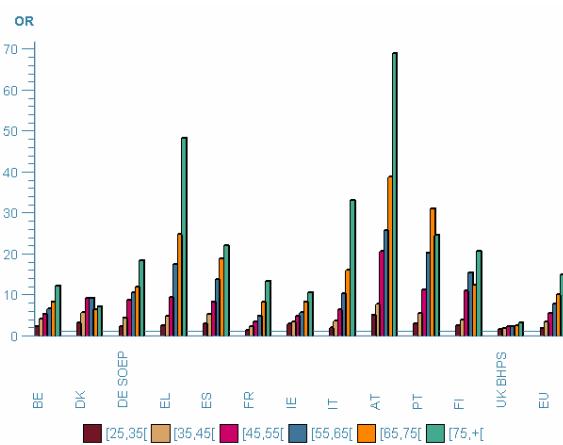
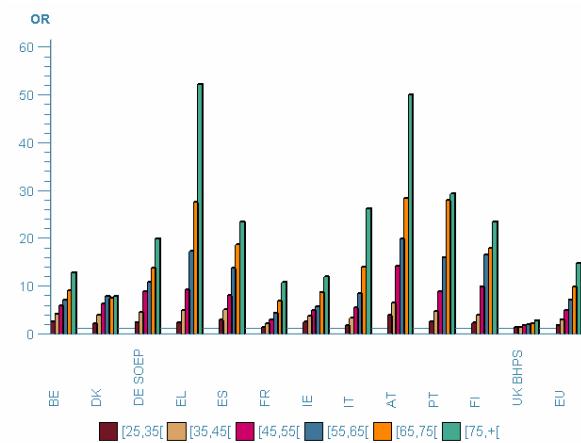


Figure 147: Adjusted Odds Ratio computed with series (period 1998-2001) – Age group, ref: <25 – Longitudinal approach



Gender

According to the results of the cross-sectional approach, the difference between European male and female decreases steadily through the years and seems to be erased in 2001 (Figure 148). For a majority of countries, females have a stronger probability to move from the good to the bad health status; particularly in Belgium (1.3), Italy (1.4) and Portugal (1.3). This trend is reversed in Ireland and Austria (0.8) (Figure 149).

Figure 148: Adjusted Odds Ratio by year for females on the period 1998-2001
– Gender, ref: male – Cross sectional approach

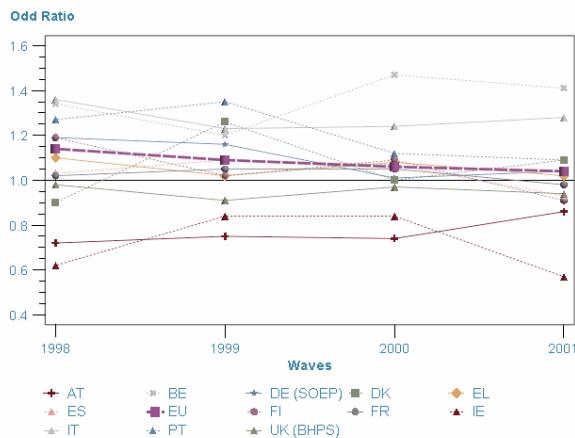
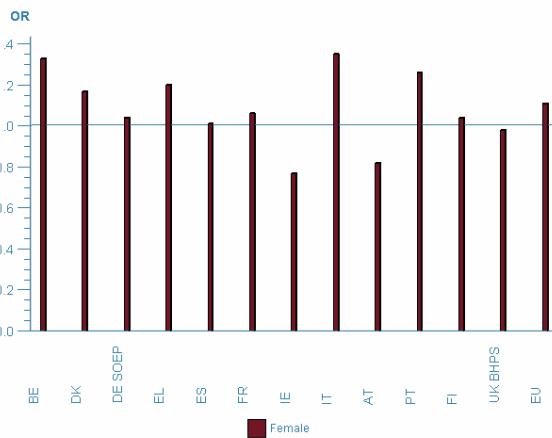


Figure 149: Adjusted Odds Ratio computed with series (period 1998-2001) –
Gender, ref: male – Longitudinal approach



Educational level

Except for the United-Kingdom, people with the highest educational level (ISCED 5-7) have a lower probability than the medium group (ISCED 3) to move from the good to the bad health status (Figure 151). The trend is reversed for the lowest educational level, but the strongest differences between the classes ISCED 0-2 and ISCED 5-7 (with ISCED 3 as class of reference) are recorded for Austria (OR_{ISCED 0-2} = 1.8; OR_{ISCED 5-7} = 0.7) and for Portugal (OR_{ISCED 0-2} = 1.6; OR_{ISCED 5-7} = 0.6). In France and Germany, the differences between educational levels are the lowest. Furthermore, a decreasing trend of the OR to the threshold 1.0 was noticed for the lowest educational level through years for numerous countries (Figure 150). It shows a reduction of the variation between the educational levels.

Figure 150: Adjusted Odds Ratio for ISCED 0-2 by year on the period 1998-2001 – Education level, ref: ISCED 3 – Cross sectional approach

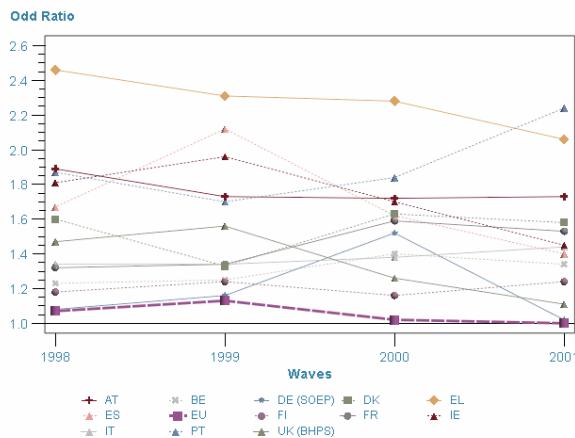
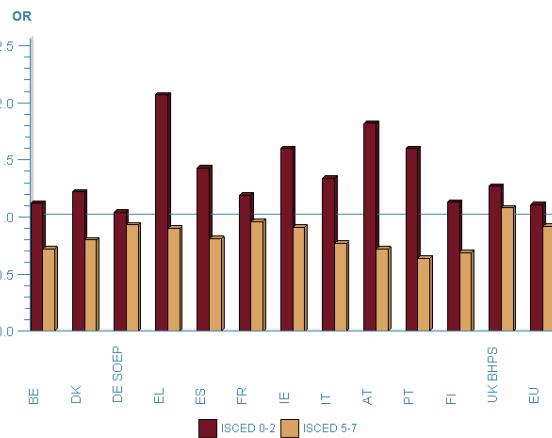


Figure 151: Adjusted Odds Ratio computed with series (period 1998-2001) –
Education level, ref: ISCED 3 – Longitudinal approach



Activity status

At the European level, the probability to move from the good to the bad health status is greater for retired people (1.3), unemployed (1.2) and for the others economical inactive (1.2) than the employees. The trend is reversed for the group “self-employed” with an Odd Ratio lower than

the threshold of 1.0 (Figure 153). The retired people are dissociated to the others activity status in Denmark (2.1), Germany (1.8), Portugal (2.2) and Finland (1.9). Furthermore, the European gap between “self-employed” and “employee” seems to deepen through years (Figure 152).

Figure 152: Adjusted Odds Ratio for self-employed on the period 1998-2001 – Activity status, ref: employee – Cross sectional approach

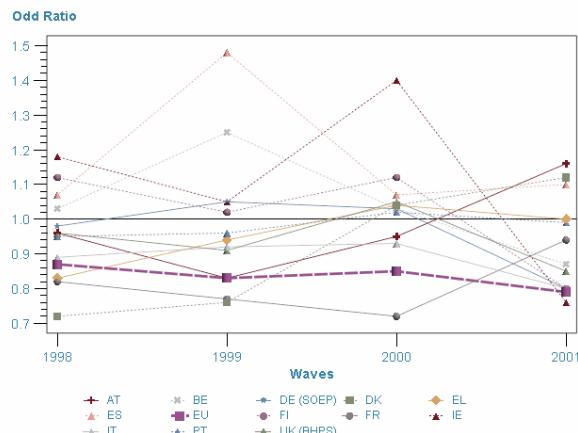
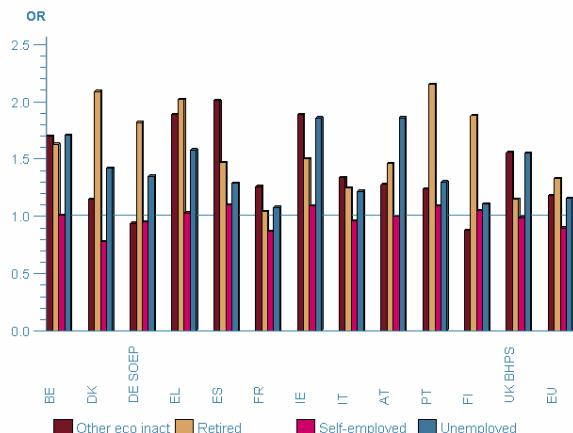


Figure 153: Adjusted Odds Ratio computed with series (period 1998-2001) – Activity status, ref: employee – Longitudinal approach



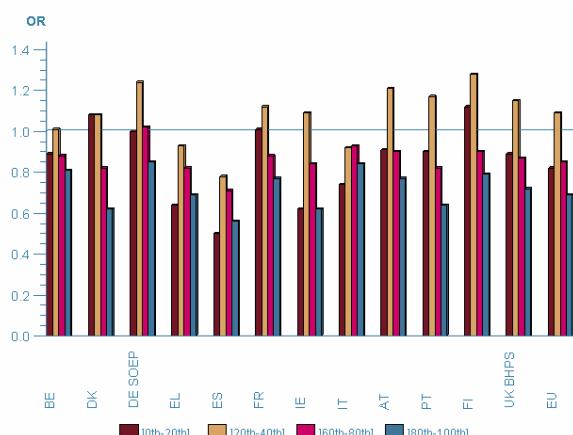
Income level

Except for Greece, Italy and Spain, the probability to move from the good to the bad health status is greater for people with the lowest income level (European OR_{<20th} = 0.8) than those with the highest income level (European OR_{>80th} = 0.7) (Figure 155). According to the results of the cross-sectional approach, a decrease of the OR associated to the lowest income level (OR_{<20th}) is recorded at the European level between 1999 (0.9) and 2001 (0.7) (Figure 154).

Figure 154: Adjusted Odds Ratio for people with the lowest income level (OR_{<20th}) on the period 1998-2001 – Income level, ref: [40th–60th] – Cross sectional approach



Figure 155: Adjusted Odds Ratio computed with series (period 1998-2001) – Income level, ref: [40th–60th] – Longitudinal approach



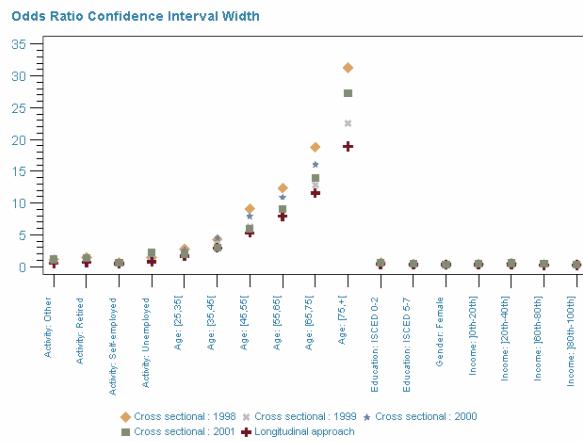
Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and longitudinal approaches. This indicator is averaged on all the countries available for the health-

related variable concerned in order to have an overview of the trend (BE, DK, DE, EL, ES, FR, IE, IT, AT, PT, FI, UK).

The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 156). Indeed, the longitudinal analysis gives the lowest confidence interval for all the OR computed. The biggest differences are recorded for the oldest age group (75+): width of 18.9 with the longitudinal approach and widths greater than 22.5 with the cross sectional approaches.

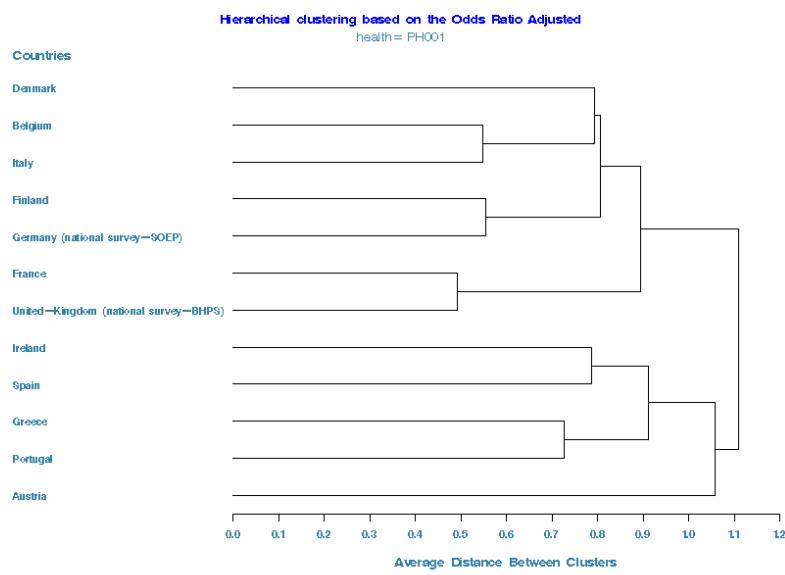
Figure 156: Width of the adjusted OR confidence interval by approach on the period 1998-2001



Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 157: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



Date of creation: 11 Jun 2004 / update: 11 Jun 2004

Source: ECHP UDB v. 12/2003

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, France seems to be close to the United-Kingdom. The same relation is observed between Finland and Germany, Belgium and Italy. In the opposite, the Denmark and the Austria seem to have results contrasted.

PH002: Chronic physical or mental health problem, illness or disability

The question studied is: "Do you have any chronic or mental health problem, illness or disability?" (1) Yes, (2) No. Each graph shows the probability to move from the state (2) to the state (1) for the health related-variable PH002.

Age group

According to the results of the cross sectional approach (Figure 158), the rate of people with chronic or mental health problem increases with ageing. And the probability for a person without problem to change of status grows up with ageing (Figure 159). The lowest results are recorded for Belgium, Denmark and Finland with an adjusted OR lower than 6 whatever the age group considered. At the European level, the probability to change of status for people older than 75+ is upper than 15 (23 for Germany and 21 for the United-Kingdom).

Figure 158: Rate of male with chronic or mental health problem, illness or disability in 2001 – Cross sectional approach

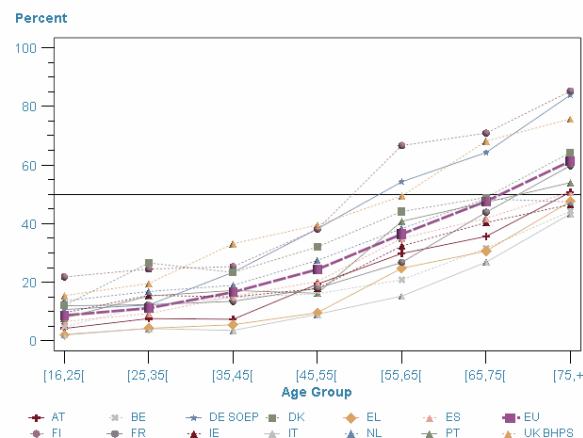
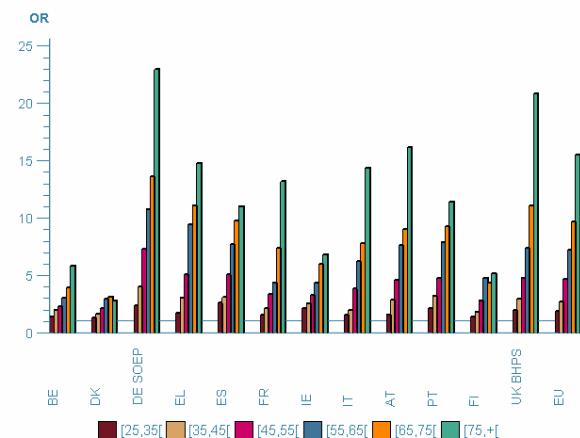


Figure 159: Adjusted Odds Ratio computed with series (period 1998-2001) – Age group, ref: <25 – Longitudinal approach



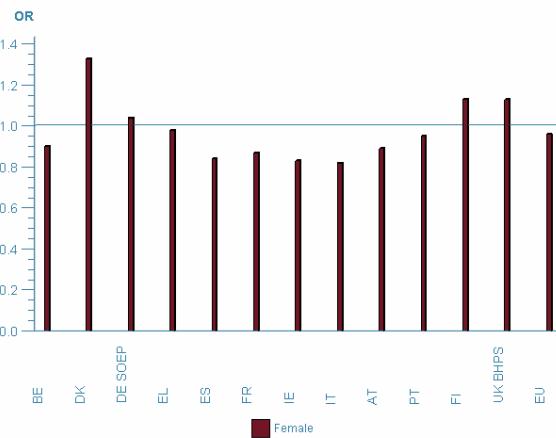
Gender

At the European level, the probability for females to change of status is slightly lower than that of males (Figure 160). A steady trend is observed through waves from 1998 to 2001. Nevertheless, the probability is reversed for Denmark (1.3), Finland (1.1) and the United-Kingdom (1.1) (Figure 161).

Figure 160: Adjusted Odds Ratio by year for females on the period 1998-2001
– Gender, ref: male – Cross sectional approach



Figure 161: Adjusted Odds Ratio computed with series (period 1998-2001) –
Gender, ref: male – Longitudinal approach



Educational level

Though the model computed at the European level gives different results, people with the lowest educational level have a strongest probability to change of status in all the countries of interest (Figure 163). The deepen differences between the lowest (ISCED 0-2) and the highest (ISCED 5-7) levels can be observed in southern countries (Greece, Spain, Italy and Portugal). Nevertheless, an upward trend of the OR associated to the highest educational level (ISCED 5-7) is recorded through waves from 1998 to 2001 for numerous countries (Figure 162).

Figure 162: Adjusted Odds Ratio for ISCED 5-7 by year on the period 1998-2001 – Education level, ref: ISCED 3 – Cross sectional approach

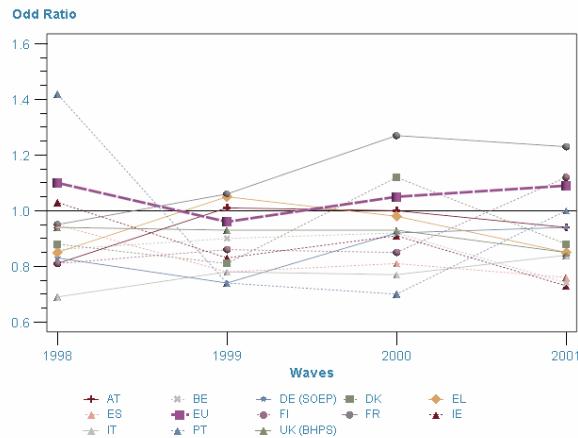


Figure 163: Adjusted Odds Ratio computed with series (period 1998-2001) –
Education level, ref: ISCED 3 – Longitudinal approach



Activity status

Compared to the European employees, self-employed have a probability lower than 7.5 to get a chronic physical or mental health problem, illness or disability (Figure 165). The lowest probability is observed in Italy with $OR_{self-employed} = 0.7$. A downward European trend is noticed through waves with the cross-sectional approach (Figure 164). The strongest progression can be observed in France with a probability starting to 1.0 in 1998 to reach 0.6 in 2001 for the self-employed.

Figure 164: Adjusted Odds Ratio for self-employed on the period 1998-2001 – Activity status, ref: employee – Cross sectional approach

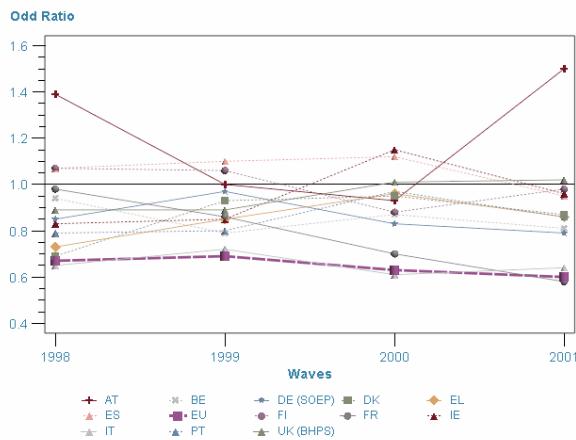
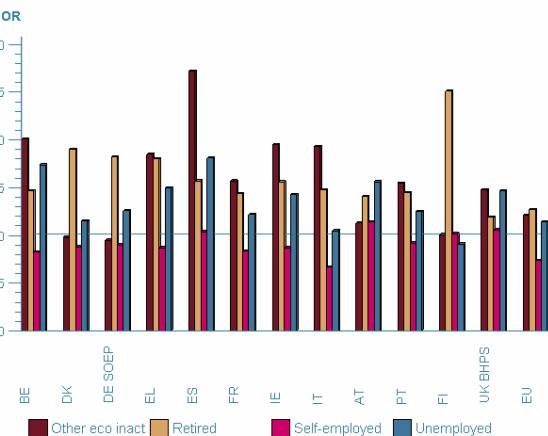


Figure 165: Adjusted Odds Ratio computed with series (period 1998-2001) – Activity status, ref: employee – Longitudinal approach



Income level

People with the lowest income level have the strongest probability to change of status in France, Denmark, Austria, Portugal, Finland and United-Kingdom (Figure 167). Spain can be pointed out with the lowest income level probability between 1998 (0.3) and 2000 (0.2) to reach his initial threshold in 2001 (0.3) while the European trend is around 0.8 across all the period (Figure 166).

Figure 166: Adjusted Odds Ratio for people with the lowest income level ($OR_{<20^{th}}$) on the period 1998-2001 – Income level, ref: [40th-60th] – Cross sectional approach

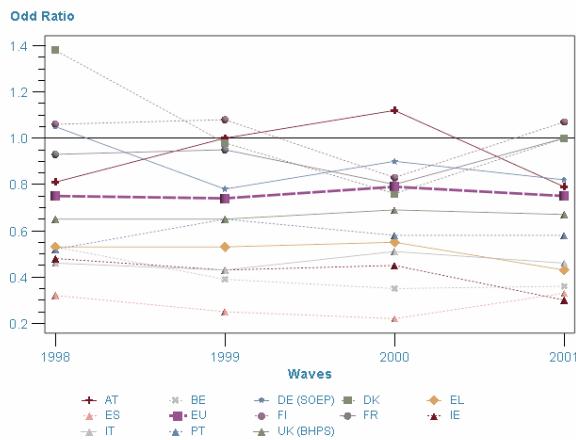
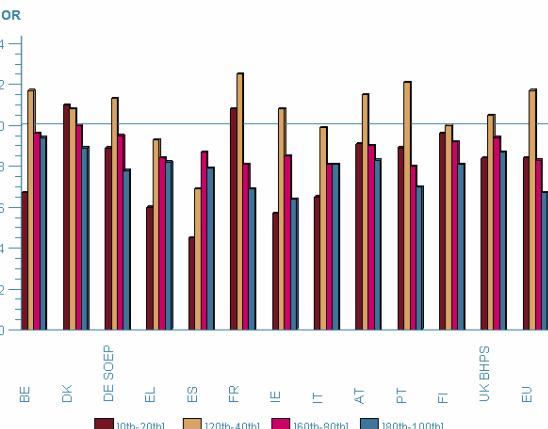


Figure 167: Adjusted Odds Ratio computed with series (period 1998-2001) – Income level, ref: [40th-60th] – Longitudinal approach



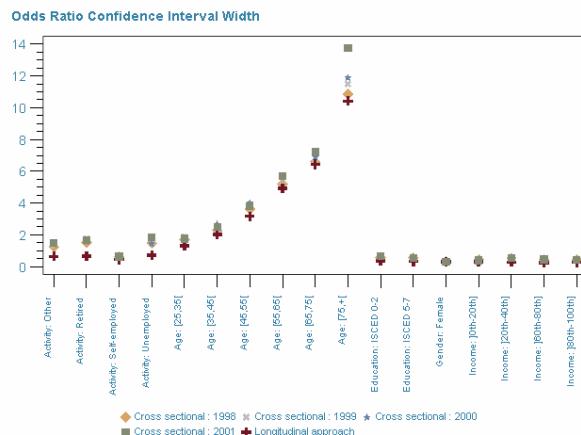
Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and longitudinal approaches. This indicator is averaged on all the countries available for the health-related variable concerned in order to have an overview of the trend (BE, DK, DE, EL, ES, FR, IE, IT, AT, PT, FI, UK).

The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 168). Indeed, the longitudinal analysis

gives the lowest confidence interval for a majority of OR computed. The biggest differences are recorded for the oldest age group (75+): width of 10.4 with the longitudinal approach and width of 13.7 in 2001 with the cross sectional approach.

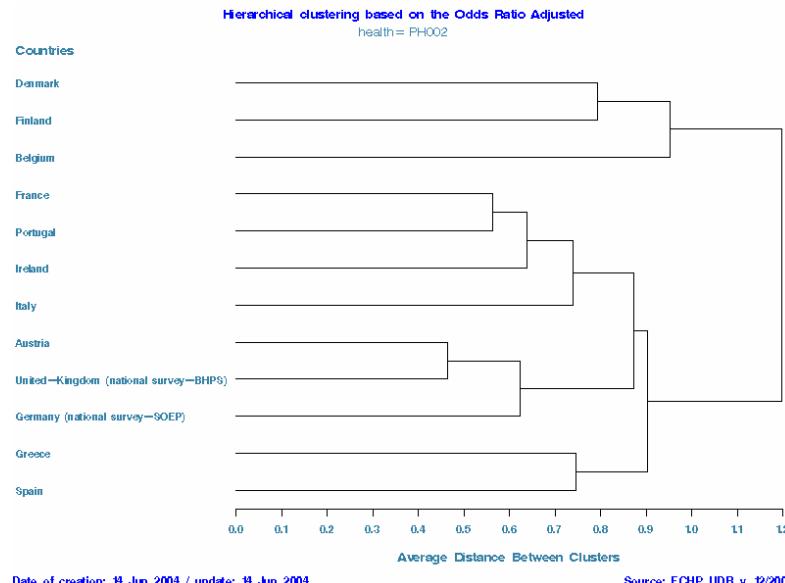
Figure 168: Width of the adjusted OR confidence interval by approach on the period 1998-2001



Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 169: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



Date of creation: 11 Jun 2004 / update: 11 Jun 2004

Source: ECHP UDB v. 12/2003

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Austria seems to be close to the United-Kingdom. The same relation is observed between France and Portugal. In the opposite, Denmark, Finland and Belgium, seem to have results contrasted.

PH003: Hampered in daily activities by this physical or mental health problem, illness or disability

The original question is: “Are you hampered in your daily activities by this¹⁶ physical or mental health problem, illness or disability?” (1) Yes severely, Yes to some extend, (2) No. Each graph shows the probability to move from the state (2) to the state (1) for the health related-variable PH003.

Age group

Among people with chronic physical or mental health problem, illness or disability, the probability to become hampered in daily activities increase with ageing for numerous countries (Figure 171). The strongest results are recorded for the oldest (aged 75+) Belgian (9.4), Austrian (9.1) and Portuguese (15.3). According to the cross-sectional approach, an increase of the European trend is recorded through waves from 1998 to 2001 for oldest people (Figure 170).

Figure 170: Adjusted Odds Ratio by year for people aged 75+ on the period 1998-2001 – Age group, ref: <25 – Cross sectional approach

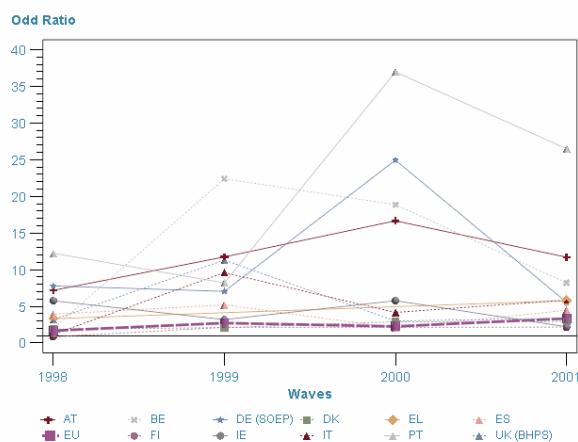
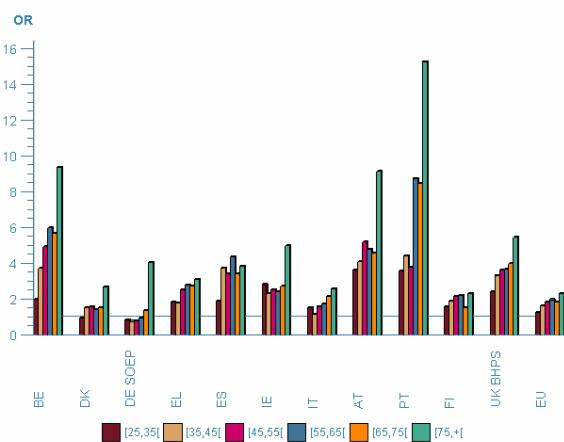


Figure 171: Adjusted Odds Ratio computed with series (period 1998-2001) – Age group, ref: <25 – Longitudinal approach



Gender

In Belgium, Denmark and Germany the probability to become hampered is about 1.3 larger for females than for males (Figure 173). An opposite trend is recorded in Spain, Ireland and Portugal with an adjusted OR lower than 0.8. No difference between males and females is observed in Austria and United-Kingdom. According to the results of the cross-sectional study, it appears that the strongest variations across waves are recorded in Belgium, Denmark, Germany, Greece, Austria and United-Kingdom (Figure 172).

¹⁶ “This” is a reference to the question PH002 “Do you have any chronic physical or mental health problem, illness or disability?”. Thus, PH003 was asked only if the answer for PH002 is ‘Yes’.

Figure 172: Adjusted Odds Ratio by year for females on the period 1998-2001 – Gender, ref: male – Cross sectional approach

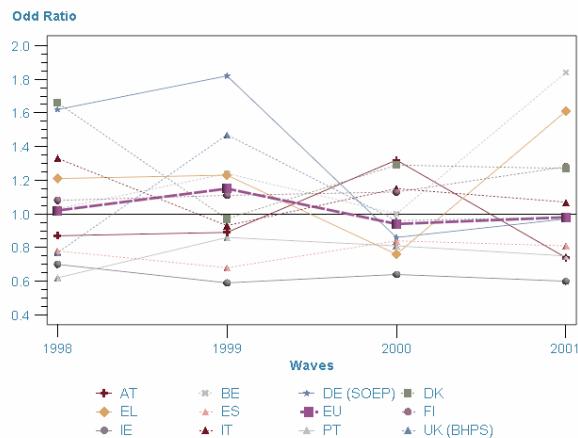
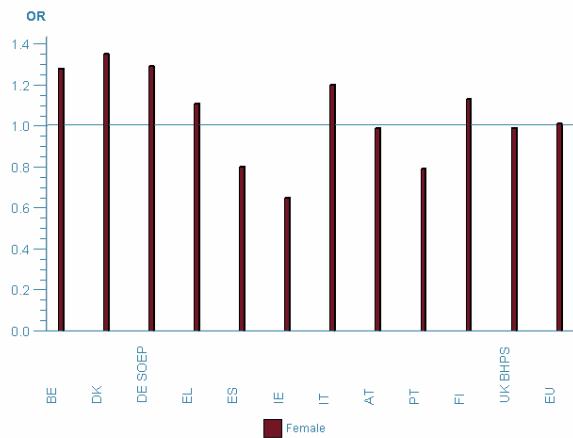


Figure 173: Adjusted Odds Ratio computed with series (period 1998-2001) – Gender, ref: male – Longitudinal approach



Educational level

Except for Germany, people with the lowest educational level have the strongest probability to become hampered (Figure 175). The largest differences between the extreme educational levels (ISCED 0-2 and ISCED 5-7) can be observed in the southern European countries (Greece, Spain, Italy and Portugal). In Germany, the probability to become hampered increases significantly across waves for people with the highest level of income (ISCED 5-7) compared to the medium one (ISCED 3) (Figure 174).

Figure 174: Adjusted Odds Ratio for ISCED 5-7 by year on the period 1998-2001 – Education level, ref: ISCED 3 – Cross sectional approach

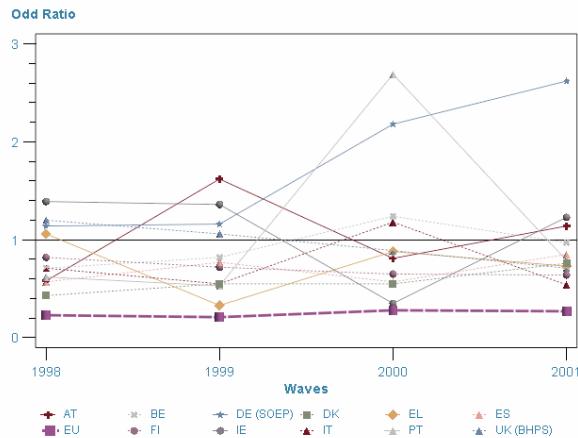
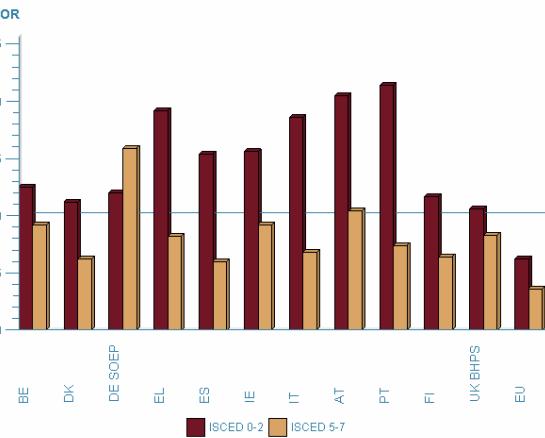


Figure 175: Adjusted Odds Ratio computed with series (period 1998-2001) – Education level, ref: ISCED 3 – Longitudinal approach



Activity status

In Austria, self-employed have the strongest probability to become hampered in comparison to the other countries ($OR_{self-employed} = 2.9$). Indeed, the European retired people have the largest results ($OR_{retired} = 1.6$) (Figure 177). This trend can be observed in Denmark (1.6), Greece (2.2) and Finland (1.7). But, according to the results of the cross-sectional approach, the a decreasing trend of the probability associated to the retired people can be observed in various countries from 1998 to 2001 (Figure 176).

Figure 176: Adjusted Odds Ratio for retired people on the period 1998-2001 – Activity status, ref: employee – Cross sectional approach

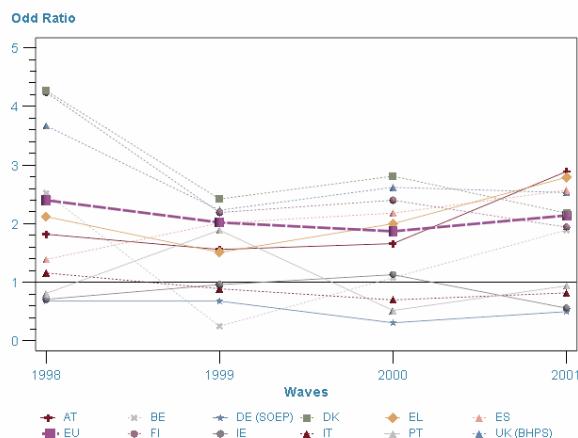
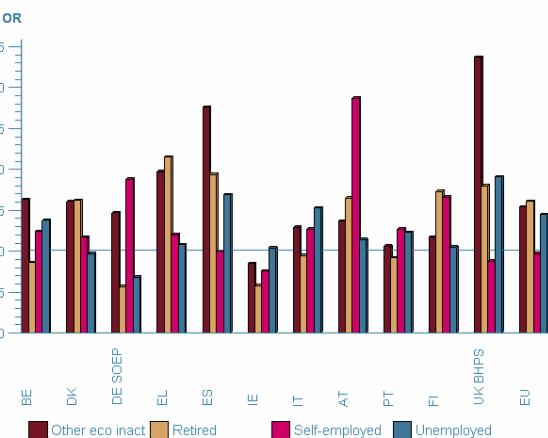


Figure 177: Adjusted Odds Ratio computed with series (period 1998-2001) – Activity status, ref: employee – Longitudinal approach



Income level

In Denmark, Germany, Greece, Italy, Portugal and Finland, people with the lowest income level have a probability larger to become hampered than those with the highest income level (Figure 179). Nevertheless, according to the results of the cross-sectional approach, the probability to become hampered for people with the lowest income level decreases through waves for numerous countries (Figure 178). At the European level, the probability to become hampered for this income level group was about 0.9 in 1999, and went down until 0.7 in 2001.

Figure 178: Adjusted Odds Ratio for people with the lowest income level ($OR_{<20^{th}}$) on the period 1998-2001 – Income level, ref: [40th-60th] – Cross sectional approach

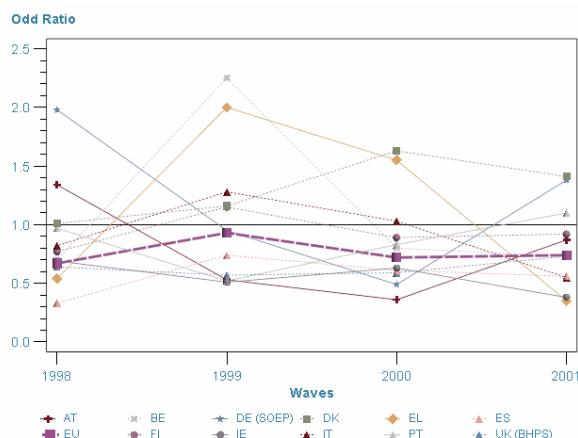
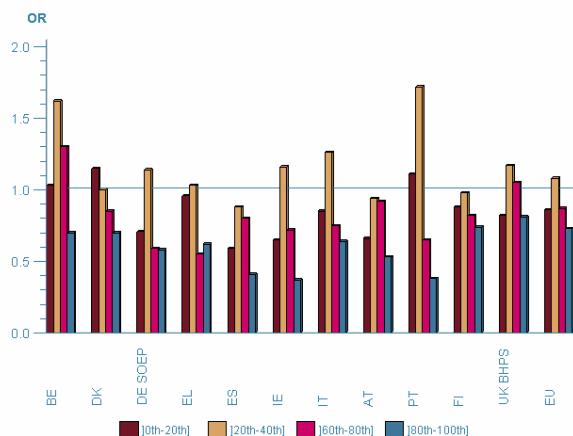


Figure 179: Adjusted Odds Ratio computed with series (period 1998-2001) – Income level, ref: [40th-60th] – Longitudinal approach



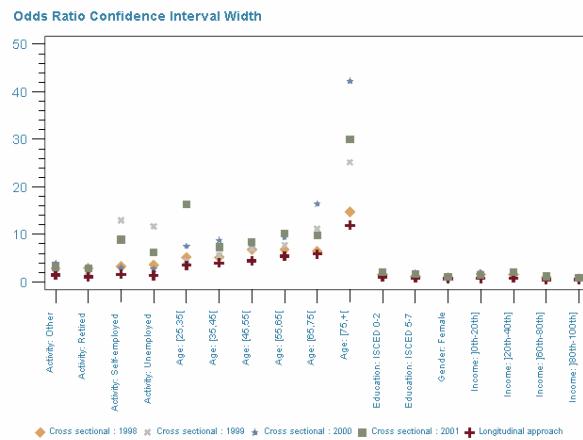
Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and longitudinal approaches. This indicator is averaged on all the countries available for the health-

related variable concerned in order to have an overview of the trend (BE, DK, DE, EL, ES, IE, IT, AT, PT, FI, UK).

The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 180). Indeed, the longitudinal analysis gives the lowest confidence interval for all the OR computed. The largest difference is recorded for the highest age group (aged 75+): width of 11.9 with the longitudinal approach and width of 42.2 in 2000 with the cross-sectional approach.

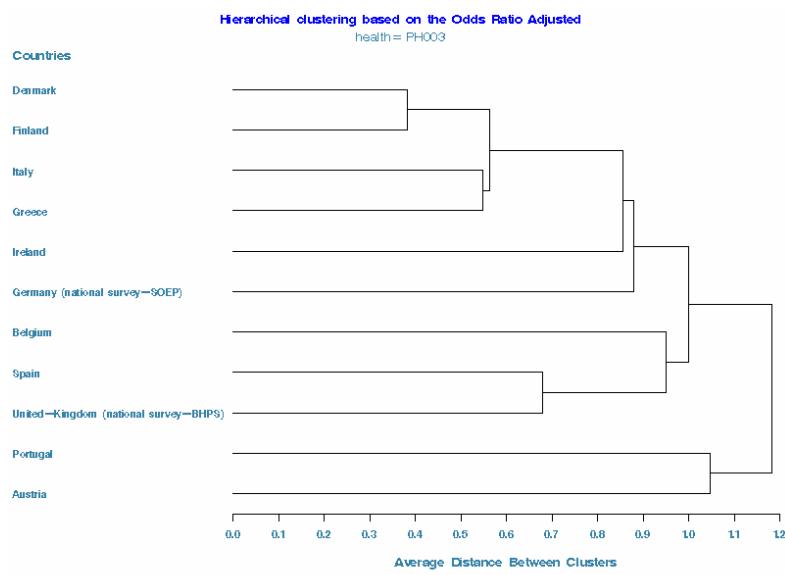
Figure 180: Width of the adjusted OR confidence interval by approach on the period 1998-2001



Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 181: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



Date of creation: 11 Jun 2004 / update: 11 Jun 2004

Source: ECHP UDB v. 12/2003

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Denmark seems to be close to the Finland. The same relation is observed between Italy and Greece. In the opposite, Portugal and Austria, seem to have results contrasted.

PH006: Hospital admission as in-patient

The original question is: "During the past 12 months, have you been admitted to a hospital as an in-patient?" (1) Yes (2) No. Each graph shows the probability to move from the state (2) to the state (1) for the health related-variable PH006.

Age group

Except for Denmark and the United-Kingdom, the probability of admission depends strongly of the ageing (Figure 183). The highest results are recorded for oldest people in Greece (4.9), Spain (3.9) and Portugal (3.6). The admission probability associated to the European oldest people increases across waves (Figure 182) to reach 3.7 in 2001. The strongest variation is obtained for Greece (4.9 in 1998 and 10.5 in 2001).

Figure 182: Adjusted Odds Ratio by year for people aged 75+ on the period 1998-2001 – Age group, ref: <25 – Cross sectional approach

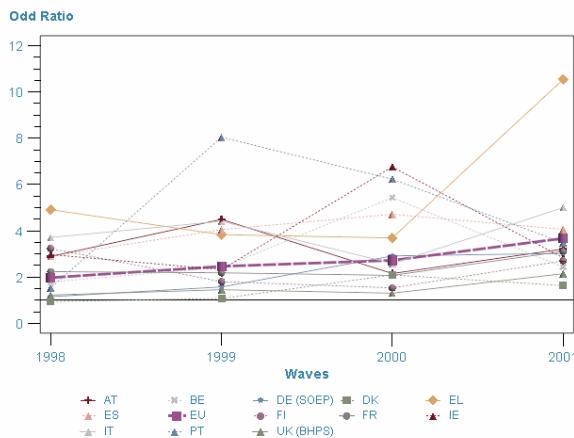
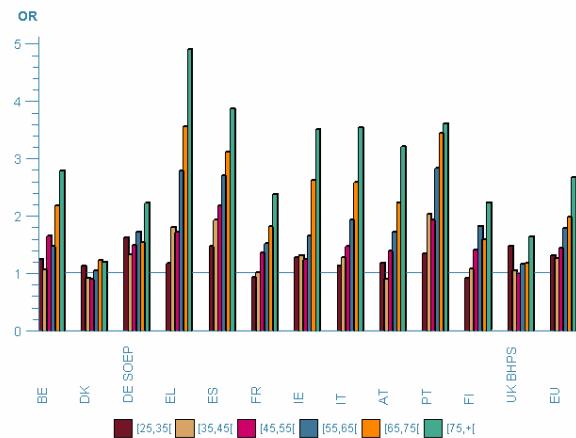


Figure 183: Adjusted Odds Ratio computed with series (period 1998-2001) – Age group, ref: <25 – Longitudinal approach



Gender

In United-Kingdom, the admission probability depends strongly of the gender: females have an admission probability of 1.6 in comparison of males (Figure 185). But, for a majority of countries, differences are not significative between males and females (DK, EL, ES, IT, FI). Nevertheless, the trend is reversed in Portugal where males have a probability higher than females to be admitted as an in-patient. Furthermore, a downward trend of the difference between genders is noticed across waves for numerous countries (Figure 184).

Figure 184: Adjusted Odds Ratio by year for females on the period 1998-2001 – Gender, ref: male – Cross sectional approach

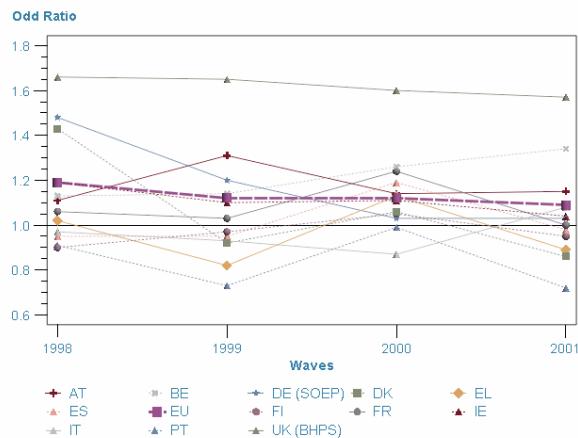
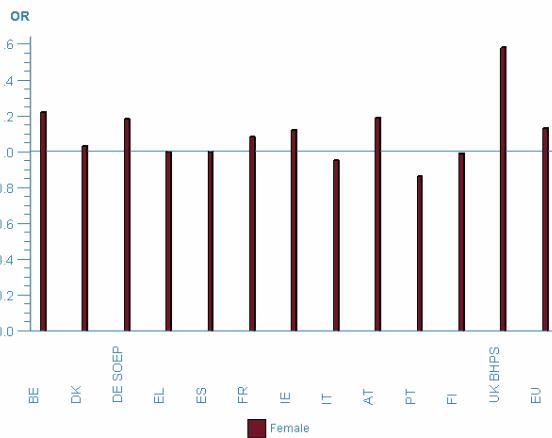


Figure 185: Adjusted Odds Ratio computed with series (period 1998-2001) – Gender, ref: male – Longitudinal approach



Educational level

The largest gap between the educational levels concerning the hospital admission is recorded for Italy ($OR_{ISCED\ 0-2} = 1.1$ and $OR_{ISCED\ 5-7} = 0.5$) while the differences are not too important for a large majority of Member States (Figure 187). Except for Greece, people with the lowest educational level have the highest probability of admission. According to the results of the cross-sectional approach, it appears that the probability of admission of European people with the highest level of income oscillates around 1.0 through waves (Figure 186).

Figure 186: Adjusted Odds Ratio by year for people with the highest educational level (ISCED 5-7) on the period 1998-2001 – Education level, ref: ISCED 3 – Cross sectional approach

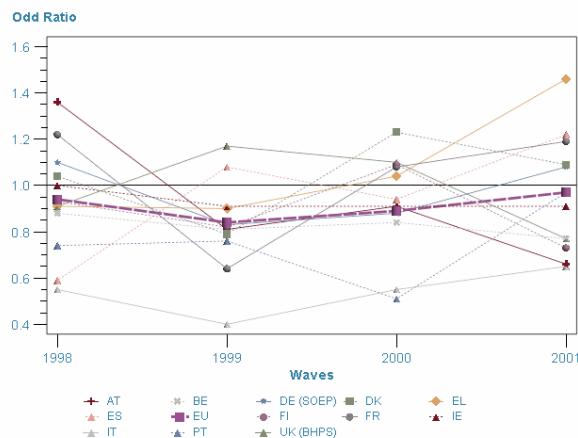
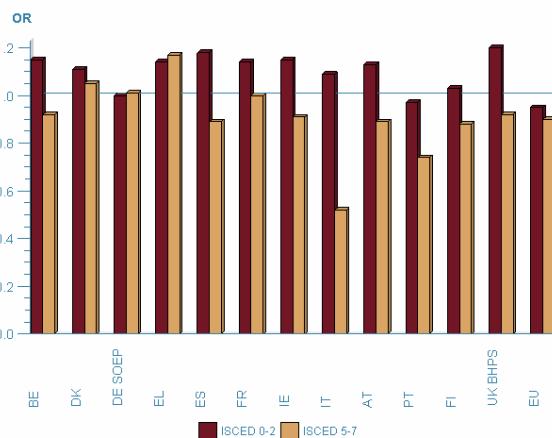


Figure 187: Adjusted Odds Ratio computed with series (period 1998-2001) – Education level, ref: ISCED 3 – Longitudinal approach



Activity status

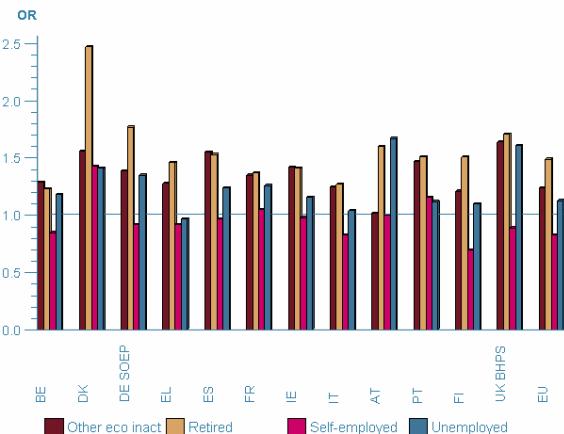
Except for Belgium, Spain and Austria, retired people have a highest probability to be admitted at the hospital as in-patient than the others activity status (Figure 189). At the European level, the admission probability of retired people is about 1.5 times higher than for employees (1.1 for unemployed and 0.8 for self-employed). An increase trend of the admission probability of retired

people is observed for various countries between 1998 and 2001 according to the cross-sectional study (Figure 188).

Figure 188: Adjusted Odds Ratio by year for retired people on the period 1998-2001 – Activity status, ref: employee – Cross sectional approach



Figure 189: Adjusted Odds Ratio computed with series (period 1998-2001) – Activity status, ref: employee – Longitudinal approach



Income level

Except in Belgium, Denmark and Finland, people with the lowest income level have the lowest admission probability (Figure 191). At the European level, a slight increase of the admission probability is observed for the lowest income level group across waves (Figure 190). The highest growth is recorded for Germany between 1999 (0.4) and 2001 (1.2).

Figure 190: Adjusted Odds Ratio by year for people with the lowest income level (OR_{<20th}) on the period 1998-2001 – Activity status, ref: [40th-60th] – Cross sectional approach



Figure 191: Adjusted Odds Ratio computed with series (period 1998-2001) – Income level, ref: [40th-60th] – Longitudinal approach

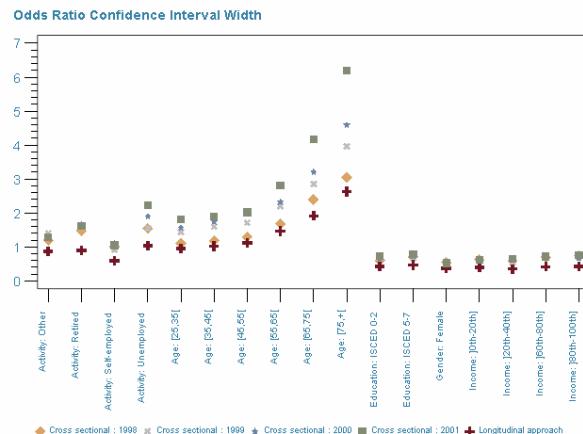


Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and longitudinal approaches. This indicator is averaged on all the countries available for the health-related variable concerned in order to have an overview of the trend (BE, DK, DE, EL, ES, FR, IE, IT, AT, PT, FI, UK).

The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 192). Indeed, the longitudinal analysis gives the lowest confidence interval for all the OR computed. The largest difference is recorded for the highest age group (aged 75+): width of 2.6 with the longitudinal approach and width of 6.2 in 2001 with the cross-sectional approach.

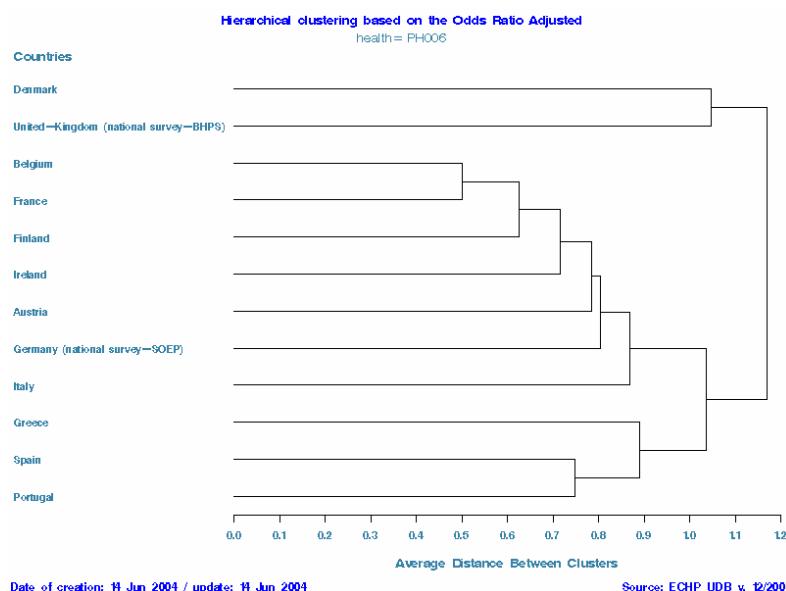
Figure 192: Width of the adjusted OR confidence interval by approach on the period 1998-2001



Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 193: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Belgium seems to be close to the France. In the opposite, Denmark and United-Kingdom, Spain and Portugal, seem to have results contrasted.

PH008: General practitioner consultation

The original question is “During the past 12 months, about how many times have you consulted a general practitioner”: quantitative answer. The European median was computed in order to create a two-point scale variable. The classes selected are the following: (1) more than 2 times, (2) 2 times or less. Each graph shows the probability to move from the state (2) to the state (1) for the health related-variable PH008.

Age group

The probability to consult a general practitioner increases with the ageing, but the strongest results are recorded for Greece, Ireland and Italy (Figure 195). The consultation probability reaches 19.2 for Greek aged 75+ (the European probability is about 4.4). The lowest differences are recorder in northern countries (Denmark and Finland). According to the results of the cross-sectional approach, the probability evolution of European people aged 75+ does not seem to evolve across waves, oscillating about 4 (Figure 194).

Figure 194: Adjusted Odds Ratio by year for people aged 75+ on the period 1998-2001 – Age group, ref: <25 – Cross sectional approach

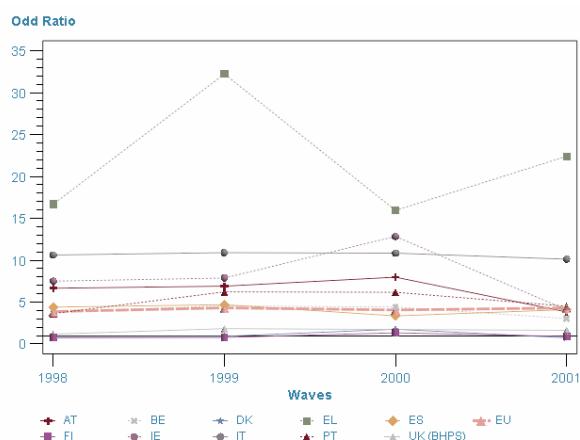
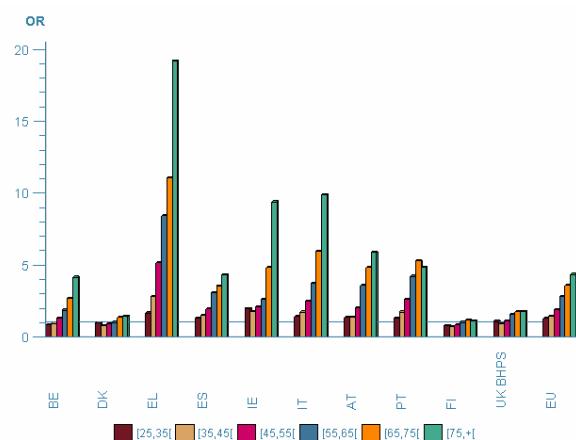


Figure 195: Adjusted Odds Ratio computed with series (period 1998-2001) – Age group, ref: <25 – Longitudinal approach



Gender

Whatever the country considered, the probability to consult a general practitioner is higher for females than males (about 1.5 times upper) (Figure 197). The highest rates are recorded for Denmark (2.0), Portugal (2.0) and the United-Kingdom (2.1). An increase of this trend can be observed for a majority of countries across waves (Figure 196). The European results fluctuate 1.7 and 1.9.

Figure 196: Adjusted Odds Ratio by year for females on the period 1998-2001 – Gender, ref: male – Cross sectional approach

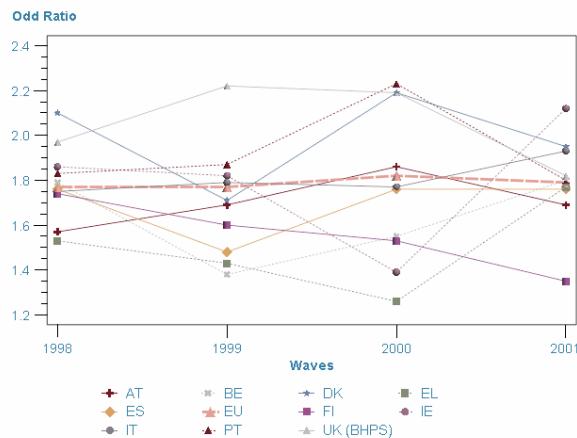
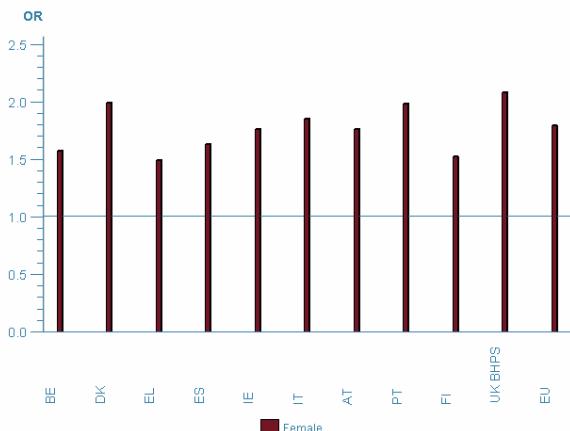


Figure 197: Adjusted Odds Ratio computed with series (period 1998-2001) – Gender, ref: male – Longitudinal approach



Educational level

People with the lowest educational level have the highest probability of consultation (Figure 199). This trend is observed for all the countries. Moreover, Greece, Spain and Ireland record the largest rates with a probability upper than 1.3. The southern European countries have the strongest differences between ISCED 0-2 and ISCED 5-7 (Greece, Spain, Italy and Portugal). It can be noticed that a downward trend of the European probability associated to the highest educational level is observed across the period 1998-2001 (Figure 198).

Figure 198: Adjusted Odds Ratio by year for people with the highest educational level (ISCED 5-7) on the period 1998-2001 – Education level, ref: ISCED 3 – Cross sectional approach

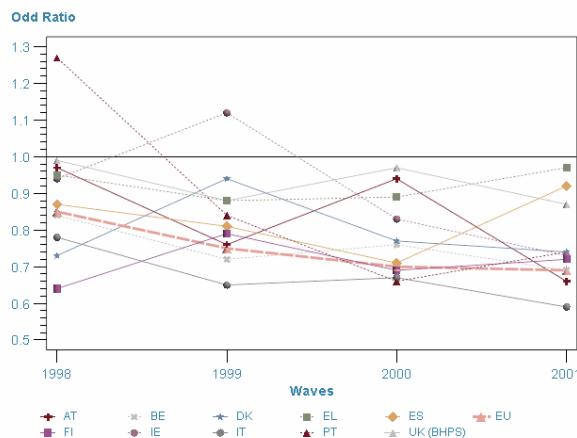
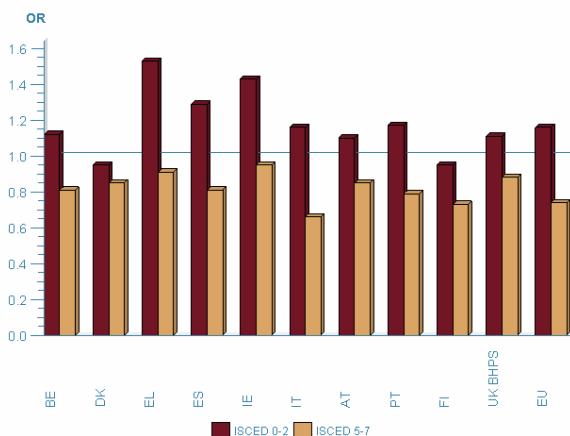


Figure 199: Adjusted Odds Ratio computed with series (period 1998-2001) – Education level, ref: ISCED 3 – Longitudinal approach



Activity status

Except for Finland, Retired people and Unemployed have the strongest probability of consultation whatever the country considered (Figure 201). The largest results for retired are observed for Denmark (1.8) and Greece (1.9). It can be noticed that the English unemployed people have the highest probability with an adjusted OR upper than 1.8. At the European level, the cross-sectional approach shows an increase of the probability trend for retired people across

waves (1.5 in 1998 ; 1.7 in 2001) (Figure 200). Retired Danish and retired Greek record the most marked increase (from 2.3 in 1998 to 3.0 in 2001 for Denmark, and from 1.7 to 2.2 for Greece).

Figure 200: Adjusted Odds Ratio by year for retired people on the period 1998-2001 – Income level, ref: employee – Cross sectional approach

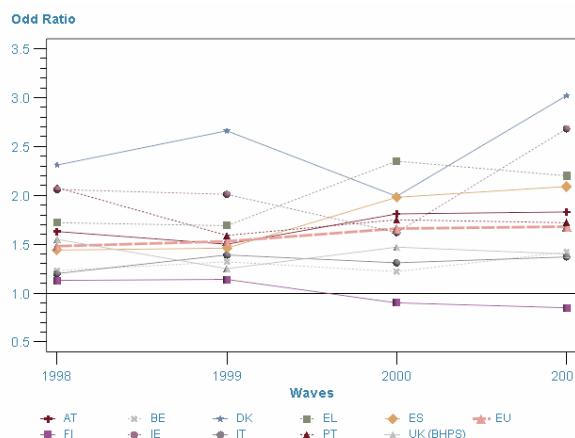
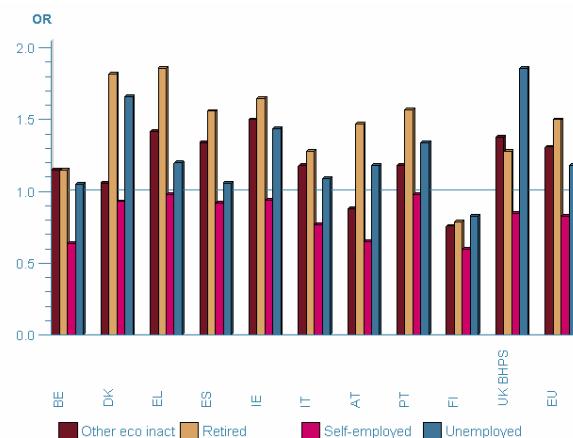


Figure 201: Adjusted Odds Ratio computed with series (period 1998-2001) – Income level, ref: employee – Longitudinal approach



Income level

People with the smallest income level have the lowest consultation probability (Figure 203). However, at the European level, the probability of each class is ranged between 0.8 and 1.0. Furthermore, according to the cross-sectional approach, a slight decrease is observed across the period 1998-2001 for numerous countries (Figure 202). The strongest variation is recorded for Denmark (from 1.3 in 1998 to 0.5 in 2001).

Figure 202: Adjusted Odds Ratio by year for people with the lowest income level (OR<20th) on the period 1998-2001 – Activity status, ref: [40th-60th] – Cross sectional approach

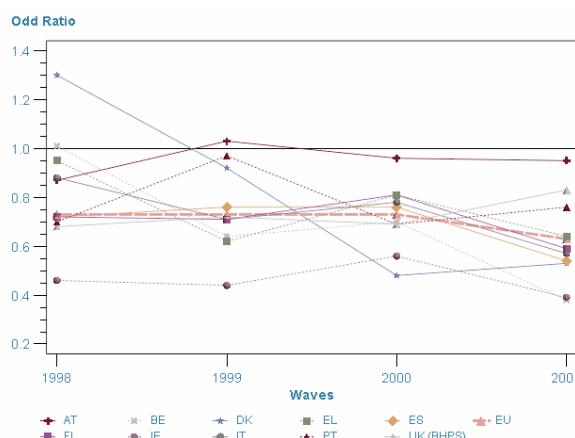


Figure 203: Adjusted Odds Ratio computed with series (period 1998-2001) – Activity status, ref: [40th-60th] – Longitudinal approach



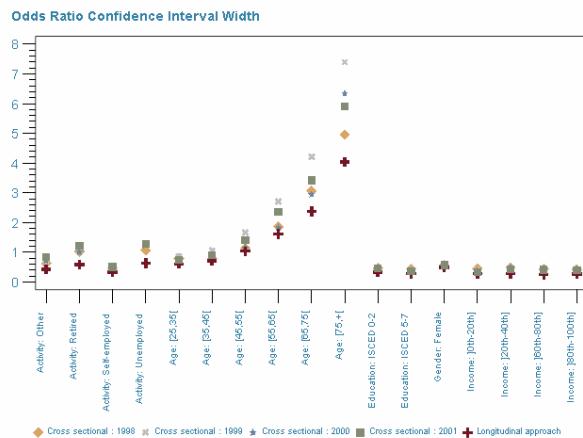
Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and

longitudinal approaches. This indicator is averaged on all the countries available for the health-related variable concerned in order to have an overview of the trend (BE, DK, EL, ES, IE, IT, AT, PT, FI, UK).

The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 204). Indeed, the longitudinal analysis gives the lowest confidence interval for all the OR computed. The strongest difference is recorded for the highest age group (aged 75+): width of 4.0 with the longitudinal approach and width of 7.4 in 1999 with the cross-sectional approach.

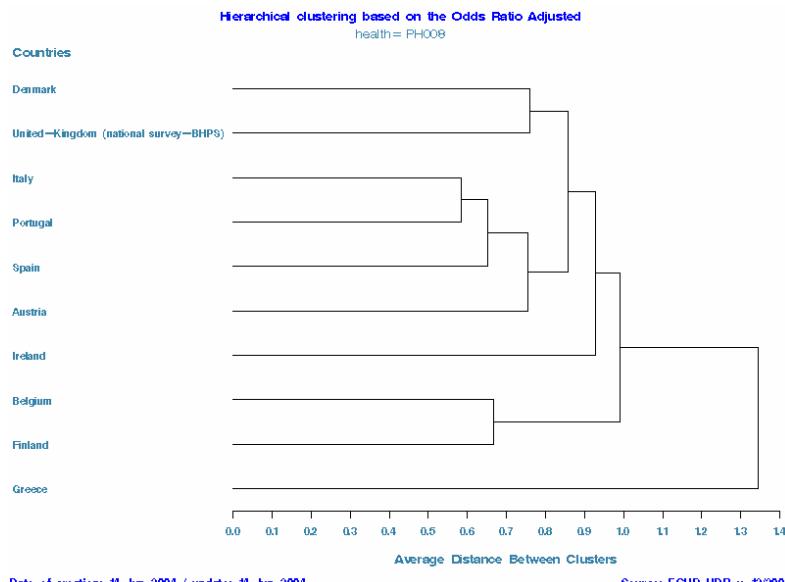
Figure 204: Width of the adjusted OR confidence interval by approach on the period 1998-2001



Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 205: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Italy seems to be close to the Portugal. The same relation is observed between Belgium and Finland. In the opposite, Greece, Denmark and the United-Kingdom seem to have results contrasted.

PH016: Smoker or not

The original question is: "Do you smoke or did you ever smoke?" The answers are: (1) smokers (Smoke daily, Smoke occasionally, Do not smoke but used to smoke daily), (2) non-smokers (Do not smoke but used to smoke occasionally, Never smoked). Each graph shows the probability to move from the state (2) to the state (1) for the health related-variable PH016.

Age group

The probability to become a smoker is strongly associated to the age groups. But globally, according to the results, it appears that people younger than 45 have a strongest probability to become smokers in comparison to the youngest class (<25). In opposite, the trend is reversed after 45 (Figure 207). In Austria, the youngest people have the strongest probability to become smokers. In comparison to the youngest European people, the probability for the oldest ones to start to smoke is very low (0.4 in 1998 and 0.6 in 2001) (Figure 206).

Figure 206: Adjusted Odds Ratio by year for people aged 75+ on the period 1998-2001 – Age group, ref: <25 – Cross sectional approach

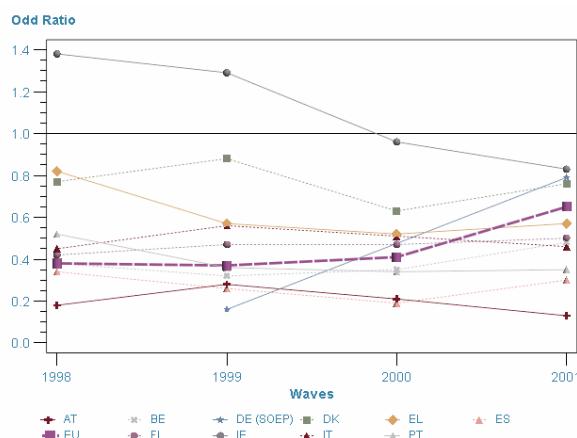
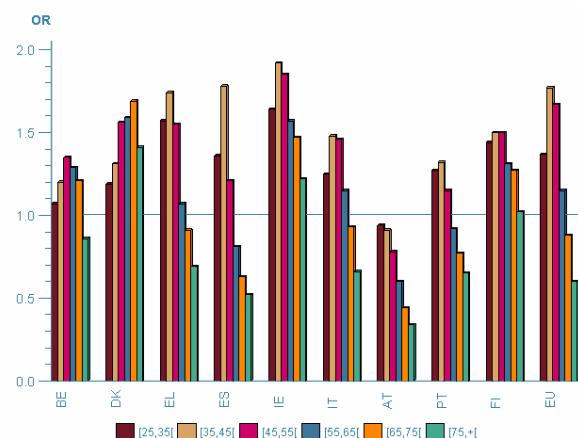


Figure 207: Adjusted Odds Ratio computed with series (period 1998-2001) – Age group, ref: <25 – Longitudinal approach



Gender

Except for Ireland and Denmark, the probability to start to smoke is twice higher for males (Figure 209). The lowest probability is recorded for southern European countries (0.3 in Greece, 0.4 in Spain, 0.3 in Italy and 0.2 in Portugal). At the opposite, Denmark and Ireland show the highest probability with respectively 0.7 and 0.8. The cross-sectional approach shows a steady comportment of European people across waves (Figure 208).

Figure 208: Adjusted Odds Ratio by year for females on the period 1998-2001 – Gender, ref: male – Cross sectional approach

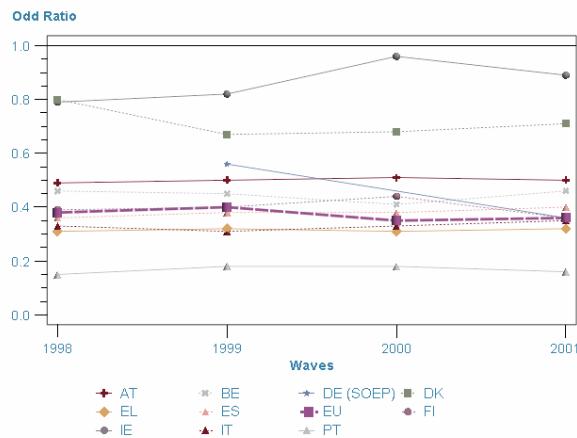
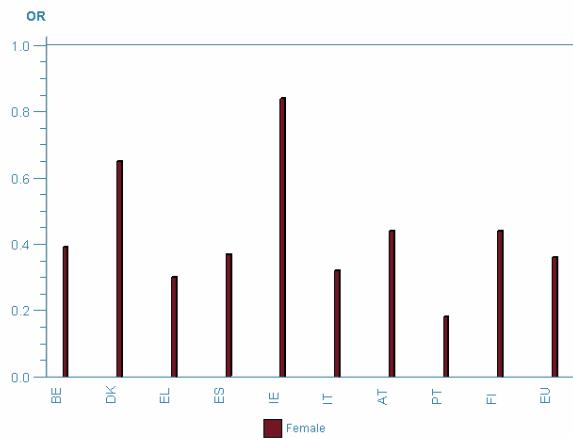


Figure 209: Adjusted Odds Ratio computed with series (period 1998-2001) – Gender, ref: male – Longitudinal approach



Educational level

Except for Spain, people with the lowest educational level have the strongest probability to start to smoke in comparison to people with the highest one (Figure 211). However, the probability of these two groups is ranged between 0.9 and 1.1. Thus, it shows an equivalence of the behaviours whatever the educational level considered. According to the cross-sectional approach, the probability to start to smoke for people with the lowest educational level seems to increase slightly across waves for numerous countries (Figure 210). But, the evolutions between 1998 and 2001 stay very small.

Figure 210: Adjusted Odds Ratio by year for people with the lowest educational level (ISCED 0-2) on the period 1998-2001 – Education level, ref: ISCED 3 – Cross sectional approach

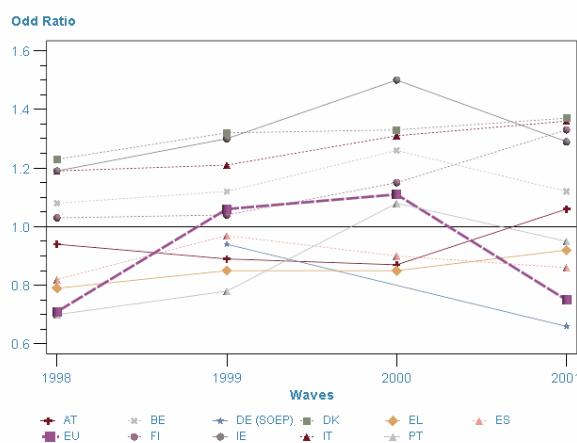
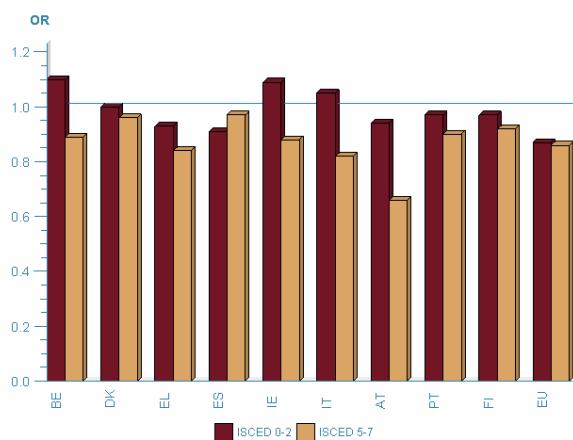


Figure 211: Adjusted Odds Ratio computed with series (period 1998-2001) – Education level, ref: ISCED 3 – Longitudinal approach



Activity status

At the European level, unemployed and retired people have the strongest probabilities to start to smoke but they do not exceed 1.1 (Figure 213). The highest probabilities for self-employed are observed in Greece (1.0), Italy (1.0) and Belgium (1.0). According to the results of the cross-

sectional approach, the unemployed Austrian people have the strongest increase from 1998 (2.6) to 2001 (5.0) (Figure 212).

Figure 212: Adjusted Odds Ratio by year for unemployed people on the period 1998-2001 – Activity status, ref: employee – Cross sectional approach

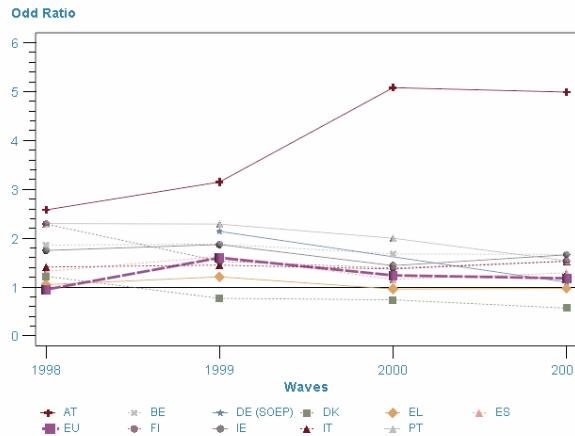
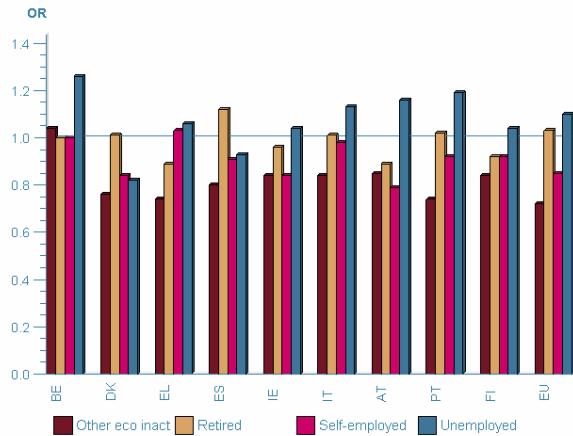


Figure 213: Adjusted Odds Ratio computed with series (period 1998-2001) – Activity status, ref: employee – Longitudinal approach



Income level

Except for Denmark and Ireland, people with the highest income level have the strongest probability to start to smoke (Figure 215). At the European level, people with the lowest income level have the smallest probability (0.8). Moreover, this class of income shows a decrease from 1998 to 2001 to reach 0.7 in 2001 at the European level (Figure 214).

Figure 214: Adjusted Odds Ratio by year for people with the lowest income level ($OR_{<20^{th}}$) on the period 1998-2001 – Income level, ref: [40^{th} - 60^{th}] – Cross sectional approach

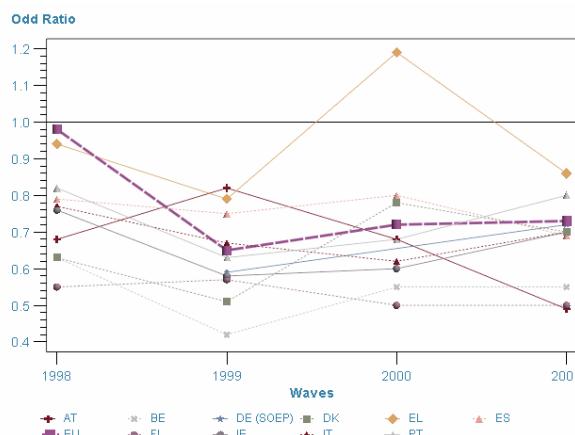
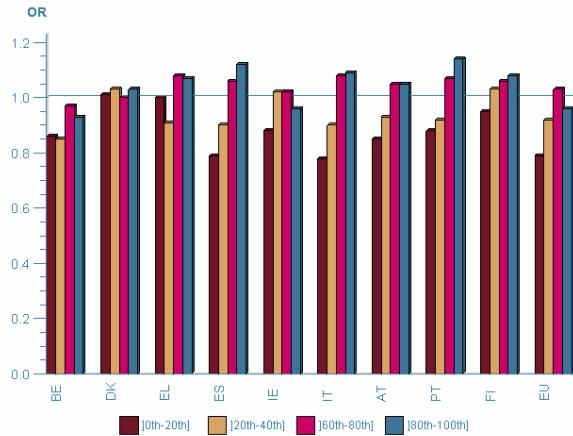


Figure 215: Adjusted Odds Ratio computed with series (period 1998-2001) – Income level, ref: [40^{th} - 60^{th}] – Longitudinal approach

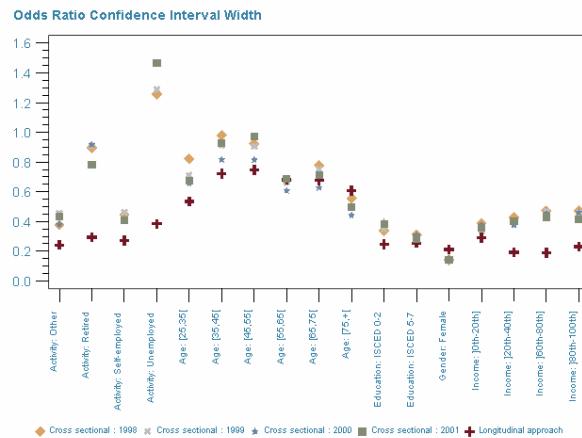


Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and longitudinal approaches. This indicator is averaged on all the countries available for the health-related variable concerned in order to have an overview of the trend (BE, DK, EL, ES, IE, IT, AT, PT, FI).

The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 216). Indeed, the longitudinal analysis gives the lowest confidence interval for a majority of OR computed. The strongest difference is recorded for the unemployed activity status: width of 0.4 with the longitudinal approach and width of 1.5 in 2001 with the cross-sectional approach.

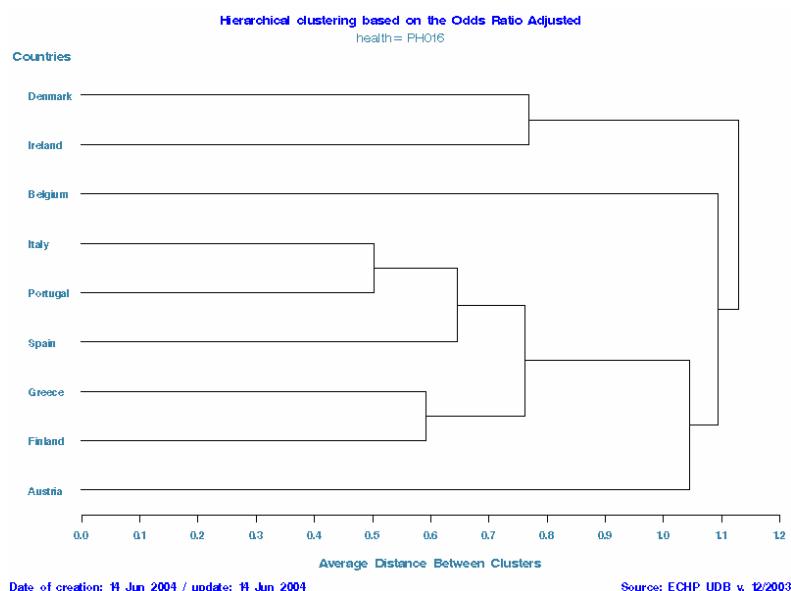
Figure 216: Width of the adjusted OR confidence interval by approach on the period 1998-2001



Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 217: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Italy seems to be close to the Portugal. The same relation is observed between Greece and Finland. In the opposite, Belgium, Austria, Denmark and Ireland seem to have results contrasted.

PH022: Body Mass Index

In the questionnaires, the height (PH020) and the weight (PH021) were collected in order to compute the Body Mass Index (PH022): Weight/Height². Two classes were built according to the threshold 27: (1) BMI ≥ 27 , Overweight or obesity, (2) BMI < 27 , "Normal" weight. Each graph shows the probability to move from the state (2) to the state (1) for the health related-variable PH022.

Age group

The trend of obesity/overweight is strongly associated to the ageing. Indeed, the probability to have overweight problem increases until 65-75 years old and decreases after this threshold (Figure 219). At the European level, the probability reaches 7.6 among people of the age group 65-75. But, a decreasing trend of this problem is recorded for all the age groups from 1998 to 2001. In 1998, the probability for a person aged 65-75 to change of status was about 10.4 times more important than the age group <25. In 2001, the probability of this same age group was 7.1 (Figure 218).

Figure 218: Adjusted Odds Ratio by year for people aged 65-75 on the period 1998-2001 – Age group, ref: <25 – Cross sectional approach

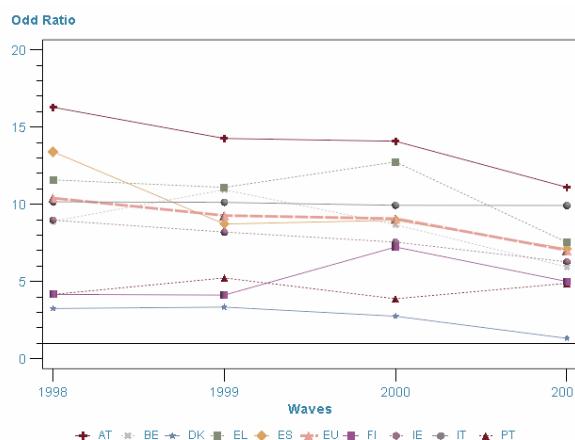
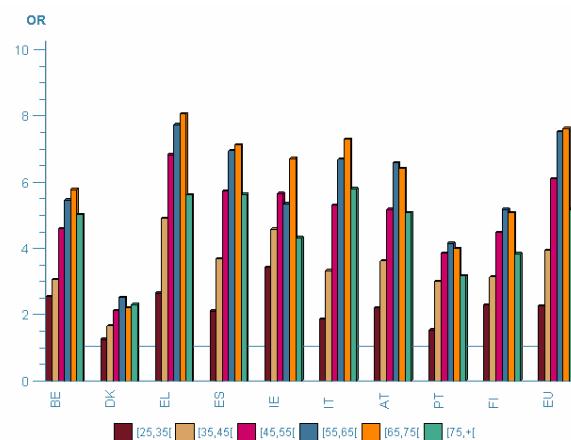


Figure 219: Adjusted Odds Ratio computed with series (period 1998-2001) – Age group, ref: <25 – Longitudinal approach



Gender

Globally, females have a smallest probability to change of status whatever the country considered (Figure 221). The highest difference between males/females is recorded in Italy with a probability of 0.6 for females. But according to the results of the cross-sectional analysis, it appears that some behaviour can differ according to the Member States. Indeed, for Finland and Italy, the probabilities associated to status evolution for females have a decreasing trend while an increasing trend across the period 1998-2001 was observed for Denmark and Portugal (Figure 220). But, at the European level, no variation is observed (probability of 0.6 whatever the wave considered).

Figure 220: Adjusted Odds Ratio by wave for females on the period 1998-2001 – Gender, ref: male – Cross sectional approach

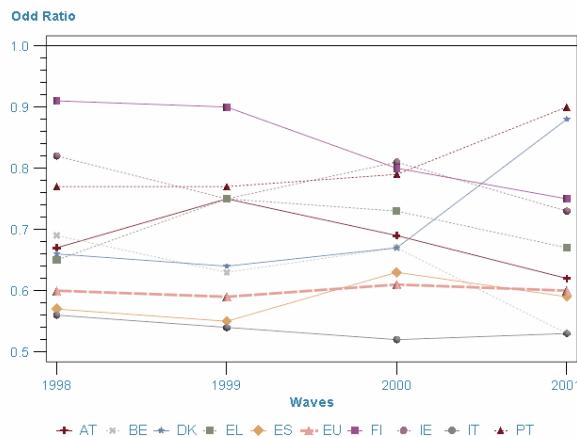
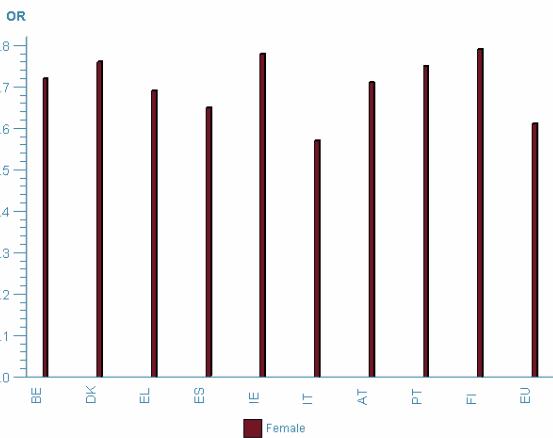


Figure 221: Adjusted Odds Ratio computed with series (period 1998-2001) – Gender, ref: male – Longitudinal approach



Educational level

Whatever the country considered, people with the lowest educational level have the highest probability to change of status (normal/overweight). The strongest results are observed for European southern countries (Spain with 1.5, Italy with 1.4 and Portugal with 1.3) (Figure 223). Moreover, an increasing trend was observed across the period 1998-2001 for the European people with the highest educational level (probability of 1.5 in 1998 and 1.8 in 2001) (Figure 222).

Figure 222: Adjusted Odds Ratio by year for people with the lowest educational level (ISCED 0-2) on the period 1998-2001 – Education level, ref: ISCED 3 – Cross sectional approach

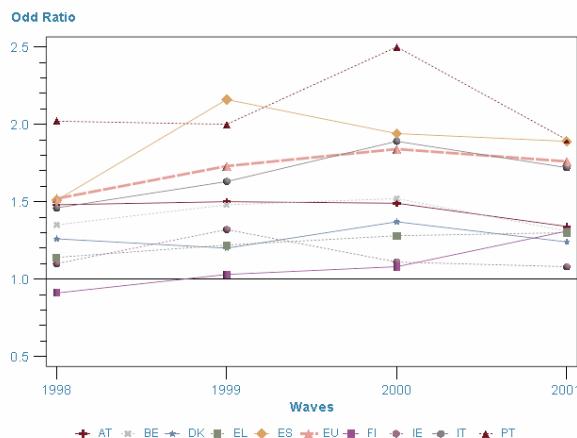
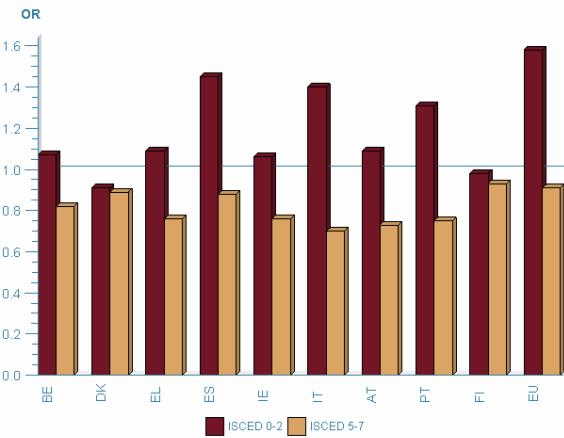


Figure 223: Adjusted Odds Ratio computed with series (period 1998-2001) – Education level, ref: ISCED 3 – Longitudinal approach



Activity status

At the European level, the probability for self-employed and unemployed to change of status (normal/overweight) is greater than for employees (Figure 225). It can be noticed that retired people have a significative probability in Austria (1.3) and in Finland (1.3). An increase of the probability for unemployed people is recorded in the European northern countries (Finland, Denmark and Austria) from 1998 to 2001 (Figure 224).

Figure 224: Adjusted Odds Ratio by year for unemployed people on the period 1998-2001 – Activity status, ref: employee – Cross sectional approach

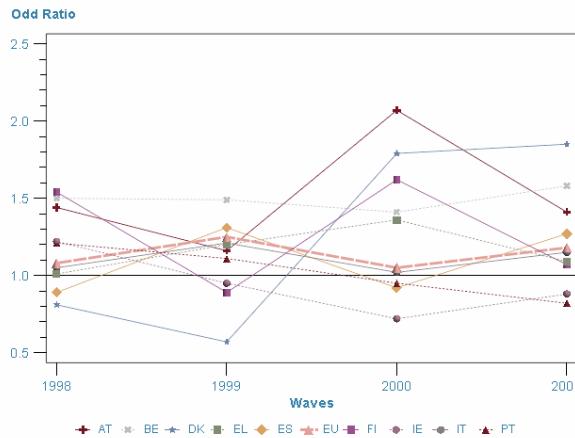
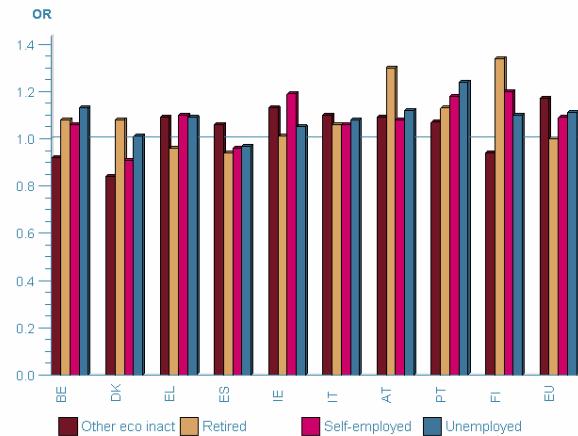


Figure 225: Adjusted Odds Ratio computed with series (period 1998-2001) – Activity status, ref: employee – Longitudinal approach



Income level

In Europe, people with the highest income level have a strongest probability to become overweighted (Figure 227). It concerns mainly Ireland (OR_{>80th} = 1.2) and Austria (OR_{>80th} = 1.3). Nevertheless, for some countries, an upward trend was observed through the period 1998-2001 for people with the lowest income level (Figure 226). It concerns mainly Belgium (0.9 in 1998 ; 1.4 in 2001), Austria (0.9 ; 1.3) and Portugal (0.8 ; 1.1).

Figure 226: Adjusted Odds Ratio by year for people with the lowest income level (OR_{<20th}) on the period 1998-2001 – Income level, ref: [40th-60th] – Cross sectional approach

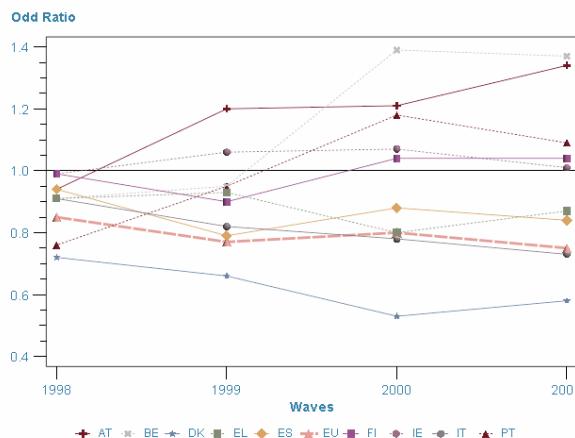
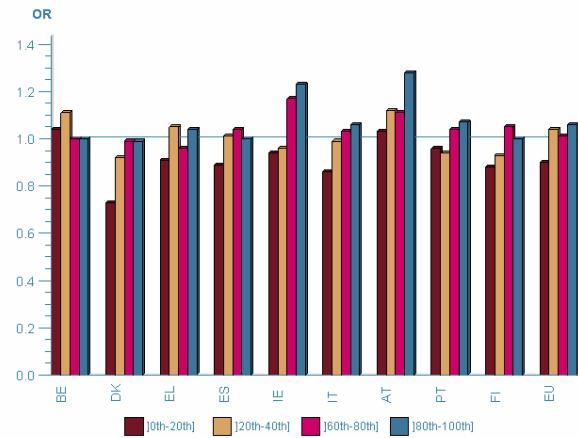


Figure 227: Adjusted Odds Ratio computed with series (period 1998-2001) – Income level, ref: [40th-60th] – Longitudinal approach

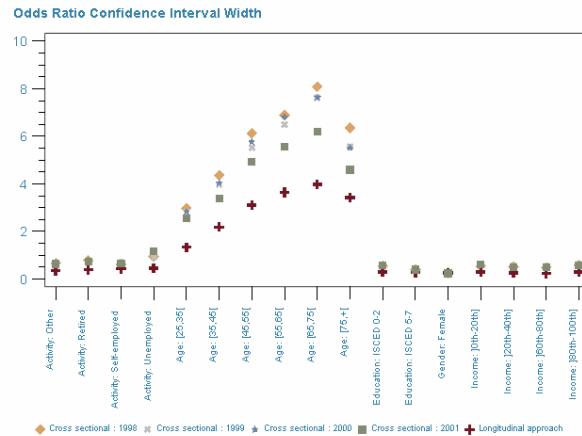


Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and longitudinal approaches. This indicator is averaged on all the countries available for the health-related variable concerned in order to have an overview of the trend (BE, DK, EL, ES, IE, IT, AT, PT, FI).

The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 228). Indeed, the longitudinal analysis gives the lowest confidence interval for all the OR computed. The strongest difference is recorded for the age group 65-75: width of 4.0 with the longitudinal approach and width of 8.1 in 1998 with the cross-sectional approach.

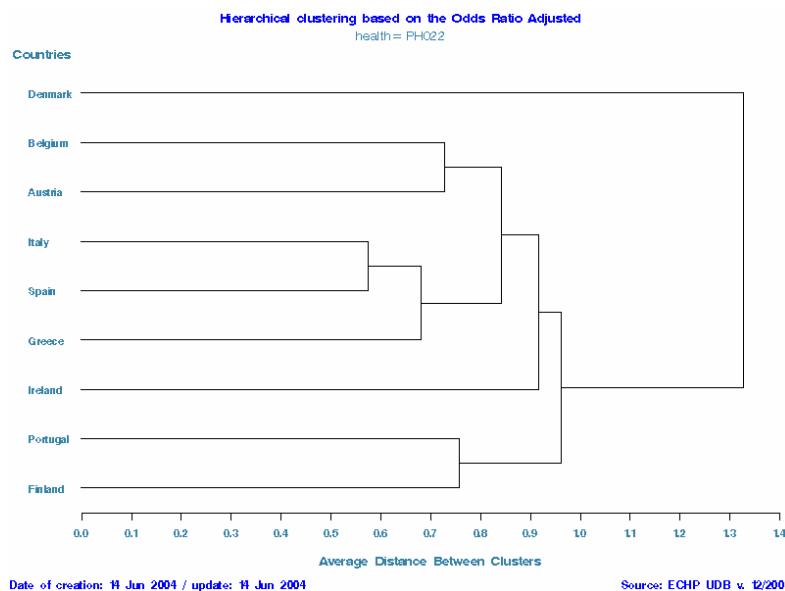
Figure 228: Width of the adjusted OR confidence interval by approach on the period 1998-2001



Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 229: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



Date of creation: 11 Jun 2004 / update: 11 Jun 2004

Source: ECHP UDB v. 12/2003

The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Italy seems to be close to Spain. In the opposite, Denmark, Portugal and Finland seem to have results contrasted.

3.3. Conclusion and discussion

Two approaches were implemented to analyse the longitudinal health-related data from the ECHP. The first one concerned the achievement of a **cross-sectional study** by computing tabulations by classes of usual variables (gender, age, educational level, economic activity and income level). Moreover, several annual models were built in order to compute adjusted Odds Ratio allowing giving the probability to move from a health status to another one according to the usual variables. On the basis of these indicators, it was possible to compare and to group countries. However, these analyses were carried out year by year, thus the information brought by the observed series was not used.

Therefore, a second approach was implemented in order to take into account the evolution of a given respondent through waves, this is the **longitudinal analysis**. The longitudinal dimension allows taking into account the “unobserved heterogeneity”. This term regroups all the differences existing between individuals, which are unobserved. With this approach, only one model was computed by country, by the way only one set of adjusted OR was computed by Member State.

Once these two approaches carried out, it was possible to compare the parameters of the models computed. In order to match the results of the model computed with the cross-sectional study and the 4 datasets given by the cross-sectional study, these ones were averaged. So, it appeared clearly that **the longitudinal approach allowed smoothing some data**. Indeed, for some age group (65-75 or 75+), probabilities of health-status transition computed by year (cross-sectional approach) were very excessive. The use of time series permitted to reduce the gap between some results. This observation was noted for all the health-related variables (cf. CD-ROM¹⁷, “Use of series: *averaged OR computed with cross-sectional approach & OR computed with longitudinal approach*”).

Furthermore, **the longitudinal approach allowed to reduce the width of the confidence intervals of the adjusted OR computed**. It shows an improvement of the estimated data. Nevertheless, **the cross-sectional approach allowed comparing the evolution of the samples through waves with tables of transition and with graphics**. It means, it was easier to point out some breaks between two successive years and to compare the evolution of specific countries on a given time frame period.

According to the results, it seems **that the cross-sectional and the longitudinal approaches are complementary**. Moreover, a recommendation has to be done concerning the size of the series. Indeed, the length of series could act directly on the quality of the results for the longitudinal analysis. The effects of explicative factors depend strongly on it. The bigger the series is, the better are the results. But, the quality of the results depends directly on the quality of the data. Above all, it is necessary to respect some rules to obtain a relevant database in order to compute a longitudinal study:

- Wording has to be respected through waves. No variation must be recorded between versions of consecutive questionnaires. It could introduce a bias during the analysis of series.
- Translation of questionnaires has to be adapted to each country in order to respect national/regional habits. Nevertheless, the differences with the reference wording must be reported.
- Answers have to respect a specific schema in order to cover the entire field studied. Moreover, the respondents must easily understand the answers proposed.

¹⁷ For practical reasons, all information (tabulations, adjusted Odds Ratio, graphics, hierarchical clustering, model parameters, variation between waves, etc.) is available on a CD-ROM

- With some longitudinal methods, a missing data lead to the deletion of series. To maximise the size of the sample, it is highly recommended to get all the information.

Nevertheless, missing data are observed in all surveys. Sometimes, it is necessary to replace non-observed data by using methods of imputation (Simple or Multiple Imputation, Gibbs Sampling, etc).

4. Complementary analyses

Some complementary analyses were implemented in order:

- To deepen the study of the correlation of several health-related variables with the global health status. Both cross-sectional and longitudinal approaches were used to have complementary results as introduced in the conclusion of the last part of this document.
- To study the cigarette consumption in Europe from 1998 to 2001 by using usual variables. This analysis concerned only daily smokers.
- To study the overweight/obesity evolution in Europe from 1998 to 2001 by using usual variables. The threshold used was a BMI greater or equal to 27.

4.1. Modelling of the global health-status

Several models were built including the usual explanatory variables as discussed in the parts above, and some health-related variables were added. These variables were selected according to their availability in the database across the period of interest (1998-2001). Furthermore, only countries with all the variables filled in were conserved, it concerns 9 Member States.

4.1.1. Methodology

Variables and sample used

- **5 explanatory variables** were discussed to implement logistic regressions (age group, gender, economic activity, education and income level) (Table 9).
- **5 health-related variables were selected** according to their availability across the period 1998-2001 (PH002, PH006, PH008, PH016, PH022). Some of them were recoded in 2-point scale to simplify the analysis (Table 10).
- The sample used for the analysis concerns **responding people from 1998 to 2001**. However, for some health-related variables, data is not available for some MS (Table 11). Thus, the countries conserved in the analysis are BE, DK, EL, ES, IE, IT, AT, PT, FI. The European aggregate was computed on the basis of the MS available.

Weight used in calculations

The same weights as those used in the previous analyses were applied: PG002 for the cross-sectional approach and PG003 for the longitudinal one. Data were standardised on the basis of the WHO's European Standard Population Table.

Modelling

Multivariate analyses were implemented on the strengths of correlation between health-related variable PH001 (global health status) and variables previously mentioned. But several approaches were carried out:

- Firstly, a **logistic regression** was implemented by country and by year (5). Several adjusted Odds Ratio were derived from the parameters of the model (6). But, in order to obtain a global overview of the trends in the time frame period 1998-2001, **the yearly Odds Ratio were averaged** (7).

$\text{PH001}(i) = \text{Age}(i), \text{Gender}(i), \text{Education}(i), \text{Activity}(i), \text{Income}(i),$

$$\text{PH002}(i), \text{PH006}(i), \text{PH008}(i), \text{PH016}(i), \text{PH022}(i) \quad (5)$$

where $\text{PH001}(i)$ is the global health status with a binary answer for the year i .

$$\text{OR}_{\text{var},i} = \exp(\mathbf{X}_{\text{var},i}) \quad \text{where var in (Age, ..., PH022)} \quad (6)$$

$$\overline{\text{OR}}_{\text{var}} = \frac{1}{4} \sum_{i=1998}^{2001} \text{OR}_{\text{var},i} \quad (7)$$

- Secondly, a **logistic regression with repeated measures** (8) was carried out in order to take into account the time factor in the analysis by using all the observations through the time frame period 1998-1001 for a given person. Thus, the global Odds Ratio obtained are adjusted on time factor. These new indicators could be compared to the averaged Odds Ratio computed in the first analysis. Furthermore, the confidence interval computed for each adjusted OR could be compared at those estimated by year for the cross-sectional study in order to compare the quality of the approaches. Moreover, in order to group countries on the basis of the adjusted OR computed with the longitudinal analysis, **a hierarchical clustering approach** was carried out.

$$Y = (\text{Age}, \dots, \text{Income}, \text{PH002}, \dots, \text{PH022})_{1998},$$

,...,

$$(\text{Age}, \dots, \text{Income}, \text{PH002}, \dots, \text{PH022})_{2001} \quad (8)$$

- Thirdly, **the variable “country” was included** in each previous model (logistic regression by year and logistic regression with repeated measures). A European aggregate was built on the basis of the countries available (BE, DK, EL, ES, IE, IT, AT, PT, FI) in order to obtain a class of reference for this new variable. Adjusted Odds Ratio were computed to show the gap between each country and the European trend. However, the approach with repeated measures gives unreliable results. They are not introduced in this document.

4.1.2. Modelling by country

This analysis aims to implement a cross-sectional and a longitudinal analysis by country in order to analyse the correlation between the variable of interest (PH001: global health status) and the other health-related variables included in the model (PH002, PH006, PH008, PH016, PH022). All these variables are adjusted on the usual variables (age group, gender, economic activity, education and income level¹⁸).

Above all, the health variable PH001 was tabulated according to the other health-related variables of interest (Table 12). This table shows the rate of respondents with a Good or Very Good health status in 2001. All the Portuguese respondents with a chronic physical or mental health

¹⁸ The adjusted OR associated to the usual variables are available on a CD-ROM in annex.

problem, illness or disability perceived their health as Fair, Bad or Very Bad in 2001¹⁹. At the European level, the lowest differences between groups are recorded for smokers/non-smokers (PH016) and the biggest ones for respondents with/without chronic physical or mental health problem, illness or disability (PH002). In Greece, Spain, Italy, Portugal and Austria, the rate of people perceiving their health as Good or Very Good is higher among the smokers than the non-smokers.

Table 12: Rate of respondent with a Good or Very Good global health status (PH001) according to the other health-related variables, by MS in 2001 (%)

	BE	DK	EL	ES	IE	IT	AT	PT	FI	EU*
PH002	Yes	35.2	47.7	16.0	23.3	37.7	6.1	23.6	0.0	35.2
	No	85.6	92.4	92.7	82.8	94.2	69.7	88.3	59.7	84.7
PH006	Yes	48.7	45.7	34.0	33.6	46.7	28.1	45.4	13.3	39.1
	No	79.8	79.8	83.5	73.4	85.1	64.7	82.6	46.7	66.2
PH008	> 2	63.7	57.8	47.1	47.5	61.2	45.1	65.7	19.8	46.7
	<= 2	92.0	86.5	89.3	84.2	95.0	79.8	91.0	62.3	70.0
PH016	Smoker	75.3	71.8	85.1	73.9	77.8	64.9	81.4	45.5	63.0
	Non-smoker	77.6	82.7	76.8	67.8	84.0	61.1	74.3	44.7	63.6
PH022	>= 27	66.8	69.0	74.0	56.8	76.6	49.9	63.3	33.0	46.7
	< 27	80.4	79.6	84.6	77.4	83.0	66.5	82.4	50.3	71.1
										70.7

* European aggregate computed with BE, DK, EL, ES, IE, IT, AT, PT, FI

PH002: Do you have chronic physical or mental health problem, illness or disability?

PH006: During the past 12 months, have you been admitted to a hospital as an in-patient?

PH008: During the past 12 months, about how many times have you consulted a general practitioner (including home visits by the doctor)?

PH016: Do you smoke or did you ever smoke?

PH022: Body Mass Index

PH002: Chronic physical or mental health problem, illness or disability

The following figures show the probability to move from the health status “Good, Very good” to the state “Fair, Bad, or Very bad” for people with chronic physical or mental health problem, illness or disability with people without trouble as reference

According to the parameters of the models, global health status is strongly correlated to the variable PH002. Indeed, at the European level, the probability is 6.4 times upper for people with troubles than people without problem (Figure 231). This probability increases through time to reach 8.4 in 2001 (Figure 230). Greece, Ireland and Portugal get the highest results whatever the wave considered. But a majority of countries have an adjusted OR included in [5 ; 13] over all the period of interest with an upward trend.

¹⁹ Rate of Portuguese respondents with troubles perceiving their health as Good or Very Good: 3.8% in 1998, 6.2% in 1999, 0% in 2000 and 2001 (cf. CD-ROM in annex).

Figure 230: Adjusted Odds Ratio for people with troubles on the period 1998-2001 – Ref: No trouble – Cross-sectional approach

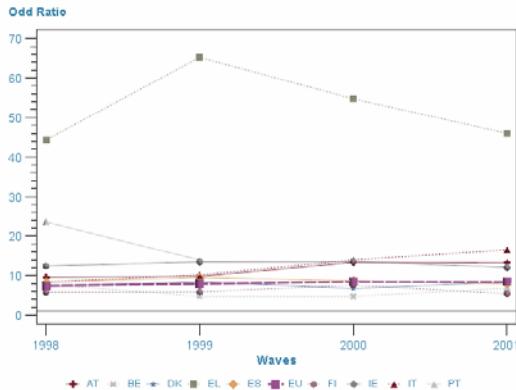
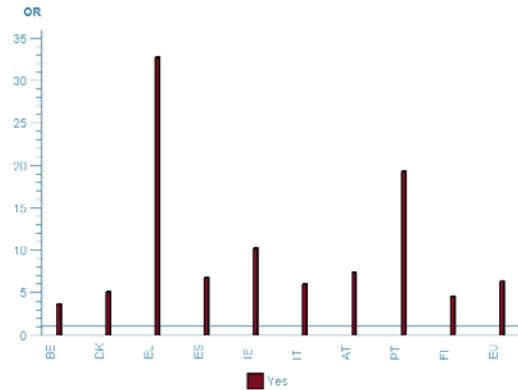


Figure 231: Adjusted Odds Ratio computed with series (period 1998-2001) – PH002, ref: No trouble – Longitudinal approach



PH006: Hospital admission as in-patient

The following figures show the probability to move from the health status “Good, Very good” to the state “Fair, Bad, or Very bad” for people admitted to the hospital as in-patient during the past 12 months with “non admitted” as reference.

A stable trend is recorded at the European level (Figure 232) with a probability lower than 2. But, an increase is observed for some countries. It concerns mainly Austria (1.9 in 1998 ; 3.1 in 2001) and Ireland (1.4 in 1999 ; 2.4 in 2001). With an adjusted OR upper than 3.5, Greece gets the strongest probability (Figure 233). Except for Austria and for Italy, northern Member States have the lowest results (about 1.7 for Denmark and 1.5 for Finland) and southern MS have the highest ones (2.3 for Spain and 2.1 for Portugal).

Figure 232: Adjusted Odds Ratio for people admitted on the period 1998-2001 – Ref: Non admitted – Cross-sectional approach

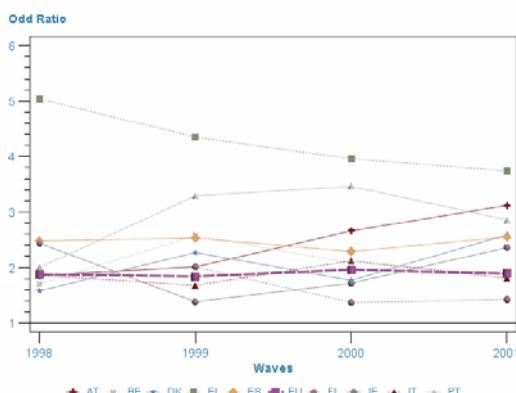
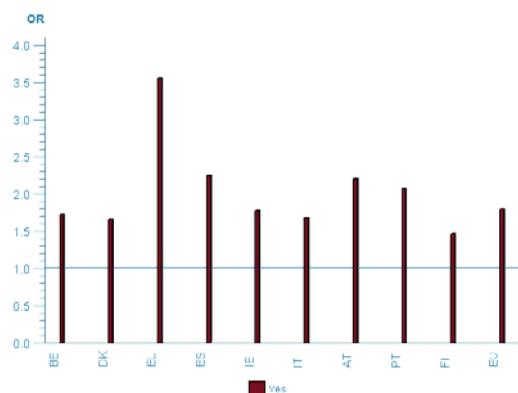


Figure 233: Adjusted Odds Ratio computed with series (period 1998-2001) – PH006, ref: Non admitted – Longitudinal approach



PH008: General practitioner consultation

The following figures show the probability to move from the health status “Good, Very good” to the state “Fair, Bad, or Very bad” for people having consulted a general practitioner more than 2 times during the past 12 months with “2 times or less” as reference.

The longitudinal approach allows reducing the gap between some countries. Thus the probabilities are lower with this approach than the other one. The probability associated to the European aggregate is about 2.3 with series (Figure 235) and included in [2.5 ; 3.1] with the cross-sectional approach (Figure 234). With an adjusted OR upper than 2, Belgium, Greece, Spain, Portugal and Ireland have the strongest probability.

Figure 234: Adjusted Odds Ratio for people with >2 consultations on the period 1998-2001 – Ref: <=2 – Cross-sectional approach

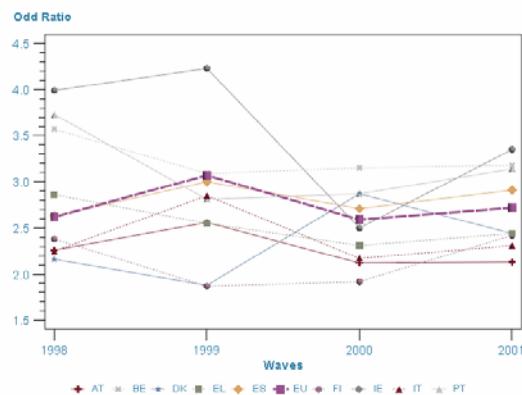
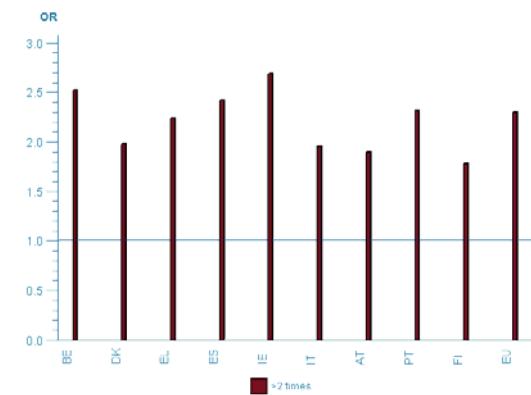


Figure 235: Adjusted Odds Ratio computed with series (period 1998-2001) – PH008, ref: <=2 consultations – Longitudinal approach



PH016: Smoker or not

The following figures show the probability to move from the health status “Good, Very good” to the state “Fair, Bad, or Very bad” for smokers (smoke daily, smoke occasionally, do not smoke but used to smoke daily) with “non-smokers” (do not smoke but used to smoke occasionally, never smoked) as reference.

Figure 236: Adjusted Odds Ratio for smokers on the period 1998-2001 – Ref: non-smokers – Cross-sectional approach

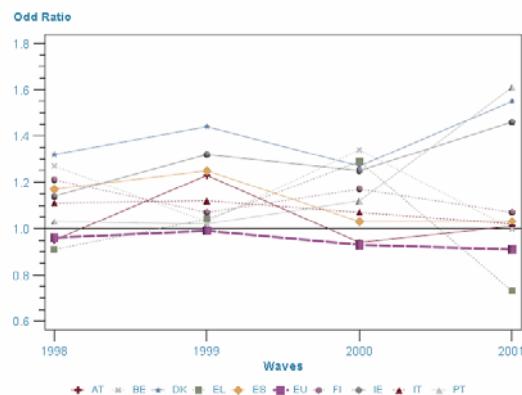
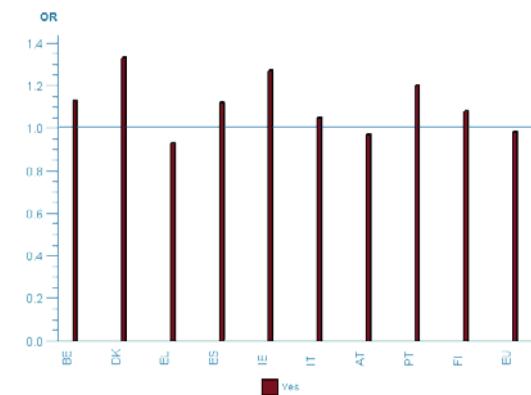


Figure 237: Adjusted Odds Ratio computed with series (period 1998-2001) – PH016, ref: <=non-smokers – Longitudinal approach



For a majority of countries, the adjusted OR is not significative (included in [0.9 ; 1.1]) (Figure 237). The strongest values are recorded for Denmark (1.3), Ireland (1.3) and Portugal (1.2). A downward trend is observed at the European level from 1998 to 2001 to reach 0.9 (Figure 236). According to the results, the health status perception does not seem to be highly correlated to the tobacco consumption.

PH022: Body Mass Index

The following figures show the probability to move from the health status “Good, Very good” to the state “Fair, Bad, or Very bad” for people with overweight problem ($BMI \geq 27$) with “normal weight” ($BMI < 27$) as reference.

Figure 238: Adjusted Odds Ratio for people with $BMI \geq 27$ on the period 1998-2001 – Ref: $BMI < 27$ – Cross-sectional approach

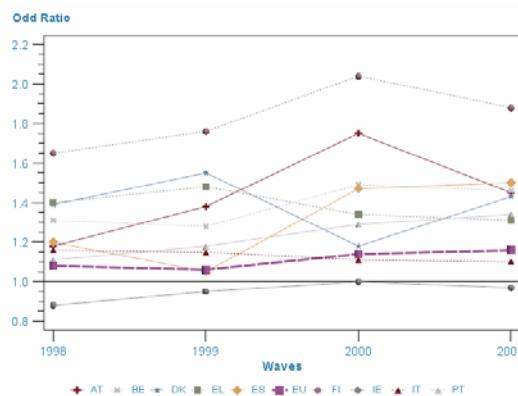
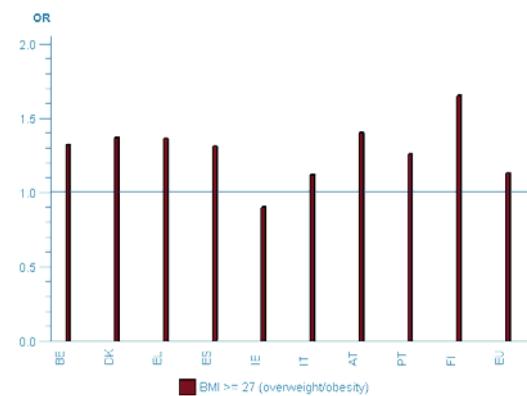


Figure 239: Adjusted Odds Ratio computed with series (period 1998-2001) – PH022, ref: $BMI < 27$ – Longitudinal approach

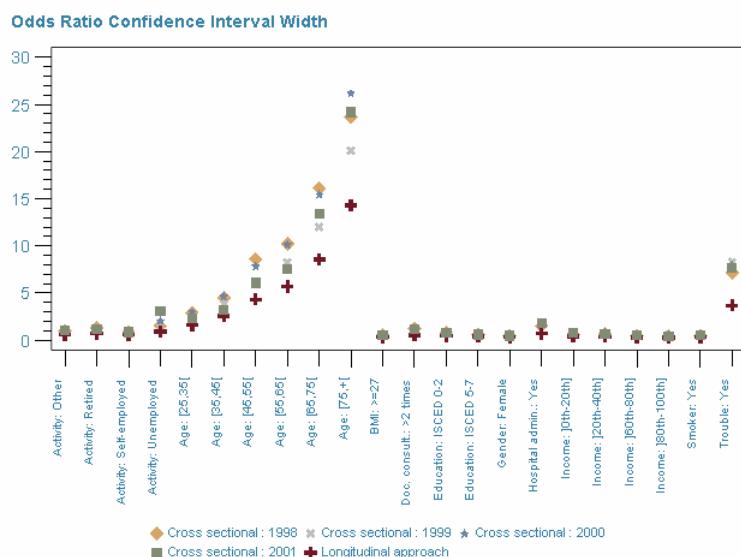


With a probability of 1.1, the link between the global health status evolution and the overweight problem does not seem to be obvious at the European level (Figure 239). Nevertheless, for some Member States as Finland, Austria, Denmark and Greece, the adjusted OR can reach 1.4. Furthermore, a global upward trend is observed for numerous countries across waves (Figure 238). Starting with 1.7 in 1998 to reach 1.9 in 2001, the Finland records the highest values.

Confidence interval width of the adjusted Odds Ratio

This part aims to compare the quality of the OR computed in both approaches. The figure shows the confidence interval width of each adjusted OR computed with cross-sectional and longitudinal approaches. This indicator is averaged on all the countries available for the health-related variable concerned in order to have an overview of the trend (BE, DK, EL, ES, IE, IT, AT, PT, FI).

Figure 240: Width of the adjusted OR confidence interval by approach on the period 1998-2001

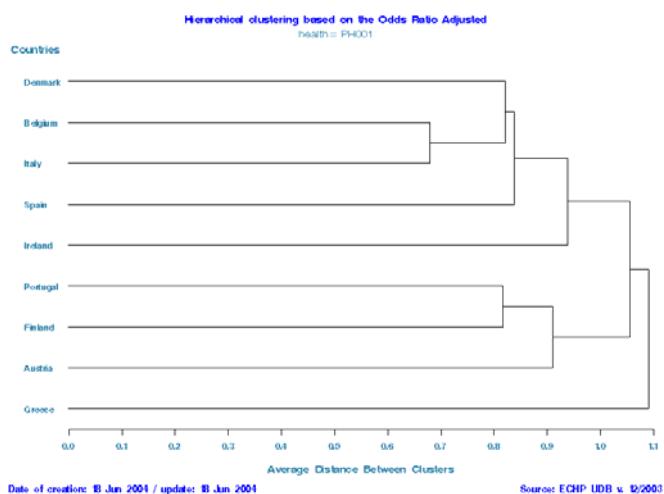


The longitudinal approach seems to give better results than the cross-sectional analysis according to the width of the confidence interval of the adjusted Odds Ratio (Figure 240). Indeed, the longitudinal analysis gives the lowest confidence interval for all the OR computed. The strongest difference is recorded for the variable PH002: width of 3.7 with the longitudinal approach and width upper than 7.2 with the cross-sectional approach whatever the wave considered.

Comparative study of countries

The following figure is a tree diagram of the cluster hierarchy. It was computed with the average linkage based on the adjusted Odds Ratio. This method of classification allows to group countries according to the OR obtained with multivariate analyses for the longitudinal approach.

Figure 241: Hierarchical clustering of Odds Ratio adjusted, Longitudinal approach



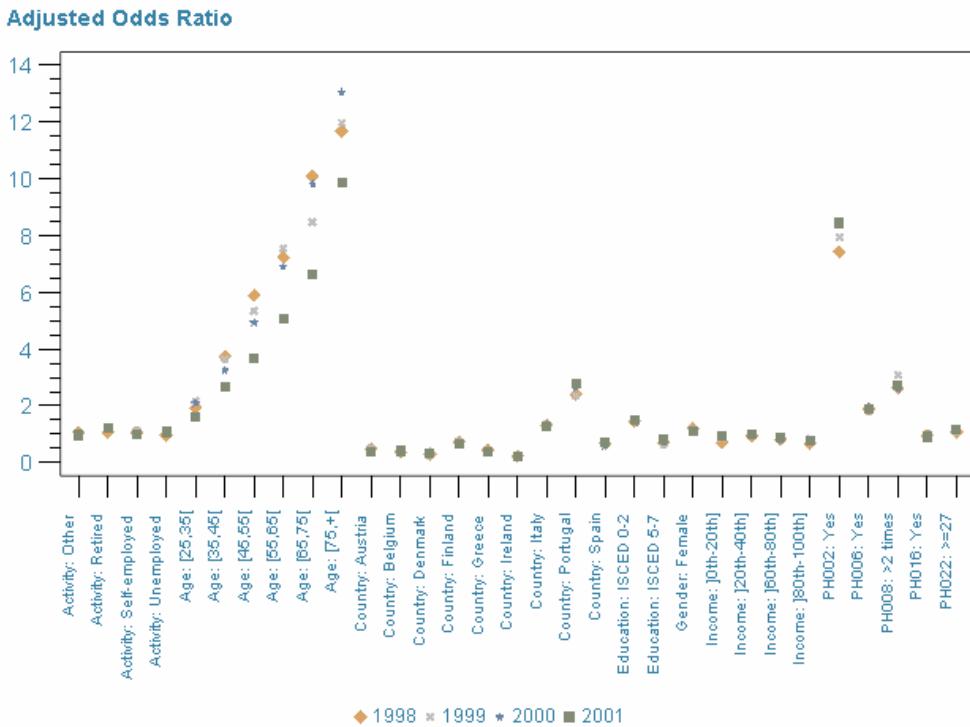
The lower the distances between countries, the greater the similarity between results of the multivariate analysis. At the overall level, Italy seems to be close to Belgium. In the opposite, Ireland, Austria and Greece seem to have results contrasted.

4.1.3. Model including countries

This exploratory analysis aims to build a model including the variable “country”. A European aggregate was created as reference to compute adjusted Odds Ratio. Thus, all the MS could be compared to the European trend. The cross-sectional and longitudinal approaches were implemented. However, the approach with repeated measures gives unreliable results. They are not introduced in this document.

The following graph gives the adjusted Odds Ratio computed with the cross-sectional approach. The OR associated to each Member State takes the European aggregate as reference (Figure 242).

Figure 242: Adjusted Odds Ratio on the period 1998-2001 computed with the cross-sectional approach



Comparing to the other Member States, Italy and Portugal have results strongly contrasted. The gap with the Portugal seems to increase across waves (2.4 in 1998 ; 2.8 in 2001). Even if the variable “country” is included in the model, the correlations between health-related variables and the global health status (PH001) stay similar. In 2001, the adjusted OR associated to the troubles (PH002) is about 8.4, 2.7 for the general practitioner consultation (PH008), 1.9 for the hospital admission as in-patient (PH006), 1.2 for the Body Mass Index (PH022) and 0.9 for smokers (PH016).

4.2. Consumption of cigarettes

The consumption of cigarettes was tabulated by using usual explanatory variables. This study concerned the time frame period 1998-2001 and daily smokers only were considered. Furthermore, only countries with all the variables filled in were conserved, it concerns 11 Member States.

4.2.1. Methodology

Variables and sample used

- **5 explanatory** variables were discussed to compute descriptive indicators (age group, gender, economic activity, education and income level) (Table 9).
- The health-related variable selected was **PH017 (number of cigarettes smoked daily)**. But, **only daily smokers** were considered ($\text{PH016} = 1$). The cigarette consumption is a quantitative variable.
- The sample used for the analysis concerns **always respondents from 1998 to 2001**. Among this group of respondents, only daily smokers were conserved in order to conserve an unbiased framework on daily cigarette consumption. However, data is not available for some MS (Table 11). Thus, the countries conserved in the analysis are BE, DK, DE (SOEP), EL, ES, IE, IT, AT, PT, FI, UK (BHPHS). The European aggregate was computed on the basis of the MS available. Nevertheless, according to the questionnaires available, the question (PH017) was never asked in Spain but the UDB v. 12/2003 contains the information. The same case is observed for Germany (SOEP) but only for 1999 (PH007 not available in 2000). Furthermore, the question concerned the consumption of cigarettes and cigarillos in Sweden for all the period of interest.

Weight used in calculations

The personal weight used was PG002. Data were standardised on the basis of the WHO's European Standard Population Table.

Descriptive indicators

Several indicators were computed on the basis of this quantitative variable (PH017): average, confidence interval, median, 25th percentile and 75th percentile. These indicators were computed by year and the difference of the averages computed for 2001 and 1998 was made by country and by class of usual variable (age group, gender, economic activity, education and income level).

4.2.2. Presentation of the results

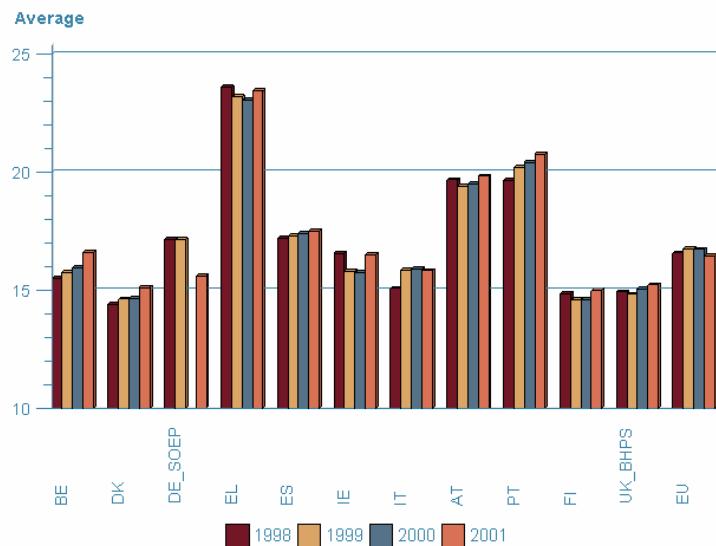
In a first part, the results are presented at the overall level. After, class of usual variable disseminates all the results presented.

Overall level

On the basis of the MS available, the European average is ranged between 16.5 and 16.8. At the overall level, an increase trend is observed for Belgium, Denmark, Spain and Portugal. Belgium and Portugal record the strongest variations with an increase of more than one cigarette at the average level between 1998 and 2001 with respectively 15.5/16.6 and 19.6/20.8 cigarettes in 1998/2001. With more than 23 cigarettes smoked per day Greek people are the most important consumer. Portuguese and Austrian people follow this trend with about 20 cigarettes smoked per

day. With 15 cigarettes or less, Danish, Finnish and English have the lowest average of daily consumption.

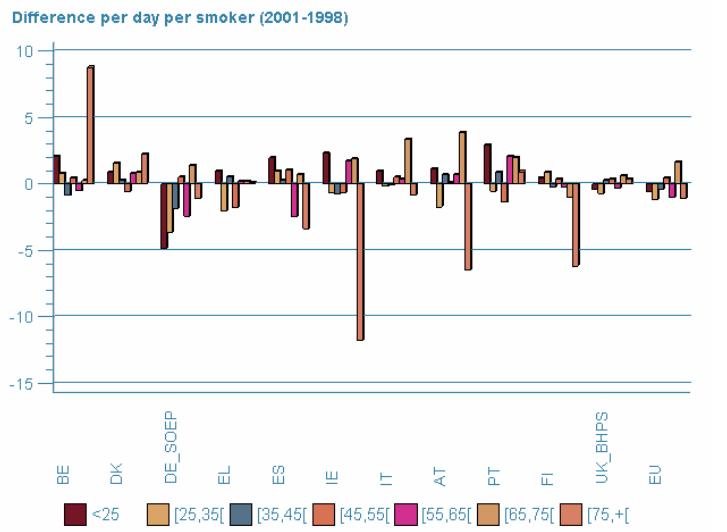
Figure 243: Average of number of cigarettes smoked per day by daily smokers



Age group

According to the reduced number of respondent aged 75+, it is not really relevant to comment the results associated to this age group. At the European level, except for the age groups [45,55[and [65,75[, a decreasing trend is recorded for all the age group. With -1.2, the age group [25,35[records the highest variation between 1998 and 2001. The strongest variation is recorded for the youngest German people with a decrease of -4.8 for <25 and -3.6 for [25,35[. The trend is reversed for youngest Portuguese (+3.0), Irish (+2.3), Belgian (+2.1), and Spanish (+2.0).

Figure 244: Difference of the average number of cigarettes smoked per day per smoker between 1998 and 2001 according to age groups

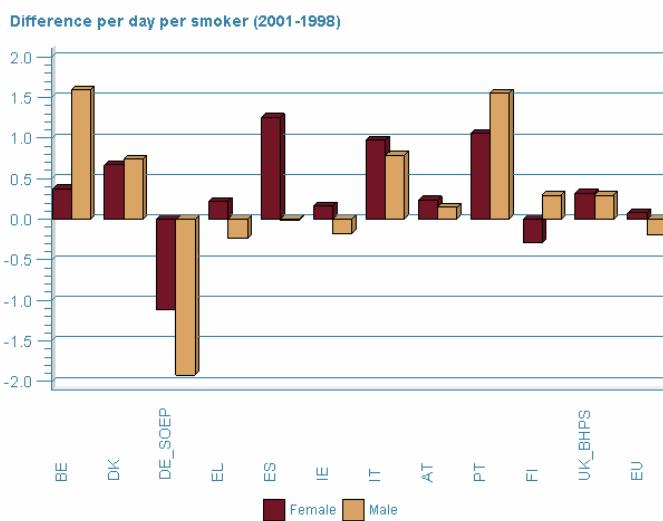


Gender

At the European level, females smoke on average slightly more cigarettes per day in 2001 compared to 1998 (+0.1). The trend is reversed for males with a decrease of 0.2 cigarette per day. The same trend is recorded in Greece, Ireland and Spain. At the opposite, an increase is recorded for Finnish male (+0.3) and a decrease for Finnish female (-0.3). Germany records a strong

decrease whatever the gender considered (-1.1/-1.9 for female/male). Belgium, Spain, Italy, Austria, Portugal and the United-Kingdom have positive differences with more than 1.5 for Belgian and Portuguese males, and about 1.0 for Italian and Portuguese females.

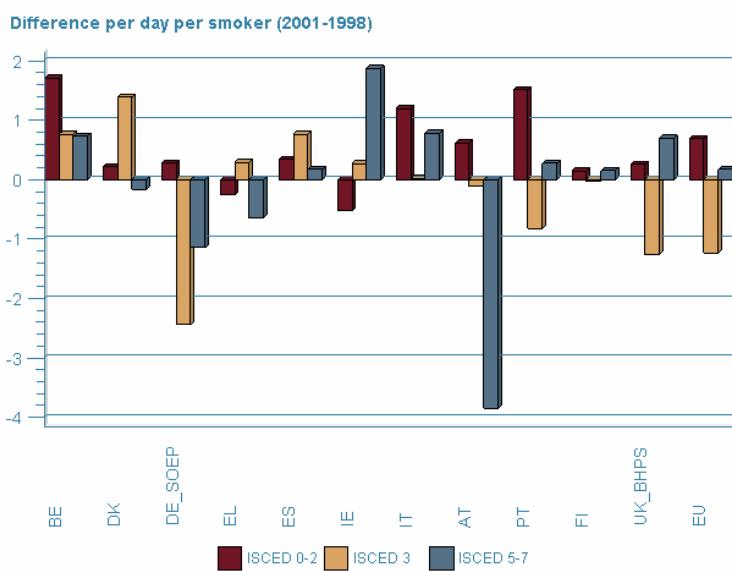
Figure 245: Difference of the average number of cigarettes smoked per day per smoker between 1998 and 2001 according to the gender



Education

At the European level, only people with a medium educational level (ISCED 3) have a decreasing trend concerning the cigarette consumption between 1998 and 2001 (-1.2). In Austria, people with the highest educational level (ISCED 5-7) record a strong decrease (-3.8). However, the number of Austrian respondents in this class represents only 3.4% in 1998 and 4.8% in 2001. In Belgium, Portugal and Italy, smokers with the lowest educational level (ISCED 0-2) smoke 1.2 cigarettes more in 2001 compared to 1998.

Figure 246: Difference of the average number of cigarettes smoked per day per smoker between 1998 and 2001 according to the educational level

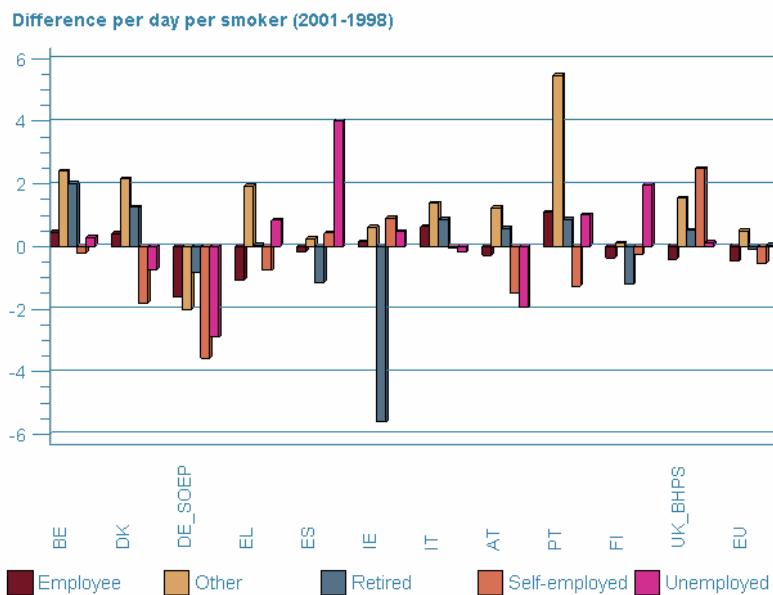


Activity

At the European level, excepted for unemployed people and “other”, a decreasing trend is recorded for the other activity statuses. But, whatever the group considered, variations are lower

than 0.5 cigarette per day. Spanish unemployed smoke in average 4.0 cigarettes more in 2001 compared to 1998. The opposite trend is observed for Irish retired people with a decrease of 5.6 cigarettes through the same period. In Belgium, Denmark, Greece, Portugal

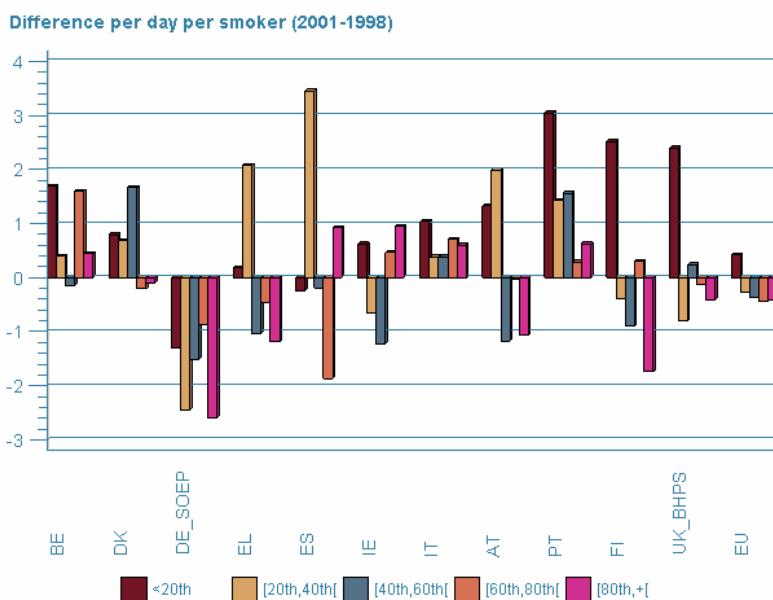
Figure 247: Difference of the average number of cigarettes smoked per day per smoker between 1998 and 2001 according to the activity status



Income

At the European level, only people with the lowest income level (<20th) have positive cigarette consumption (+0.4). This trend is most pronounced in Finland and United-Kingdom with a variation upper than +2.4 for <20th. In Austria, Denmark and Greece, people with the lowest income levels (<40th) are opposed to the highest ones (>60th). The cigarette consumption increases between 1998 and 2001 in the lowest levels and decreases in the highest ones.

Figure 248: Difference of the average number of cigarettes smoked per day per smoker between 1998 and 2001 according to the income level



4.3. Overweight/obesity evolution

The rate of overweighed/obese people was tabulated by using usual explanatory variables. This study concerned the time frame period 1998-2001 and only countries with all the variables filled in were conserved, it concerns 9 Member States.

4.3.1. Methodology

Variables and sample used

- **5 explanatory** variables were discussed to compute descriptive indicators (age group, gender, economic activity, education and income level) (Table 9).
- The health-related variable selected was the **Body Mass Index (PH022)**. People were considered as overweighed/obese when **BMI was equal or upper than 27**.
- The sample used for the analysis concerns **always respondents from 1998 to 2001**. According to the questionnaires available, this question was never asked (weight and height) in Spain but data are available in the database from 1998 to 2001. The same case is observed for Sweden in 1998 and 1999. Furthermore, data are not available for some MS (Table 11). Thus, the countries conserved in the analysis are BE, DK, EL, ES, IE, IT, AT, PT, FI. The European aggregate was computed on the basis of the MS available.

Weight used in calculations

The personal weight used was PG002. Data were standardised on the basis of the WHO's European Standard Population Table.

Descriptive indicators

The rate of overweighed/obese people was computed with the health-related variable PH022 ($BMI \geq 27$). Tabulations were made by class of usual variables (age group, gender, economic activity, education and income level).

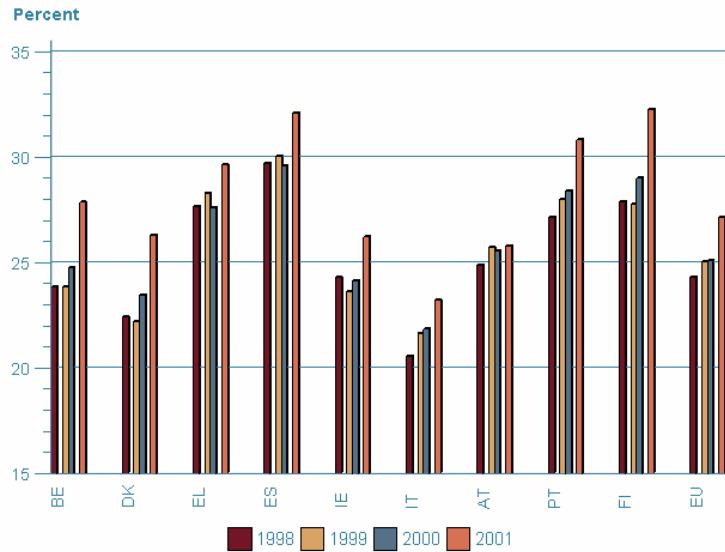
4.3.2. Presentation of the results

In a first part, the results are presented at the overall level. After, class of usual variable disseminates all the results presented.

Overall level

At the European level an increase of the rate of overweighed/obese person is recorded between 1998 (24.3%) and 2001 (27.1%). Among all the MS available and whatever the year considered, countries with the highest rate of respondents with a BMI upper or equal than 27 are Greece (29.6% in 2001), Portugal (30.8% in 2001), Spain (32.1% in 2001) and Finland (32.3% in 2001). The lowest rates in 2001 are recorded in Italy (23.2%), Austria (25.8%), Ireland (26.2%) and Denmark (26.3%).

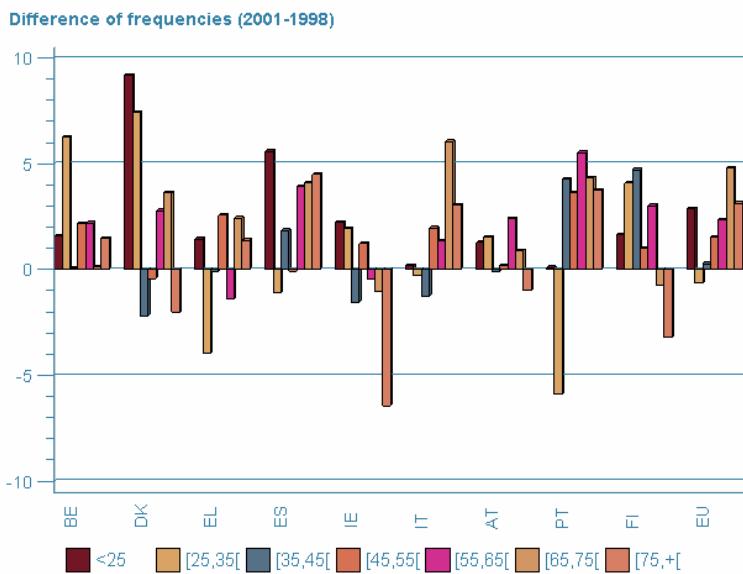
Figure 249: Frequency of respondents with an overweight/obesity problem (BMI>=27)



Age group

At the European level, except for the age group [25,35[, an increase of the rate of overweighed/obese respondents is recorded. The strongest variations are recorded for the age groups [65,75[(+4.8) and <25 (+2.9). The youngest Danish people records the highest increase between 1998 and 2001 with +9.2 for <25 and +7.4 [25,35[. A significative reduction of the frequency can be noticed for Portuguese respondents aged [25,35[(-5.9) while an increase trend is recorded for all the others age groups.

Figure 250: Difference of frequencies of respondents with overweight/obesity problem (BMI>=27) between 1998-2001 by age group

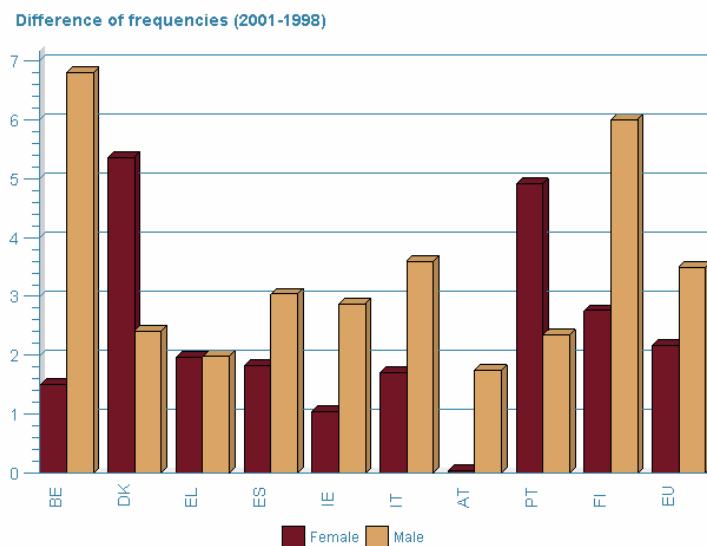


Gender

At the European level, the variation rate is strongest for male (+3.5%) than female (+2.2). Except for Denmark, Portugal and Greece, this trend is particularly visible in all the others MS. The strongest differences between male/female are recorded in Belgium with +6.8/+1.5 and in

Finland with +6.0/+2.8. At the opposite, Danish and Portuguese females record increases largely upper than those for males: +5.4/+2.4 and +4.9/+2.4 respectively for female/male in Denmark and Portugal. With +2.0, the variations are sensibly equals in Greece whatever the gender considered.

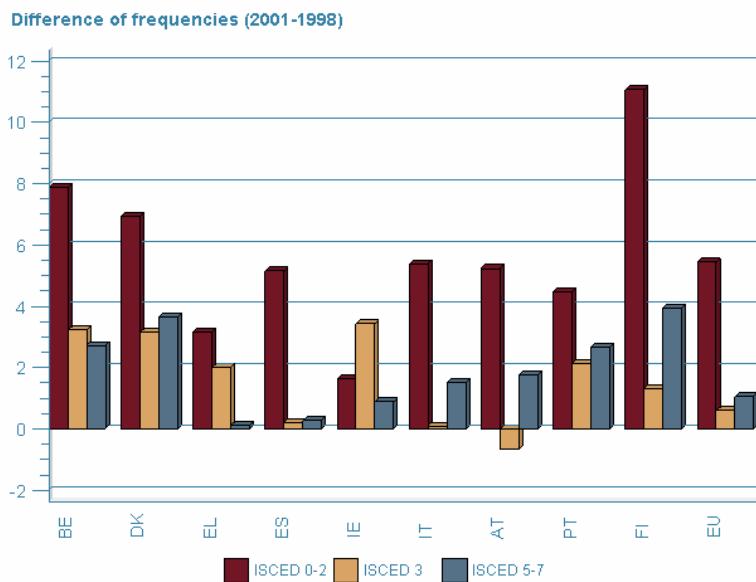
Figure 251: Difference of frequencies of respondents with overweight/obesity problem (BMI ≥ 27) between 1998-2001 by gender



Education

At the European level, people with the lowest educational level (ISCED 0-2) record the highest variation rate with +5.4 (+0.6 for ISCED 3 and 61.1 for ISCED 5-7). Except for Irish respondents, this trend is verified in all the MS available. Finland records the strongest variation for ISCED 0-2 with +11.1. For this same educational level, Belgium and Denmark have a variation ranged between +6.0 and +8.0 while Spain, Austria, Italy and Portugal record a variation ranged between +4.0 and +6.0. The lowest variations between 1998 and 2001 are noticed in Spain for ISCED 3 (+0.2) and ISCED 5-7 (+0.3), Greece for ISCED 5-7 (+0.1) and Italy for ISCED 3 (+0.1).

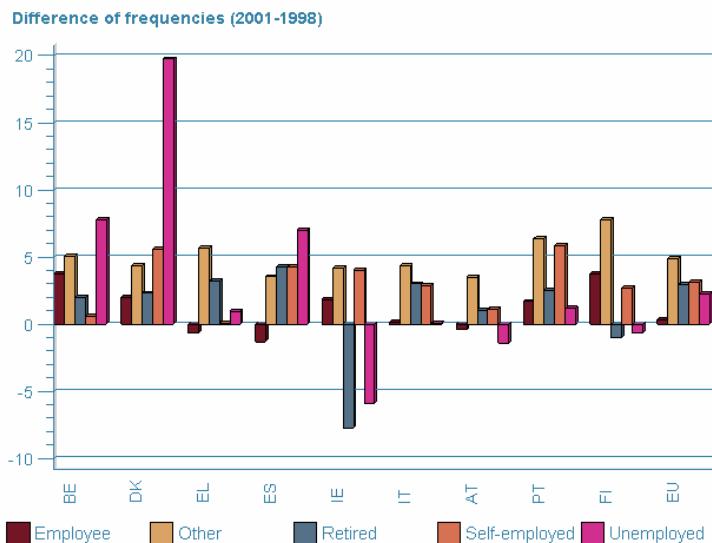
Figure 252: Difference of frequencies of respondents with overweight/obesity problem (BMI ≥ 27) between 1998-2001 by educational level



Activity

At the European level, the lowest increase is recorded for the status employee (+0.3) while, except for “other”, the highest variation is recorded for self-employed (+3.1). In Denmark, the status unemployed has the strongest increase (+19.7). Compared to the other activity statuses, unemployed records the highest positive variation in Belgium (+7.8) and Spain (+7.0). At the opposite, a decrease appears for this status in Ireland (-5.9), Austria (-1.4) and Finland (-0.6). A decline is recorded for retired Irish people between 1998 and 2001 (-7.7).

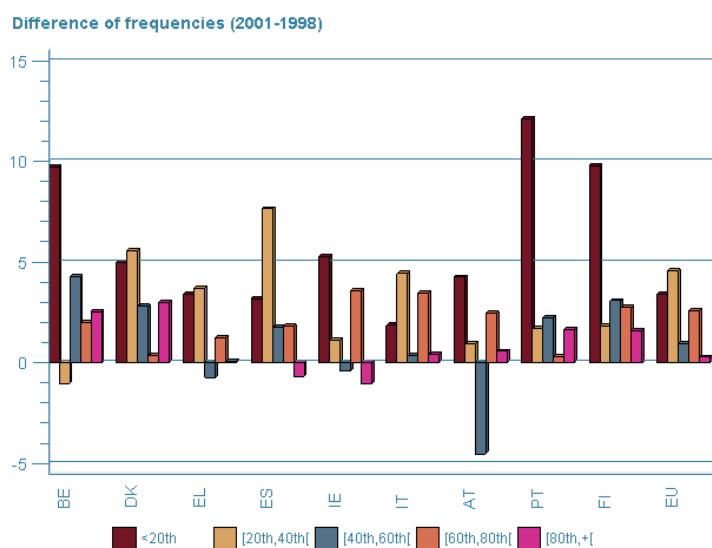
Figure 253: Difference of frequencies of respondents with overweight/obesity problem ($BMI \geq 27$) between 1998-2001 by activity status



Income

At the European level, the strongest variations between 1998 and 2001 are recorded for respondents with the lowest income level: +3.4 for <20th and +4.6 for [20th,40th[. In Belgium, Ireland, Austria Portugal and Finland, people with the lowest income level (<20th) can be dissociated to the other levels with a variation upper than the other groups (+12.1 for PT, +9.8 for FI, +9.7 for BE, +5.3 for IE and +4.3 for AT).

Figure 254: Difference of frequencies of respondents with overweight/obesity problem ($BMI \geq 27$) between 1998-2001 by income level



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5.3. List of abbreviations and symbols

Definition of considered samples

Always responding	Respondents from the first to the last wave, according to each survey
Attriter	Respondent in the previous wave but non-respondent for the current wave
Eligible person	An eligible individual is aged 16+ and living in private household within the EU
New entry, New respondents	New persons entering in the survey
Original participants, Panel members	Respondents of the first wave, according to each survey
Total sample, Yearly sample	All the respondents for a given wave

Survey abbreviation

BHPS	British Household Panel Survey
ECHP	European Community Household Panel
PSELL	Socio-Economic Panel "Liewen zu Lëtzebuerg"
SOEP	The German Socio-Economic Panel Study

Usual abbreviation

MS	Member States
NDUs	National Data Collection Units
UDB	User Database

Country abbreviation

Country Code	ISO Country Code	Label
B	BE	Belgium
DK	DK	Denmark
D	DE	Germany
E	ES	Spain
EL	EL	Greece
F	FR	France
IRL	IE	Ireland
I	IT	Italy
L	LU	Luxembourg
NL	NL	The Netherlands
A	AT	Austria
P	PT	Portugal
FIN	FI	Finland
S	SE	Sweden
UK	UK	The United Kingdom
EU	EU	European Union

5.4. Comparability of the health-related variables

Symbols

(1)	Question not asked or information not available for other reasons
C	Confidential (i.e. information not given)
	No survey carried out
	Questionnaire not available

PH001

How is your health in general?

B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
		Echp	Soep						Echp	Psell						Echp	Bhps
1994						(1)											(b)
1995						(a)											
1996						(a)										(c)	
1997																(c)	
1998																(c)	
1999																(c)	
2000																(c)	
2001																	

- (a) G8: Could you indicate, on a scale from 1 (not satisfied at all) to 6 (very satisfied) your satisfaction degree concerning your health?
 1) not satisfied at all – 2) not satisfied – 3) not very satisfied – 4) moderately satisfied – 5) satisfied – 6) very satisfied
The answer has been recoded to a 5-point scale (format of reference): answers 3 (not satisfied) and 4 (moderately satisfied) were grouped.
- (b) Question not asked in proxy interviews
- (c) In 1996 information not been collected for 695 persons. In 1997 for 390 persons, in 1998 for 760, in 1999 for 716, in 2000 for 548. Reason: question not asked in proxy interviews.

PH002

Do you have any chronic physical or mental, illness or disability?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(a)						(b)	(a)	(d)									
1996	(a)					(b)	(a)	(d)										
1997	(a)			(e)					(d)								(c)	
1998				(e)					(d)								(c)	
1999	(a)			(e)				(a)									(c)	
2000	(a)			(e)			(a)										(c)	
2001				(e)													(c)	

- (a) Sub-question in order to precise the type of handicap
- (b) This question was not asked, but answers have been constructed from the question used for PH003 (if PH003 = 1, 2 then PH002 = 1).
- (c) Q39: Do you suffer from any long-term illness, after-effects from an accident, disability or other ailment?
1) yes – 2) no
- (d) Q158: Do you have any illness or chronic disease?
1) yes – 2) no
- (e) This question was not asked, but answers can be constructed from the question used for PH003 (if PH003 = ‘a little’ or ‘very much so’ PH002 = 1)

PH003

Are you hampered in your daily activities by this physical or mental health problem, illness or disability? (Only for persons with a physical or a mental health problem, illness or disability)

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(a)						(c)											(f)
1996	(a)						(c)											(f)
1997	(b)			(e)													(d)	(f)
1998	(b)			(e)													(d)	(f)
1999	(b)			(e)													(d)	
2000	(b)			(e)													(d)	(f)
2001				(e)													(d)	

- * For Belgium in 1994, 1995, 1996, 1997, 1998 and 1999, PH003 = PH003A: "Are you limited in your daily activities by a chronic disease, a physical incapacity or an infirmity"
- (a) The answer was on a 5-point scale and has been recoded to a 3-point scale.
1) completely – 2) much – 3) partially – 4) not really – 5) not at all
- (b) Waves 1997 and 1998 (in French version) / Waves 1999 and 2000 (in Dutch version):
Sub-question to precise the need for lavishing particular cares by a person of the household
- (c) G5 (in 1994) and G1 (in 1995 and 1996): Are you hampered in your activities (professionals, domestics or leisure) by a chronic disease, a handicap?
1) yes, severely – 2) yes, a little – 3) no
- (d) Several questions are used (Q44 to Q52)
- (e) Q80 (1997), Q67 (1998), Q96 (1999, 2000, 2001): Aside from minor illnesses, does your health prevent you from completing everyday tasks like work around the house, employed work, studies, etc.? To what extent?
1) Not at all – 2) A little – 3) Very much so
- (f) Several questions are used: M5 to M9 in 1995, M4 to M8 from 1996 to 1998, M3 to M5b in 2000.

PH003A

Are you hampered in your daily activities by any physical or mental health problem, illness or disability? (All persons)

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994							(d)	(c)										
1995	(a)	(e)			(e)		(d)	(e)	(e)	(e)		(e)		(e)				(h)
1996	(a)	(e)			(e)		(d)	(e)	(e)	(e)		(e)		(e)	(e)			(h)
1997	(b)	(e)			(g)	(e)			(e)			(e)		(e)	(e)	(f)		(h)
1998	(b)	(e)			(g)	(e)			(e)			(e)		(e)	(e)	(f)		(h)
1999					(g)	(e)			(e)	(e)				(e)	(e)	(f)		
2000	(e)	(e)			(g)	(e)			(e)	(e)				(e)	(e)	(f)		(h)
2001		(e)			(g)	(e)			(e)					(e)	(e)	(f)		

- * For Belgium in 1994, 1995, 1996, 1997, 1998 and 1999, PH003 = PH003A: "Are you limited in your daily activities by a chronic disease, a physical incapacity or an infirmity"
- (a) The answer was on a 5-point scale and has been recoded to a 3-point scale.
1) completely – 2) much – 3) partially – 4) not really – 5) not at all
- (b) Sub-question to precise the need for lavishing particular cares by a person of the household
- (c) Sub-question in order to precise the type of handicap
- (d) G5 (in 1994) and G1 (in 1995 and 1996): Are you hampered in your activities (professionals, domestics or leisure) by a chronic disease, a handicap?
1) yes, severely – 2) yes, a little – 3) no
- (e) Existing only in 1994, this information has been reconstructed based on variables PH002 and PH003
- (f) Several questions are used (Q44 to Q52)
- (g) Q80 (1997), Q67 (1998), Q96 (1999, 2000, 2001): Aside from minor illnesses, does your health prevent you from completing everyday tasks like work around the house, employed work, studies, etc.? To what extent?
1) Not at all – 2) A little – 3) Very much so
- (h) Several questions are used: M5 to M9 in 1995, M4 to M8 from 1996 to 1998, M3 to M5b in 2000.

PH004

During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of illness or injury?

B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
		Echp	Soep						Echp	Psell						Echp	Bhps
1994	(a)																
1995	(a)																(1)
1996	(a)																(1)
1997	(a)		(1)													(1)	(1)
1998	(a)		(1)													(1)	(1)
1999	(a)		(1)													(1)	(b)
2000	(a)		(1)													(1)	(1)
2001	(a)		(1)													(1)	

- (a) Q117: Have you had to cut down or any of things you usually do about the house, at work or in your free time because of illness or indisposition?
- (b) M6: The question concerns the **past 4 weeks**.

PH005

During the past two weeks, have you had to cut down things you usually do about the house, at work, or in free time because of an emotional or mental health problem?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994																	(a)	
1995																	(1)	
1996																	(1)	
1997				(1)												(1)		(1)
1998				(1)												(1)		(1)
1999				(1)												(1)		(b)
2000				(1)												(1)		(1)
2001				(1)												(1)		

- (a) Question split in two parts: Q446 concerns emotional problem and Q447 concerns mental health problem.
- (b) M6: The question concerns the **past 4 weeks**.

PH006

During the past 12 months, have you been admitted to a hospital as an in-patient?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
	1994		(a)															
1995			(a)															(b)
1996			(a)															(b)
1997																	(1)	(b)
1998																	(1)	(b)
1999																	(1)	(b)
2000																	(1)	(b)
2001																	(1)	

- (a) Q118 in 1994 and Q161 in 1995 and 1996: During the past 12 months, have you been admitted to a hospital or/and a private clinic as an in-patient?
 1) yes – 2) no
- (b) Have you been in hospital or clinic as in-patient overnight or longer? **(Include childbirth)**

PH007**Number of nights spent in hospital during the past 12 months**

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
	1994		C			(b)												
1995			C			(b)												
1996			C													(a)		
1997																(a)	(1)	
1998						(b)										(a)	(1)	
1999						(b)										(a)	(1)	
2000						(b)										(a)	(1)	
2001						(b)										(a)	(1)	

- (a) How many days have you spent in a hospital during the past 12 months?
- (b) A distinction is made between illness/accident and voluntary causes.

PH008

During the past 12 months, about how many times have you consulted a general practitioner (including home visits by the doctor)?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995						(1)												
1996						(1)												
1997				(a)													(1)	
1998				(a)													(1)	
1999				(a)													(1)	
2000				(a)													(1)	
2001				(a)													(1)	

- (a) Q82 (1997), Q71 (1998), Q98 (1999, 2000, 2001): Have you gone to a doctor within the last **3 months**? If yes, please state how often.
 1) Number of trips to the doctor's in the last **3 months**: ... – 2) I haven't gone to the doctor's in the last **3 months**

PH009

During the past 12 months, about how many times have you consulted a medical specialist (including out-patient consultations but excluding any consultation during hospitalisation)?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995						(1)												(1)
1996						(1)												(1)
1997				(1)													(1)	(1)
1998				(1)													(1)	(1)
1999				(1)													(1)	(1)
2000				(1)													(1)	(1)
2001				(1)													(1)	

PH010

During the past 12 months, about how many times have you consulted a dentist?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
	1994	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1995																		(1)
1996							(1)											(1)
1997				(1)													(1)	(1)
1998				(1)													(1)	(1)
1999				(1)													(1)	(1)
2000				(1)													(1)	(1)
2001				(1)													(1)	

PH011

**Number of times the person has been to a doctor or a dentist or optician, during the past 12 months.
(Aggregated)**

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994		(f)			(g)		(c)		(a)			(h)		(a)				
1995	(b)	(b)	(e)		(b)	(b)	(c)	(b)	(b)	(c)			(b)	(b)	(b)			(1)
1996	(b)	(b)	(e)		(b)		(c)	(b)	(b)	(c)			(b)	(b)	(b)	(b)		(1)
1997	(b)	(b)		(j)	(b)				(b)				(b)	(b)	(b)	(b)	(d)	(1)
1998	(b)	(b)		(j)	(b)	(b)			(b)				(b)	(b)	(b)	(b)	(d)	(1)
1999	(b)	(b)		(j)	(b)	(b)			(b)				(b)	(b)	(b)	(b)	(d)	(1)
2000	(b)	(b)		(j)	(b)	(b)			(b)				(b)	(b)	(b)	(b)	(d)	(1)
2001		(b)		(j)	(b)	(b)			(b)					(b)	(b)	(b)	(d)	

- (a) Number of times the person has been to ‘a doctor’ instead of ‘doctor, dentist and optician’ has been recorded.
- (b) Starting from 1995, this information has been reconstructed based on variables PH008 – PH010
- (c) In 1994, G9: How many times have you been to a doctor (including home visits by the doctor) in 1994? (generalist or specialist, including dentists and ophthalmologists)
In 1995 and 1996, G5: How many times have you been to a doctor (including home visits by the doctor) since October 1995/1996? (generalist or specialist, including dentists and ophthalmologists)
 1) never – 2) 1 or 2 times – 3) 3 to 5 times – 4) 6 to 9 times – 5) 10 to 19 times – 6) 20 to 29 times – 7) 30 times and more
- (d) Q56: Have you during the last 3 months been to a doctor’s surgery or seen a doctor at a hospital because of own illness?
 1) yes, number of occasion: ... – 2) no
- (e) Q163.2: Did a welfare practical man treat you during the last twelve months?
 Q163.3: In the last year was the case how frequent?
- (f) Number of times the person has been to ‘a doctor or dentist’ instead of ‘doctor, dentist and optician’ has been recorded.
- (g) Number of times the person has been to ‘a doctor of any specialization’ instead of ‘doctor, dentist and optician’ has been recorded.
- (h) Number of times the person has been to ‘a doctor (including any kind of M.D., dentists, etc.) instead of ‘doctor, dentist and optician’ has been recorded.
- (i) Q82 (1997), Q71 (1998), Q98 (1999, 2000, 2001): Have you gone to a doctor within the last 3 months? If yes, please state how often.
 1) Number of trips to the doctor’s in the last 3 months: ... – 2) I haven’t gone to the doctor’s in the last 3 months

PH016
Do you smoke or did you ever smoke?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)	(1)	(1)				(1)
1996	(1)	(1)	(1)		(1)		(1)	(1)	(1)	(1)		(1)	(1)	(1)	(1)			(1)
1997	(1)	(1)		(1)	(1)				(1)			(1)	(1)	(1)	(1)	(1)	(a)	(1)
1998				(b)		(1)						(1)					(a)	(1)
1999				(b)		(1)											(a)	(c)
2000				(1)		(1)											(a)	(1)
2001				(b)		(1)											(a)	

(a) Q57.a: Do you smoke daily?

1) yes – 2) no

(b) Q68 (1998): Do you smoke principally:

1) Cigarettes / Pipes/ Cigars – 2) No

Q106 (1999): Do you smoke cigarettes, pipes or cigars?

1) Yes – 2) Not now, but before – 3) Never

Q103 (2001): Do you smoke?

1) Yes, number of cigarettes/cigars/pipes (aggregated) per day ... – 2) Not now, but before – 3) Never

(c) M35: Concerning **only cigarettes** consumption

PH017**Number of cigarettes smoked per day (currently or in the past)**

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)	(1)	(1)				(c)
1996	(1)	(1)	(1)		(1)		(1)	(1)	(1)	(1)		(1)	(1)	(1)	(1)			(c)
1997	(1)	(1)		(1)	(1)				(1)			(1)	(1)	(1)	(1)	(1)	(a)	(c)
1998				(b)		(1)						(1)					(a)	(c)
1999				(1)		(1)											(a)	
2000				(1)		(1)											(a)	(c)
2001					(1)												(a)	

- (a) A part of the question Q57.b concerns the number of cigarillos smoked each day. Thus, the question PH017 could cumulate both cigarettes and cigarillos.
- (b) Q69: How many cigarettes, pipes and cigars do you smoke daily? (aggregated)
- (c) Only **currently consumption**

PH018
Number of cigars smoked per day (currently or in the past)

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)	(1)	(1)				(1)
1996	(1)	(1)	(1)		(1)		(1)	(1)	(1)	(1)		(1)	(1)	(1)	(1)			(1)
1997	(1)	(1)		(1)	(1)				(1)			(1)	(1)	(1)	(1)	(1)	(a)	(1)
1998				(b)		(1)						(1)					(a)	(1)
1999				(1)		(1)											(a)	(1)
2000				(1)		(1)											(a)	(1)
2001					(1)												(a)	

- (a) A part of the question Q57.b concerns the number of cigarillos smoked each day. Thus, the question PH018 could cumulate both cigars and cigarillos.
- (b) Q69: How many cigarettes, pipes and cigars do you smoke daily? (aggregated)

PH019**Number of pipes smoked per day (currently or in the past)**

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)	(1)	(1)				(1)
1996	(1)	(1)	(1)		(1)		(1)	(1)	(1)	(1)		(1)	(1)	(1)	(1)			(1)
1997	(1)	(1)		(1)	(1)				(1)			(1)	(1)	(1)	(1)	(1)		(1)
1998				(a)		(1)						(1)						(1)
1999				(1)		(1)												(1)
2000				(1)		(1)												(1)
2001					(1)													

(a) Q69: How many cigarettes, pipes and cigars do you smoke daily? (aggregated)

PH020
What is your height without shoes?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)	(1)	(1)				(1)
1996	(1)	(1)	(1)		(1)		(1)	(1)	(1)	(1)		(1)	(1)	(1)	(1)			(1)
1997	(1)	(1)		(1)	(1)				(1)			(1)	(1)	(1)	(1)	(1)		(1)
1998				(1)		(1)						(1)					(1)	(1)
1999				(1)		(1)											(1)	(1)
2000				(1)		(1)											(1)	(1)
2001				(1)		(1)											(1)	

PH021

How much do you weigh without clothes and shoes?

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)	(1)	(1)				(1)
1996	(1)	(1)	(1)		(1)		(1)	(1)	(1)	(1)		(1)	(1)	(1)	(1)			(1)
1997	(1)	(1)		(1)	(1)				(1)			(1)	(1)	(1)	(1)	(1)		(1)
1998		(a)		(1)		(1)						(1)					(1)	(1)
1999		(a)		(1)		(1)											(1)	(1)
2000		(a)		(1)		(1)											(1)	(1)
2001		(a)		(1)		(1)											(1)	

(a) 167A: How much do you weight- without clothes (if pregnant: pre-pregnancy weight)?

PH022
Body mass index

	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bbps
1994	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)		(1)			(1)	
1995	(1)	(1)	(1)		(1)	(1)	(1)	(1)	(1)	(1)		(1)	(1)	(1)				(1)
1996	(1)	(1)	(1)		(1)		(1)	(1)	(1)	(1)		(1)	(1)	(1)	(1)			(1)
1997	(1)	(1)		(1)	(1)				(1)			(1)	(1)	(1)	(1)	(1)		(1)
1998				(1)		(1)						(1)					(1)	(1)
1999				(1)		(1)											(1)	(1)
2000				(1)		(1)											(1)	(1)
2001				(1)		(1)											(1)	