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OLD PEOPLE IN THE EUROPEAN COMMUNITY: LIFE EXPECTANCY...

EUROPEAN YEAR OF OLDER PEOPLE AND SOLIDARITY BETWEEN GENERATIONS 1993

This fourth rapid report on the occasion of the European Year for Older People and Solidarity between Generations sets out a descriptive analysis of death rates among persons aged 55 years and over. This age group represents 25% of the total Community population. The aim of the study is to improve understanding of the causes of death for people in this group and hence to contribute towards improved health policies for them.

VARIATIONS IN LONGEVITY

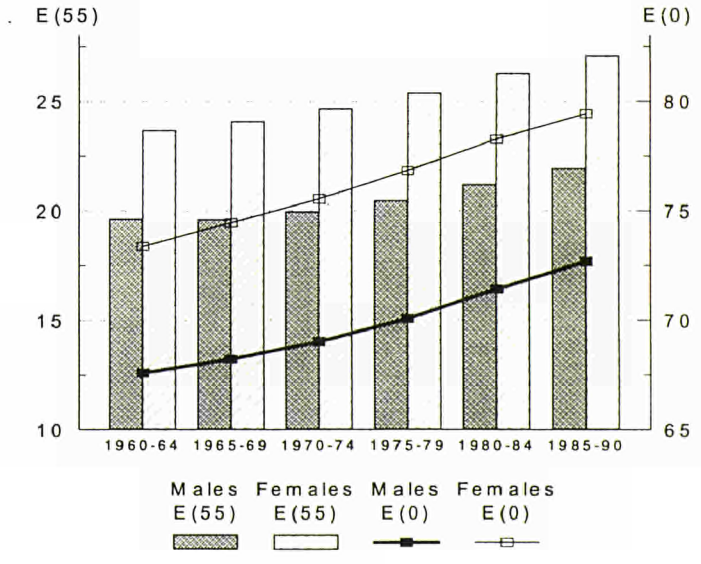
In 1960, life expectancy at birth throughout the Community was 67.6 years for men and 73.4 for women. Three decades later, these figures have increased by three years for women and 6.3 years for men.

The increase in life expectancy observed over the 1980s primarily results from improvements in health conditions for older persons.

Life expectancy at 55 increased from 19.6 years for men and 23.6 years for women between 1960 and 1965 to 22.2 years and 27.3 years respectively for 1985 to 1990. The increase was greater for women than for men and the discrepancy between men and women therefore increased still further (graph 1).

However, there are major differences between the Member States. The inequality between men and women as regards health is well illustrated by the fact that the greatest life expectancy for men is lower than the smallest life expectancy for women (Graph 2).

Graph 1:
Variation in life expectancy at birth (E(0)) and at age 55 (E(55)) - EUR12 (1960-1965 to 1985-1990)



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An analysis of trends in the death rate among persons aged 55 and over shows that there is a wide variation within the European Community.

At present, the rate is particularly low in the Mediterranean countries (France, Greece, Spain and Italy).

Since 1960, three categories of countries have emerged; countries which occupied a favourable position in the 1960s, but where the death rate in old people has gradually deteriorated (slowly or quickly) since the 1980s. The most notable example is Denmark;

-countries in which the death rate among the oldest section has slowly but steadily declined. France is an example;

-countries which occupied very unfavourable positions during the 1960s but which now compare very favourably with the rest of Europe (such as Spain) or where the situation has improved remarkably (such as Portugal) thanks to a sharp drop in the death rate, particularly since 1970-1974. Over the last 20 years, these countries have undergone socio-economic changes (improved living and health conditions) which may explain the decrease in the death rate.

An analysis of mortality by cause of death may go some way to explaining the differences detected in the various Member States.

THREE TYPES OF DISEASE ARE THE MAIN CAUSES OF DEATH

Circulatory system, malignant neoplasms and diseases of the respiratory system account for 80% of total deaths among men and women aged over 55 throughout the Community.

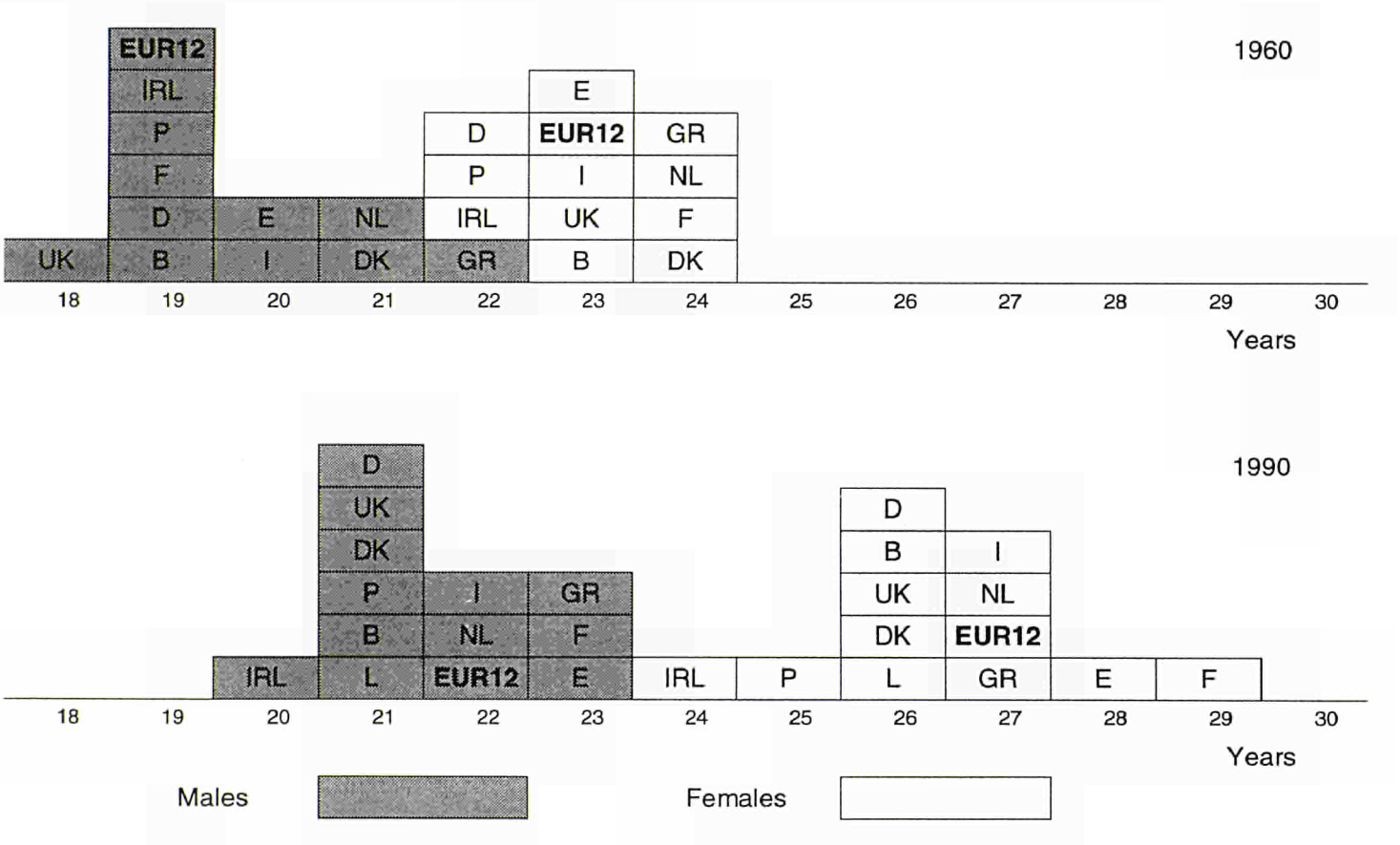
Circulatory disorders are the major cause of death among persons over 55 (44% of the total deaths among men and 51% of the deaths among women).

Tumours constitute the second main cause of death (28% in the case of men and 21% in the case of women).

Diseases of the respiratory system represent the third main cause of death (9% and 7% respectively).

Other causes of death are various diseases or accidents , none of which alone account for a large proportion of mortality. These include infectious diseases, accidents, nervous diseases and others.

Graph 2:
Life expectancy at age 55 in the Member States of the European Community (1960 and 1990)



INCREASE IN MALIGNANT NEOPLASMS IN DISEASES OF THE CIRCULATORY SYSTEM

A single diagram (graph 3) is not enough to show developments in causes of death. The geographical variations in life expectancy show that general mortality and consequently differential mortality have developed in very different ways from one country to another since 1960 (Graph 2).

Diseases of the circulatory system

Over the 1960s deaths from circulatory disorders increased (among men) and it was not until the 1970s that they began to drop in all the Community countries apart from Greece, where the incidence of disease of this kind continued to increase. Over the entire period studied, deaths from respiratory disorders remained high in Ireland.

The drop in mortality from circulatory diseases among women was more rapid and more regular than among men.

The decisive factor in this reduced adult mortality was the drop in mortality from **heart diseases**. However, this was not across the board in the Community.

In Portugal, **cerebrovascular diseases** have been the main cause of death among women since 1960, rather than cardiac diseases as elsewhere in the Community.

Malignant neoplasms

Over the last three decades, the number of deaths from cancer has remained high in Denmark, Ireland and the United Kingdom, whereas Greece, Portugal and Spain have always had the lowest rate of deaths from cancer.

There has been a general deterioration in the situation for men since 1960, while the situation for women has stabilized with a few exceptions.

However, if deaths from malignant neoplasms are studied geographically, different trends may be observed:

-deaths from malignant neoplasms of the **digestive tract** have reduced in recent years, except in the countries of southern Europe;

-deaths from cancers of the **respiratory system** have increased, particularly among women, and the difference between the two sexes has reduced in this respect;

-deaths from malignant neoplasms of the **female breast** have been highly regionalized throughout the period: more common in the north, less common in the south.

Diseases of the respiratory system

Men have always suffered more from respiratory diseases, as can be seen from the substantial difference in the figures for the two sexes observed over the period.

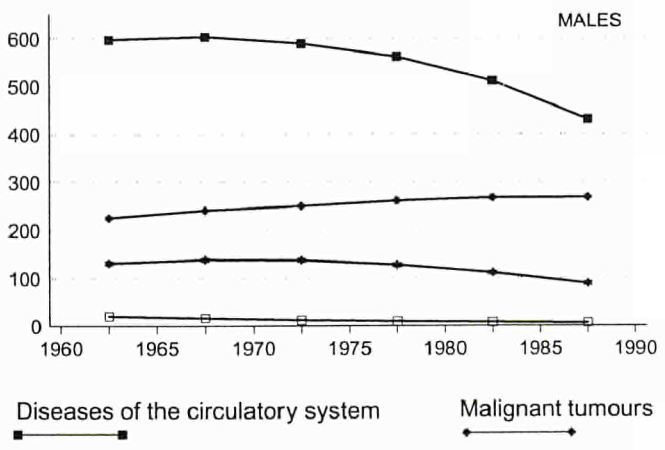
Infectious diseases

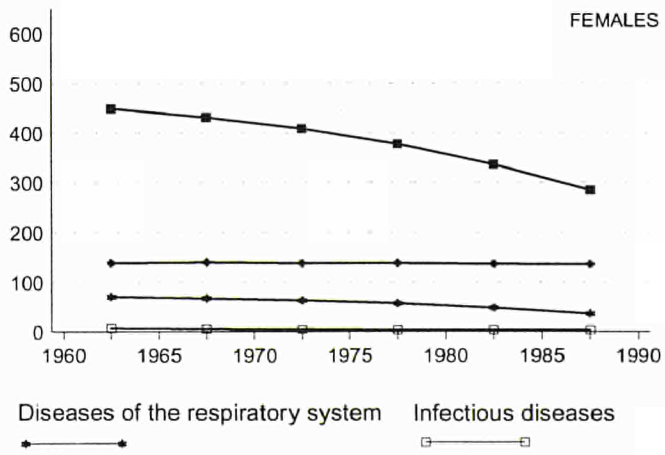
A major and general reduction in deaths from infectious diseases (in spite of the already low percentage of deaths for which these diseases accounted) has been observed since 1960 (particularly in Greece, Italy, Spain and Portugal, and particularly among men).

Accidents (not shown in the graph)

In almost all the countries deaths from accidents increased sharply between 1960 and 1975 and gradually dropped subsequently. The situation in Portugal has been different, however. The level was fairly low in 1960 but has since increased dramatically.

Graph 3:
Trend in the standardized death rate by cause of death (per 100 000 inhabitants) - EUR12





THE IMPACT OF CIRCULATORY AND RESPIRATORY DISORDERS INCREASES WITH AGE WHILE THAT OF TUMOURS DIMINISHES

Neoplasms are the main cause of death **between the ages of 55 and 64**, particularly among women (46%). Beyond the age of 65, they become the second major cause, after respiratory diseases.

In the 65 to 74 age bracket, 42% of deaths among both men and women are due to circulatory disease. The proportion of deaths due to this cause rises to 47% for men and 54% for women **between the ages of 75 and 84 years** and to 50% and 57% respectively after the age of 85.

Among persons aged **over 85**, the percentage of deaths attributable to respiratory disorders increases steadily to 13% of deaths from all causes among men and 9% among women. However, the distribution of causes of death by age category is very different according to specific sub-categories of cancer and circulatory diseases (tables 1 and 2).

Circulatory diseases

Heart diseases account for more deaths than cerebro-vascular diseases, regardless of age and sex.

The proportion of deaths resulting from cerebro-vascular diseases increases with age, while the proportion due to cardiac diseases diminishes.

Malignant neoplasms

Among men, malignant neoplasms of the digestive system and, in particular, the genito-urinary system increase in significance with age, whereas the proportion of malignant neoplasms in the respiratory system decreases with age.

Among women, malignant neoplasms of the digestive system become an increasingly significant cause of death with age, whereas the proportion of deaths due to cancers of the breast, the genito-urinary system and the respiratory system gradually decreases with age.

DIFFERENCES BETWEEN GENERATIONS

An analysis of mortality by cause of death according to age group in number of countries of the European Community since 1960 shows that, in general, the death rate among persons aged between 55 and 64 has tended to drop or at least level off, particularly where deaths due to cancers of the respiratory system and the breast are concerned.

Campaigns for the prevention of certain diseases have probably had a more significant effect among "younger people" who, on the one hand, are more sensitive to campaigns of this kind than older people and who have also been able to benefit from such campaigns fairly early in their life and have hence modified certain aspects of their behaviour which are major risk factors for certain diseases.

An analysis of mortality by cause of death broken down by generations is vital since changes in behaviour have already had a positive effect on trends in causes of death (for example, fewer men smoke these days). However, certain present-day behaviour patterns may bring about an increase of deaths from other causes in the future (for example, changes in reproductive behaviour among women).

However, the reduction in mortality due to certain causes is offset by an increase in mortality due to other causes.

Graph 4:
Percentage of deaths by cause and age group - EUR12 (1988)

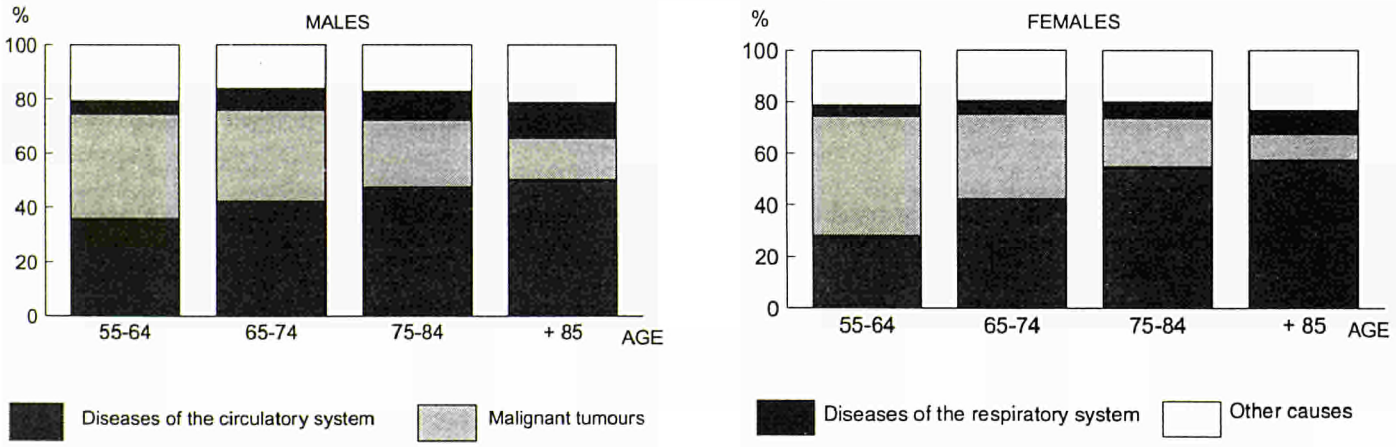


Table 1:
Total number of deaths by cause and age group - EUR12 (1988)

	Males				Females			
	55-64	65-74	75-84	+85	55-64	65-74	75-84	+85
All causes	240838	375662	516132	216937	122036	258955	578010	476034
Circulatory diseases	85777	158053	244891	109043	34009	109019	314247	272043
Neoplasms	93281	127336	127874	33514	56667	85143	110050	49089
Respiratory diseases	11928	29227	54620	28360	5175	13870	36553	42595
Infectious diseases	1750	2540	3437	1397	881	1758	3741	2839
Accidents	3629	2957	2687	564	1427	1690	1985	474

Table 2:
Breakdown of specific causes of death by malignant neoplasms and circulatory diseases - EUR12 (1988)

	Males				Females			
	55-64	65-74	75-84	+85	55-64	65-74	75-84	+85
	Percentage of deaths resulting from malignant neoplasms according to their position in the total deaths from this cause							
Digestive system	30.70	31.67	33.31	35.95	27.04	34.03	42.13	45.35
Respiratory system	39.28	35.73	26.83	17.29	12.06	12.13	8.11	5.42
Geneto-urinary system	9.18	15.07	23.11	30.96	17.18	16.39	14.89	12.94
Female breast	-	-	-	-	24.35	17.03	13.41	14.03
Other	20.84	17.53	16.75	17.80	19.37	20.42	21.46	22.26
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	Percentage of deaths by specific diseases in the total deaths resulting from circulatory diseases							
Cerebro-vascular	16.34	21.84	29.31	29.85	25.88	28.91	33.87	32.02
Heart diseases	78.14	71.37	62.61	59.78	69.36	65.64	59.20	57.71
Other	5.52	6.79	8.08	10.37	4.76	5.45	6.93	10.27
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

RISK FACTORS

Various interacting factors may be the cause of the geographical variations in mortality over time and the higher death rate among men.

The death rate at a given time is not generally the result of the lifestyle or social, economic and health conditions at that time. People are exposed to a combination of genetic and cultural factors etc from birth onwards and these have a positive or negative, direct or indirect effect on their health.

Circulatory diseases are linked to diet (high consumption of animal fats and proteins and salt), use of tobacco, alcohol abuse, stress, high blood pressure, high cholesterol level (the latter two factors being associated with overweight), insufficient physical activity and certain atmospheric pollutants. Progress has been made in the prevention and treatment of such diseases.

Malignant neoplasms of the digestive system are related to alcohol consumption, diet (not enough fruit and vegetables and too much salted and smoked produce), cooking and preserving methods, sulphur dioxide in the air and certain industrial activities (textiles, coal).

In addition to tobacco, other factors have become associated with respiratory diseases and lung cancer, such as occupation, atmospheric pollution and climatic conditions and, above all, certain living or working conditions (poverty, poor diet).

Factors conducive to the development of prostate cancer are particularly of a dietary nature (not enough fibre and too much fat).

Cancer of the breast, the ovaries and the uterus would appear to be linked to reproductive behaviour (age at which first child is born, gap between children), diet and smoking etc.

Geographical variations may also be connected with differences in attitudes and access to early screening for certain types of cancer.

Table 3:
Standardised death rate by cause of death (per 100 000 inhabitants) (last available year)[1]

	EUR12	(2)	B	DK	D	GR	E	F	IRL	I	NL	P	UK
							All causes						
M	945	11	1102	1031	1042	841	874	831	1177	928	981	1108	1014
F	566	14	642	642	648	592	534	445	755	542	539	700	633
(3)	1.7	-	1.7	1.6	1.6	1.4	1.6	1.9	1.6	1.7	1.8	1.6	1.6
							Circulatory diseases						
M	417	19	448	495	511	426	355	271	581	397	406	505	486
F	264	20	293	291	342	346	268	165	370	266	229	366	299
(3)	1.6	-	1.5	1.7	1.5	1.2	1.3	1.6	1.6	1.5	1.8	1.4	1.6
							Heart diseases						
M	287	28	288	370	361	276	208	175	438	247	203	350	284
F	171	24	172	197	224	194	143	102	255	157	133	190	166
(3)	1.7	-	1.7	1.9	1.6	1.4	1.5	1.7	1.7	1.6	1.5	1.8	1.7
							Cerebro-vascular diseases						
M	111	40	99	84	111	139	112	67	102	117	82	239	100
F	89	44	81	64	90	147	96	50	89	89	64	207	89
(3)	1.3	-	1.2	1.3	1.2	0.9	1.2	1.4	1.1	1.3	1.3	1.2	1.1
							Malignant neoplasms						
M	268	12	312	278	272	209	235	278	268	279	301	213	279
F	140	20	145	183	152	99	104	114	177	130	144	110	166
(3)	1.9	-	2.2	1.5	1.8	2.1	2.3	2.4	1.5	2.1	2.1	1.9	1.7
							Malignant neoplasms of the digestive system						
M	88	15	82	60	89	90	62	91	98	76	93	76	82
F	50	16	49	36	38	58	37	56	54	47	50	44	47
(3)	1.8	-	1.7	1.6	2.3	1.6	1.7	1.6	1.8	1.6	1.9	1.7	1.7
							Malignant neoplasms of the respiratory system						
M	87	25	123	84	76	78	72	80	80	94	115	45	96
F	14	66	11	30	12	10	5	8	32	11	13	7	31
(3)	6.2	-	11.2	2.8	6.3	8.0	14.2	9.9	2.5	8.2	8.9	6.4	3.1
							Malignant neoplasms of the female breast						
M	-	-	-	-	-	-	-	-	-	-	-	-	-
F	24	26	28	30	25	14	16	21	31	22	29	17	31
(3)	-	-	-	-	-	-	-	-	-	-	-	-	-
							Malignant tumors of the geneto-urinary system						
M	49	19	54	34	57	31	44	52	48	45	59	41	51
F	22	27	25	11	27	14	16	20	23	19	24	16	25
(3)	2.3	-	2.2	3.2	2.1	2.2	2.8	2.6	2.1	2.4	2.5	2.6	2.1
							Respiratory diseases						
M	93	35	130	85	90	47	101	68	187	78	104	102	124
F	42	48	39	42	35	29	39	29	102	27	37	45	65
(3)	2.2	-	3.3	2.0	2.6	1.6	2.6	2.3	1.8	2.9	2.8	2.3	1.9
							Infectious and parasitic diseases						
M	6	36	8	3	8	5	9	11	6	4	5	8	4
F	4	37	5	2	4	4	5	6	5	2	3	3	3
(3)	1.5	-	1.6	1.5	2.0	1.3	1.8	1.8	1.2	2.0	1.7	2.7	1.3
							Accidents						
M	7	45	8	7	5	9	9	6	7	9	6	17	4
F	3	40	4	3	2	4	3	3	3	2	2	5	2
(3)	2.3	-	2.0	2.3	2.5	2.3	3.0	2.0	2.3	4.5	3.0	3.4	2.0

(1) L : The calculation of death rate by cause of death is unreliable because of the small population
B: 1986 DK, E: 1988 IRL, I: 1989 D, GR, F, NL, P, UK: 1990

(2) Geographical variation coefficient (%)
(3) Male excess mortality index

GEOGRAPHICAL VARIATIONS IN THE MORTALITY RATE

There are no major geographical differences within the European Community in the general mortality rate of persons aged 55 years and over by sex (table 3). However, there are considerable geographical differences in mortality by cause of death.

In order to underline these geographical differences, the geographical variation coefficient was used as a descriptive measure for each of the causes analysed in order to ascertain which Member States depart from the European average.

Circulatory system

Deaths from circulatory diseases are less common in the Netherland, Spain, Italy and France than in the rest of Europe. However, the extreme levels are not found in the same countries if the various sub-headings of this group of causes of death are considered.

Greece, Spain, Italy and Portugal are the very countries in which the mortality rate from **cerebrovascular diseases** is highest, whereas the lowest rate from this cause is in France, closely followed by the Netherlands and Denmark. Mortality among men from cerebro-vascular diseases is 1.3 times as high as among women throughout the Community, but it is slightly higher among women (0.95%) in Greece.

The difference between the various countries is less pronounced in the case of cardiac diseases than cerebrovasular diseases.

The mortality from **cardio-vascular diseases** is highest for both sexes in Ireland, followed by Denmark in the case of men and Germany in the case of women. The lowest rates for both sexes are in France, the Netherlands and Spain.

Mortality from cardiac diseases is 70% higher among men than among women throughout the Community.

Malignant neoplasms

The highest death rate from cancer is in the north of the Community (B, NL, DK, IRL, UK).

Deaths from malignant neoplasms of the **digestive system** account for 30% of deaths by malignant neoplasms throughout the Community. The geographical variation is fairly slight (around 15% for both sexes).

The death rate among men from malignant neoplasms of the **respiratory system** is 6 times higher than among women.

The excess male mortality rate is particularly pronounced in Spain (14 times higher than women) and Belgium (11 times greater).

The countries with the highest mortality rate from malignant neoplasms of the **genito-urinary system** are the Netherlands and Germany in the case of men and the United Kingdom, Belgium and Germany in the case of women. The rates are low for both sexes in Greece and Denmark.

The excess male mortality for these causes is in the order of 230 men to 100 women.

Malignant neoplasms of the **female breast** account for 90% of deaths from "malignant neoplasms of bone, connective tissues, skin and the breast". The highest rate (above 30) is in the northern countries (UK, IRL and DK) and lowest (about 15) in the southern countries (GR,E,P).

Respiratory diseases

The rates observed vary widely from one country to another. High mortality rates from respiratory diseases are concentrated geographically in the northern countries of the Community (UK,B,DK,NL,IRL).

There are great differences betweeen mortality rates among men and women in all countries of the Community in the case of these diseases.

Infectious and parasitic diseases

Deaths from infectious and parasitic diseases are very rare in the Community. The standardized mortality rates vary between 2 (DK) and 11 (F).

Accidents

Deaths from accidents are also fairly rare (except in the southern countries, especially Portugal). Persons dying from accidents are usually young. In the case of old persons, the most common cause of death is accidental falls.

CONCLUSION

Any action aiming to improve the quality of life and health education should be based on an awareness of the geographical and social disparities in the various causes of disease and death and the associated risk factors. The risks of premature death (before the age of 65) would appear to vary greatly between the social strata.

The differences in mortality rates and structure between the various socio-economic groups and the underlying social processes are a basic element in the analysis of mortality in the European Community. These studies, which form the basis for a serious consideration of the path to be taken to improve health and enhance the quality of life for old people, therefore need to be developed.

METHODS AND DEFINITIONS

The most recent years for which data are available are 1986 (B), 1988 (DK,E), 1989 (GR, IRL,L) and 1990 (D,F,NL,P,UK).

The data for the Federal Republic of Germany refer to the territory before 3 October 1990.

Data on causes of death are generally collected and processed in a very homogeneous fashion in the various Community Member States, which follow the WHO recommendations for the certification and coding of causes of death.

However, there are certain problems which may adversely affect comparability over a time and space.

The International Classification of Diseases has been revised on several occasions and not all the Member States adopted the various revisions in the same year.

There are also differences in the quality of the registers of causes of death.

Mortality statistics are based on the concept of the initial cause of death and not the associated or complementary cause or causes.

Life expectancy at birth is the number of years for which a person can expect to live on average under the mortality conditions of a given population. It is also known as "average age at death".

Life expectancy at 55 means the average number of years that persons aged 55 years still have to live.

The proportional death rate is the percentage of deaths due to a given cause compared with the total deaths.

The gross death rate of persons aged over 55 is the ratio between deaths of persons aged over 55 and the average size of the population aged over 55 during the same period.

The standardized death rate is the gross death rate adjusted to eliminate the effects of the age structure of the populations in question. The rates for the different populations are calculated by applying the age distribution of a selected standard population.

In order to compare the present situation in the various countries of the European Community, the reference population used here is the total Community population in 1988 (Table 3).

In order to compare trends in mortality among men and women in the various countries of the European Community between 1960 and 1990, the base population selected is the total population of the two sexes in the entire Community around the middle of the period (1977) (Graph 3).

The male excess mortality index is the ratio between the standardized male death rate and the standardized female death rate.

The geographical variation coefficient is the ratio of the standard deviation of the standardized death rates in the twelve countries of the European Community and the average standardized rate.

This bulletin is a summary of a publication by C. Trifiró of the Institute of Demography of the University of Louvain under the aegis of Eurostat (Unit E2) and Directorate-General V (Unit C1). This document is available (in French) from Eurostat. It is entitled "Mortalité des personnes âgées de plus de 55 ans: niveaux, tendances et causes de déces" (161 pages).

The data used for this study are absolute figures taken from the WHO database. The analyses, interpretations or conclusions set out in this report do not necessarily represent the opinions of either the WHO or the Commission of the European Communities.

INFORMATION

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