AGE STANDARDIZED MORTALITY RATES BY OCCUPATIONAL CLASSES AND CAUSES OF DEATH IN CLUJ NAPOCA

Ligia Făt[1], A. Cocârlă[2], S. Țigan[3]

1. Occupational Health Department, Institute of Public Health "Prof. Dr. Iuliu Moldovan", Cluj Napoca; 2. Occupational Health Clinic, University of Medicine and Pharmacy "Iuliu Hațieganu", Cluj Napoca; 3. Medical Informatic and Biostatistics Department, University of Medicine and Pharmacy "Iuliu Hațieganu", Cluj Napoca

Abstract: A cohort mortality study was completed using details from death records and occupations of 2893 persons who died in the city of Cluj Napoca in the year 2002. The level of mortality by occupational class was expressed by Standardized Mortality Ratios (SMR) with national death rates by 15-year age group as the standard. Each occupation has been assigned to one Social Class according to the British Classification of the Social Classes in 6 different categories. Causes of death were coded according to the International Classification of Diseases, 10th Revision WHO. The data were collected in the Microsoft Excel program and were statistically analyzed using the EXCEL and EPIINFO programs. The overall mortality of the all social classes were significantly lower than expected, especially in 15-30 and 30-45 groups of age. Significant mortality increase was recorded at ages 45-60 for the social classes IV and V, while the other social classes still show significant mortality deficits. At ages >60 only the social classes I and II show significant mortality deficits, while the social classes III(N) to V have a significant mortality increase with excess mortality. There was a widening difference between social classes I and II and the other social classes for all causes of mortality at ages 45–60 and >60. This was particularly marked for social class V. In particular, for specific causes of death, at ages 15-30, the SMR was higher in social classes IV and V. The values of SMR increase at ages 30-45, with the highest values in the same social classes IV and V for all selected causes. A similar pattern of increasing mortality with declining social class was clearly demonstrated for each of the selected causes at ages 45-60 with a big difference in mortality between the top and the bottom of the social class scale. For all selected causes there was a sharp step in the gradient between classes IV and V and the other classes. At ages >60 this sharp step appears between class I and II and the other classes.

Keywords: age-standardized mortality rates, social classes, cardiovascular disease, cerebrovascular disease, cancer

Rezumat: A fost realizat un studiu de cohortă folosind date din certificatele medicale şi date referitoare la ocupaţii pentru un număr de 2893 persoane care au decedat în municipiul Cluj Napoca în anul 2002. Mortalitatea în funcţie de clasa ocupaţională a fost exprimată prin rata standardizată de mortalitate (SMR) folosind ratele naţionale de deces pe grupe de 15 ani ca standard. Fiecare ocupaţie a fost încadrată într-o clasă socială conform clasificării britanice a claselor sociale în 6 categorii diferite. Cauzele de deces au fost codificate conform Clasificării Internaţionale a Bolilor, Revizia a 10-a OMS. Datele au fost colectate prin programul Microsoft Excel şi au fost analizate statistic folosind programele EXCEL şi EPIINFO.

Ligia Făt, A. Cocârlă, S. Ţigan

La grupele de vârstă 15-30 şi 30-45 ani mortalitatea generala a tuturor claselor sociale a fost semnificativ mai mică decât cea aşteptată, la fel şi mortalitatea pe cauze specifice de deces. Creşteri semnificative de mortalitate apar la grupa de vârstă 45-60 ani la clasele sociale IV şi V, iar celelalte clase prezintă scăderi semnificative de mortalitate. La grupa >60 ani clasele sociale I şi II prezintă mortalităţi scăzute semnificativ, în timp ce clasele sociale de la III(N) la V prezintă creşteri semnificative ale mortalităţii cu un exces de mortalitate. Există diferenţe accentuate între clasele sociale I şi II şi celelalte clase sociale pentru mortalitatea prin toate cauzele la grupele de vârstă 45-60 ani şi >60 ani. Acestea sunt observate mai ales în cazul clasei sociale V. Pentru cauze specifice de deces, la grupa de vârstă 15-30 ani, SMR a fost mai crescut la clasele sociale IV şi V. Valorile SMR cresc la grupa de vârstă 30-45 ani, cu valorile cele mai mari la aceleaşi clase sociale IV şi V pentru toate cauzele de deces. Un model similar de creştere a mortalităţii cu scăderea clasei sociale apare clar pentru fiecare cauză de deces la grupa de vârstă 45-60 ani cu o mare diferenţă în mortalitate între vârful şi baza scalei claselor sociale. Pentru toate cauzele există o diferenţă mare între clasele IV şi V şi celelalte clase. La grupa >60 ani clasele I şi II se diferenţiază de celelalte clase.

Cuvinte cheie: rate standardizate de mortalitate, clase sociale, boală cardiovasculară, boală cerebrovasculară, cancer

INTRODUCTION

During the past 2 decades, socio-economic inequalities in mortality have been studied extensively in countries around the world.

Inequalities in mortality have been documented from the United States to the former Soviet Union, from the Netherlands to New Zealand, and from Bangladesh to Brazil (1-6). Many studies, however, have been confined to men, partly because the most frequently used socio-economic classification that based on occupation, can less easily be applied to women. From studies that have included women, it has become clear that inequalities in mortality exist among women as they do among men, but they tend to be smaller among women (7-11).

Numerous studies from different countries of Europe have demonstrated that people with lower education, income and occupation have higher chance to die prematurely, and to suffer from disease or disability (12).

There is hardly any doubt that socio-economic differences in mortality and morbidity exist in all parts of Europe. The main challenge to health inequalities research is to move from description to explanation (13). The principal aim of this study was to assess whether socio-economic inequalities in mortality were larger in some age groups than in other ones, reporting the differences by age in the magnitude of socio-economic inequalities in total and cause-specific mortality in the city of Cluj Napoca during the year 2002. This was the only year that could provide data in mortality by socio-economic level, permitting a valid comparison of inequalities in mortality between different age groups.

The age distribution of different populations can vary greatly. These demographic factors can influence the overall health profile of an area or group within this population. For example, some areas or social groups within a country may contain more

elderly people than others. As mortality rates are higher among elderly people, these groups will have more deaths than groups with a greater proportion of young people. This would mask differences which are associated with factors other than the age distribution.

To make a valid comparison of death rates of different social groups, and at different times, account must be taken of such age distribution differences between the populations under study. This can be made using the direct standardization, for example age-standardized mortality rates described above, and indirect standardization.

MATERIALS AND METHODS

In this study we analyzed the relations between different social classes and specific causes of death taking into account different age groups. Also, we evaluated the contribution of these causes of mortality in the different social classes in Romania.

The objective of the present study was to see the relation between social classes (by age-group) and specific causes of death and in a similar way of that conducted by Frances Drever, Margaret Whitehead and Murray Roden, regarding Current patterns and trends in male mortality by Social Class (based on occupation) (14).

A cohort mortality study was completed using details from death records and occupations of 2893 persons who died in the city of Cluj Napoca in the year 2002. Information about causes of death were extracted from the death certificates and those about the occupation from the working documents and these included name, gender, date of birth, date of death, place of living, level of education, occupation and cause of death. Information on the occupation of the corresponding living population was obtained from another source such as the population census. The level of mortality by occupational class was expressed by Standardized Mortality Ratios (SMR) with national death rates by 15-year age group as the standard. Using the general mortality from the city of Cluj Napoca, we calculated the expected deaths for each age group. SMR were computed by expressing the observed deaths as percentages of the expected.

Each occupation has been assigned to one Social Class according to the British Classification of the Social Classes that divided the occupations in 6 different categories: class I - professional, class II - managers/ intermediate, class III(N) - non-manual skilled, class III(M) - manual skilled, class IV - partly skilled, class V - partly unskilled. The data were collected in the Microsoft Excel program and were statistically analyzed using the EXCEL and EPIINFO programs (15-18). Causes of death were coded according to the International Classification of Diseases, 10th Revision WHO as follows: cancer, ischemic heart, other cardio-vascular, cerebrovascular, gastro-intestinal, respiratory and other diseases, accidents (including suicide and injury).

We used the following age groups: 15-30 years, 30-45 years, 45-60 years and >60 years and calculated SMR for each of them.

RESULTS

Tables 1-4 show, for each social class and each age group, the SMR for a selection of causes of death for the people who died in the city of Cluj Napoca in the year 2002.

As table 1 shows, at 15-30 ages, several causes of death shows statistically significant mortality deficits, including accidents for social class II (SMR, 4.41; 95% CI, 1 to 32), III(N) (SMR, 1.07; 95% CI, 0 to 8), III(M) (SMR, 2.58; 95% CI, 1 to 8), IV (SMR, 15.18; 95% CI, 8 to 29) and V (SMR, 4.24; 95% CI, 1 to 31). All the social classes (except the social class I where there weren't any deaths caused by accidents at this age group) had a smaller number of deaths caused by accidents than in the population of reference.

Table 1. SMR for selected causes by Social Class (based on occupation), aged 15-30 years

Social class	Accidents	other diseases	other CV diseases	gastro-intestinal diseases	respira-tory diseases	cerebro-vascular diseases	cancer	ischemic heart diseases
I	-	-	-	-	-	-	-	-
II	4.41*	-	-	-	-	-	-	-
III(N)	1.07*	6.90*	-	-	-	-	6.91*	-
III(M)	2.58*	-	6.89*	-	-	-	2.76*	-
IV	15.18*	9.72*	12.15*	-	-	-	4.86*	-
V	4.24*	13.57*	-	-	-	67.88	13.58*	-

*p<0.05

Three social classes: III(N) (SMR, 6.90; 95% CI, 2 to 29), IV (SMR, 9.72; 95% CI, 2 to 41) and V (SMR, 13.57; IC 95%, 2 to 116) had significant mortality deficits for other diseases. The social classes I, II and III(M) did not record deaths caused by other diseases at the ages 15-30.

Other cardiovascular diseases showed significant mortality decrease for the social classes III(M) (SMR, 6.89; 95% CI, 1 to 54) and IV (SMR, 12.15; 95% CI, 2 to 100) at ages 15-30.

Cerebrovascular diseases showed an insignificant decrease for the social class V; there were no deaths caused by gastro-intestinal disease, respiratory disease and ischemic heart disease at ages 15-30.

Cancer also shows a significant deficit for the social classes III(N) (SMR, 6.91; 95% CI, 2 to 29), III(M) (SMR, 2.76; 95% CI, 0 to 20), IV (SMR, 4.86; 95% CI, 1 to 35) and V (SMR, 13.58; 95% CI, 2 to 116).

At ages 30-45 (table 2) there were significant mortality deficits for:

- accidents for the social classes I (SMR, 5.28; 95% CI, 2 to 17), III(N) (SMR, 8.56; 95% CI, 3 to 21), III(M) (SMR, 4.88; 95% CI, 2 to 12), IV (SMR, 40.30; 95% CI, 22 to 74) and V (SMR, 16.52; 95% CI, 5 to 57);

Table 2. SMR for selected causes by Social Class (based on occupation), aged 30-45 years

Social class	accidents	other diseases	other CV diseases	gastro-intestinal diseases	respira-tory diseases	cerebro-vascular diseases	cancer	ischemic heart diseases
I	5.28*	9.49*	3.03*	-	36.38*	-	8.03*	10.91*
II	-	-	-	-	-	-	3.34*	-
III(N)	8.56*	9.23*	8.85*	-	-	-	9.37*	10.62*
III(M)	4.88*	6.58*	8.41*	-	-	6.73*	5.35*	-
IV	40.30*	32.59*	37.02*	83.30	27.76	37.02	39.20*	33.32
V	16.52*	7.42*	9.48*	-	-	56.92*	-	34.15*

*$p < 0.05$

- other disease for the social classes I (SMR, 9.49; 95% CI, 3 to 27), III(N) (SMR, 9.23; 95% CI, 3 to 26), III(M) (SMR, 6.58; 95% CI, 3 to 16), IV (SMR, 32.59; 95% CI, 15 to 68) and V (SMR, 7.42; 95% CI, 1 to 59);
- other cardiovascular disease for the social classes I (SMR, 3.03; 95% CI, 0 to 22), III(N) (SMR, 8.85; 95% CI, 3 to 29), III(M) (SMR, 8.41; 95% CI, 3 to 21), IV (SMR, 37.02; 95% CI, 16 to 82) and V (SMR, 9.48; 95% CI, 1 to 70);
- respiratory disease for the social class I (SMR, 36.38; 95% CI, 22 to 62);
- cerebrovascular disease for the social classes III(M) (SMR, 6.73; 95% CI, 2 to 28) and V (SMR, 56.92; 95% CI, 37 to 90);
- cancer for the social classes I (SMR, 8.03; 95% CI, 3 to 20), II (SMR, 3.34; 95% CI, 0 to 24), III(N) (SMR, 9.37; 95% CI, 4 to 22), III(M) (SMR, 5.35; 95% CI, 4 to 7) and IV (SMR, 39.20; 95% CI, 22 to 69);
- ischemic heart disease for the social classes I (SMR, 10.91; 95% CI, 1 to 88), III(N) (SMR, 10.62;

95% CI, 1 to 88) and V (SMR, 34.15; 95% CI, 17 to 71).

There weren't any death for the social class II caused by accidents, other diseases, other cardiovascular, gastro-intestinal, respiratory, cerebrovascular and ischemic heart diseases at ages 30-45. There was registered only one single death caused by cancer.

Also there were no deaths caused by gastro-intestinal and cerebrovascular diseases, for the social class I. Social class III(N) did not record any death caused by gastro-intestinal, respiratory and cerebrovascular diseases, and social class III(M) did not record deaths caused by gastro-intestinal, respiratory and ischemic heart diseases. There weren't any death for the social class V caused by gastro-intestinal, respiratory diseases and cancer.

No significant mortality increase in any disease for any social class was reported for this age group as compared with the population of reference.

**Table 3. SMR for selected causes by Social Class (based on occupation),
aged 45-60 years**

Social class	accidents	other diseases	other CV diseases	gastro-intestinal diseases	respira-tory diseases	cerebro-vascular diseases	cancer	ischemic heart diseases
I	12.42*	50.71*	67.94	55.91*	41.93	27.96*	66.72	53.68
II	14.17*	26.70*	9.69*	-	-	-	17.40*	15.31*
III(N)	11.36*	53.52*	50.49*	25.57	25.57	63.93	38.36*	30.68*
III(M)	41.62*	42.76*	41.38*	17.02	8.51*	42.57*	34.83*	32.69*
IV	299.11*	226.94*	230.01*	336.50	308.46*	196.29	271.50*	309.58*
V	249.92*	89.67	73.21	160.66*	281.16*	200.83	76.68	96.39

*p<0.05

As table 3 shows, at age 45-60 there were significant mortality deficits for:
- accidents for the social classes I (SMR, 12.42; 95% CI, 3 to 54), II (SMR, 14.17; 95% CI, 2 to 116), III(N) (SMR, 11.36; 95% CI, 3 to 48), III(M) (SMR, 26.42; 95% CI, 21 to 86);
- other diseases for the social classes I (SMR, 50.71; 95% CI, 26 to 97), II (SMR, 26.70; 95% CI, 8 to 98), III(N) (SMR, 53.52; 95% CI, 29 to 100), III(M) (SMR, 42.76; 95% CI, 25 to 74);
- other cardiovascular diseases for the social classes II (SMR, 9.69; 95% CI, 1 to 78), III(N) (SMR, 50.49; 95% CI, 26 to 97), III(M) (SMR, 41.38; 95% CI, 23 to 73);
- gastro-intestinal diseases for the social class I (SMR, 55.91; 95% CI, 33 to 99);
- respiratory diseases for the social class III(M) (SMR, 8.51; 95% CI, 1 to 64);
- cerebrovascular diseases for the social classes I (SMR, 27.96; 95% CI, 9 to 87) and III(M) (SMR, 42.57; 95% CI, 21 to 91);
- cancer for the social classes II (SMR, 17.40; 95% CI, 6 to 50), III(N) (SMR, 38.36; 95% CI, 24 to 63), III(M) (SMR, 34.83; 95% CI, 23 to 53);
- ischemic heart diseases for the social classes II (SMR, 15.31; 95% CI, 2 to 116), III(N) (SMR, 30.68; 95% CI, 11 to 85), III(M) (SMR, 32.69; 95% CI, 15 to 74).

Significant mortality increases have been found at this age group for:
- accidents for the social classes IV (SMR, 299.11; 95% CI, 135 to 667) and V (SMR, 249.92; 95% CI, 183 to 341);
- other diseases for the social class IV (SMR, 226.94; 95% CI, 116 to 428);
- other cardiovascular diseases for the social class IV (SMR, 230.01; 95% CI, 114 to 443);
- gastro-intestinal diseases for the social class V (SMR, 160.66; 95% CI, 129 to 202);
- respiratory diseases for the social classes IV (SMR, 308.46; 95% CI, 215 to 460) and V (SMR, 281.16; 95% CI, 184 to 464);
- cancer for the social class IV (SMR, 271.50; 95% CI, 175 to 427);
- ischemic heart diseases for the social class IV (SMR, 309.58; 95% CI, 239 to 404).

Table 4. SMR for selected causes by Social Class (based on occupation), aged >60 years

Social class	accidents	other diseases	other CV diseases	gastro-intestinal diseases	respire-tory diseases	cerebro-vascular diseases	cancer	ischemic heart diseases
I	18.97*	30.54*	28.60*	68.32	20.75*	42.86*	56.13*	45.01*
II	23.80	38.30	49.08*	38.08*	20.82	21.50*	35.94*	50.42*
III(N)	134.01	237.23*	159.45*	178.69	136.81	188.30*	230.49*	246.87*
III(M)	399.26*	350.45*	357.00*	116.15	222.31*	234.95*	347.15*	247.39*
IV	703.94*	792.94*	802.65*	422.36*	1039.4*	761.66*	592.42*	571.37*
V	1400.0*	750.97*	987.11*	1493.3*	1156.9*	1077.2*	724.31*	1053.0*

*p<0.05

As table 4 shows, at ages > 60, several causes of death indicated statistically significant mortality deficits, including the following:

- accidents for the social class I (SMR, 18.97; 95% CI, 7 to 55);
- other diseases for the social class I (SMR, 55.91; 95% CI, 33 to 99);
- other cardiovascular diseases for the social classes I (SMR, 28.60; 95% CI, 20 to 41) and II (SMR, 49.08; 95% CI, 26 to 97);
- gastro-intestinal diseases for the social class II (SMR, 38.08; 95% CI, 19 to 80);
- respiratory diseases for the social class I (SMR, 20.75; 95% CI, 8 to 55);
- cerebrovascular diseases for the social classes I (SMR, 42.86; 95% CI, 32 to 58) and II (SMR, 21.50; 95% CI, 9 to 52);
- cancer for the social classes I (SMR, 56.13; 95% CI, 44 to 72) and II (SMR, 35.94; 95% CI, 19 to 70);
- ischemic heart diseases for the social classes I (SMR, 45.01; 95% CI, 36 to 57) and II (SMR, 50.42; 95% CI, 30 to 82).

Significant increased mortality shows the following causes of death:

- accidents for the social classes III(M) (SMR, 399.26; 95% CI, 102 to 1314), IV (SMR, 703.94; 95% CI, 466 to 1135) and V (SMR, 1400.02; 95% CI, 836 to 2690);
- other diseases for the social classes III(N) (SMR, 237.23; 95% CI, 126 to 440), III(M) (SMR, 350.45; 95% CI, 277 to 449), IV (SMR, 792.94; 95% CI, 365 to 1753), V (SMR, 750.97; 95% CI, 265 to 2125);
- other cardiovascular diseases for the social classes III(N) (SMR, 159.45; 95% CI, 100 to 257), III(M) (SMR, 357.00; 95% CI, 303 to 424), IV (SMR, 802.65; 95% CI, 676 to 956) and V (SMR, 987.11; 95% CI, 485 to 2064);
- gastro-intestinal diseases for the social classes IV (SMR, 422.36; 95% CI, 240 to 767) and V (SMR, 1493.36; 95% CI, 733 to 3068);
- respiratory diseases for the social classes III(M) (SMR, 222.31; 95% CI, 148 to 345), IV (SMR, 1039.41; 95% CI, 717 to 1627) and V (SMR, 1156.96; 95% CI, 704 to 2093);
- cerebrovascular diseases for the social classes III(N) (SMR, 188.30;

95% CI, 120 to 291), III(M) (SMR, 234.95; 95% CI, 138 to 414), IV (SMR, 761.66; 95% CI, 448 to 1311) and V (SMR, 1077.20; 95% CI, 517 to 2022);

- cancer for the social classes III(N) (SMR, 230.49; 95% CI, 204 to 262), III(M) (SMR, 347.15; 95% CI, 215 to 554), IV (SMR, 592.42; 95% CI, 361 to 978) and V (SMR, 724.31; 95% CI, 383 to 1429);

- ischemic heart diseases for the social classes III(N) (SMR, 246.87; 95% CI, 176 to 341), III(M) (SMR, 247.39; 95% CI, 162 to 376), IV (SMR, 571.37; 95% CI, 369 to 861) and V (SMR, 1053.09; 95% CI, 609 to 1811).

Table 5. Age-specific mortality ratios by Social Class

Social class (based on occupation)	15–30 years	30-45 years	45-60 years	>60 years
I	-	6.93*	52.63*	41.99*
II	2.43*	0.90*	14.47*	39.22*
III(N)	2.97*	8.01*	40.60*	210.15*
III(M)	2.37*	5.53*	36.69*	294.23*
IV	11.73*	38.34*	260.80*	681.72*
V	9.36*	12.19*	120.28	971.59*

*p<0.05

Table 5 presents the SMR by social class for all cause mortality at different ages. At ages 15–30, mortality in social classes II to III(M) was almost the same and was below the mortality of the social classes IV and V; almost four-fold difference exist between social classes II and V. There is no excess mortality for any social class at this age group.

At ages 30–45 all the mortalities were below that of the population of reference, social class II has the smallest mortality and social class IV has the highest mortality.

By ages 45–60 the social classes I to III(M) have significant mortality deficits, while the social classes IV and V show an excess mortality. There is an almost 5 fold difference between social class I and IV and a 2 fold differences between social class I and V. At ages >60, the social classes III(N) to V show significant mortality increase for all causes of death, with a 16 fold difference, respectively 23 fold difference between classes I and V. At this age group, only the social classes I and II showed significant mortality deficits.

DISCUSSION

In terms of specific causes of death, we observed significant mortality deficits for *accidents*, at ages 15-30, in social classes II, III (M), III (N), IV and V; at ages 30-45, in social classes I, III (M), III (N), IV and V; at ages 45-60, in social classes I, II, III (M) and III (N); at ages>60, in social class I.

Significant mortality increase caused by accidents showed the social classes IV and V at ages 45-60, and social classes III(M), IV and V at ages >60.

The risk of dying from accidents, increase with age and is greater for the social classes IV and V.

The mortality from *other diseases* showed a significant deficit at ages 15-30 for the social classes III(N), IV and V; at ages 30-45 for the social classes I, III(M), III(N), IV and V; at ages 45-60 for the social classes I, II, III(M) and III(N); at age >60 for the social class I. Increased mortality was found at ages 45-60 for the social class IV and at age >60 for the social classes III(M), III(N), IV and V.

The risk of dying from other diseases, increase with the age and is greater for the social classes IV (at ages 45-60) and for the social classes III(M), III(N), IV and V (at age >60).

Mortality from *other cardiovascular diseases* showed significant deficits at ages 15-30 for the social classes III(M) and IV; at ages 30-45 for the social classes I, III(M), III(N), IV and V; at ages 45-60 for the social classes II, III(M) and III(N); at age >60 for the social classes I and II. Significant mortality increase was found at ages 45-60 for the social class IV and at age >60 for the social classes III(M), III(N), IV and V.

The risk of dying from other cardiovascular diseases was the same with those from other disease.

The mortality from *gastro-intestinal disease* showed significant deficits at ages 45-60 for the social class I and at age >60 for the social class II.

A significant mortality increase is noticed at the social class V at ages 45-60 and the social classes IV and V at age >60.

Mortality from *respiratory diseases* showed significant deficit at ages 30-45 for the social class I, at ages 45-60 for the social class III(M), and at age >60 for the social class I. A significant mortality increase was found at ages 45-60 for the social classes IV and V and at age >60 for the social classes III(M), IV and V.

The risk of dying from *cerebro-vascular diseases* was small at age 30-45 in the social classes III(M) and V, at age 45-60 for the social classes I and III(M), and at age >60 for the social classes I and II. The risk was greater at age >60 for the social classes III(M), III(N), IV and V.

Mortality from *cancer* showed a significant decrease at ages 15-30 for the social classes III(M), III(N), IV and V; at age 30-45 for the social classes I, II, III(M), III(N) and IV; at ages 45-60 for the social classes II, III(M), III(N); at age >60 for the social classes I and II. A significant mortality increase is noticed at the social class IV at ages 45-60 and the social classes III(M), III(N), IV and V at age >60. The risk increases with age and with the decreases of the social class.

The same situation was found for the *ischemic heart diseases*, with significant mortality deficit at ages 30-45 and 45-60 for the social classes I, III(N), V, respective II, III(M), III(N) and significant mortality increase at ages 45-60 for the social class IV and at age

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>60 for the social classes III(M), III(N), IV and V.

Comparing the SMR for accidents, we found statistically significant differences between class IV and classes III(N) and III(M) at ages 15-30, p<0.05; that means that class IV dye more frequently from accidents than classes III(N) and III(M). We found the same situation at ages 30-45: class IV dye more frequently from accidents than classes I, III(N) and III(M). There were also statistically significant differences (p<0.05), between SMR for cerebrovascular diseases at ages 30-45 between class V and class III(M); for cancer between class IV and classes I, III(N) and III(M). At ages >60 statistically significant differences between SMR were found for other cardiovascular diseases between classes IV and V and classes III(N) and III(M), for respiratory diseases between classes IV and V and class III(M), for cerebrovascular diseases between classes IV and V and classes III(N) and III(M), for cancer between classes IV and V and class III(N), and for ischemic heart diseases between class IV and III(N) and between class V and classes III(N) and III(M).

CONCLUSIONS

The overall mortality of all the social classes were significantly lower than expected especially in the 15-30 and 30-45 groups of age. Significant mortality increase was noticed at ages 45-60 for the social classes IV and V, while the other social classes still showed significant mortality deficits. At ages >60 only the social classes I and II showed significant mortality deficits, while the social classes III(N) to V had a significant mortality increase with excess mortality. There is a widening differences between social classes I and II and the other social classes for all cause mortality at ages 45-60 and >60. This was particularly marked for social class V.

In particular, for specific causes of death, at ages 15-30, the SMR was higher in social classes IV and V. The values of SMR increase at ages 30-45, with the highest values in the same social classes IV and V for all selected causes. A similar pattern of increasing mortality with declining social class is clearly demonstrated for each of the selected causes at ages 45-60 with a big difference in mortality between the top and the bottom of the social class scale. For all selected causes there was a sharp step in the gradient between classes IV and V and the other classes. This sharp step appeared between class I and II and the other classes, at ages >60.

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