Avd/Enhet/Arbetsgrupp, etc
Johan Tollebrant
Örjan Hemström

Long abstract

Mortality by occupation in Sweden 2008–2012

This study analyses the differences in mortality between groups with different occupations. Occupation data come from the 2007 Swedish Occupational Register, and mortality is monitored during the five year period 2008-2012.

Qualification requirements are crucial for occupational mortality

There are clear differences in mortality between different major occupational groups. Armed forces, management work, professionals, technicians and associate professionals generally have a lower mortality than the average employed person. Examples of occupations with relatively low mortality are teachers, computing professionals, doctors and specialist managers.

Groups in jobs that normally require secondary education skills and elementary occupations have a higher mortality rate than the average employed person. Such occupations with elevated mortality include nursing assistants, home-based personal care workers and related trades, different groups of machine operators, assemblers, newspaper deliverers, doorkeepers and related workers.

Large differences among the actively employed

The results show large differences between the actively employed and the group without employment. The men in the group not gainfully employed had a mortality rate 3.5 times higher than employed men. Among women without employment, mortality was 2.8 times higher than among the employed. These differences were about as large as those reported in the 1980s and 1990s.

A comparison of all the 27 sub-major occupational groups showed that differences among the actively employed are almost as large as the difference between the actively employed and persons who lack employment. The sub-major occupational group with the highest mortality among men, sales and services elementary occupations, had a mortality rate about 2.8 times higher than men in the group life science and health professionals. Among women, the mortality rate was approximately 2.4 times higher in work in metal, machinery and related trades compared with the group that had jobs as managers of small enterprises. The differences in mortality are even greater if minor or unit occupational groups are compared at more detailed levels, but the uncertainty in mortality increases for more detailed occupational levels.

Higher education reduces the risk of death

There are differences in mortality within the major occupational groups that depend on the level of education. Within management work, professional work and associate professional work, the groups with just a secondary education and with post-secondary education have a lower mortality rate than the average employed person. In all of these three major occupational groups, however, the group with longer education has a slightly lower mortality rate than the group with shorter education.

The group with no more than post-secondary education has a higher mortality rate than employed persons in general in all major occupational groups that do not require more than post-secondary education skills. However, there is no

major occupational group with these lower qualification requirements where a post-secondary education has increased mortality compared with the employed at large. The results suggest that higher education is linked to a lower risk of death regardless of occupation.

Table: Age and sex standardised mortality ratios (SMR) from 2008 to 2012 with 95 percent confidence limits by major occupational groups and educational level. Reference population is persons with an occupation who were employed in November 2007

	Primary or secondary education		Post-secondary education	
ISCO Occupational category	SMR	(95% KI)	SMR	(95% KI)
0 Armed forces	..		0.70	(0.49−0.97)
1 Legislators, senior officials and managers	0.80	(0.73−0.86)	0.64	(0.58−0.69)
2 Professionals	0.94	(0.87−1.02)	0.74	(0.72−0.77)
3 Technicians and associate professionals	0.91	(0.87−0.96)	0.80	(0.76−0.84)
4 Clerks	1.14	(1.09−1.20)	1.02	(0.90−1.15)
5 Service workers and shop sales workers	1.13	(1.10−1.17)	0.99	(0.89−1.11)
6 Skilled agricultural and fishery workers	1.03	(0.93−1.14)	0.74	(0.52−1.02)
7 Craft and related trades workers	1.11	(1.07−1.16)	0.72	(0.57−0.90)
8 Plant and machine operators and assemblers	1.28	(1.23−1.33)	0.96	(0.81−1.13)
9 Elementary occupations	1.57	(1.50−1.65)	1.15	(0.91−1.43)
Occupation missing for the years 2003 to 2007	1.38	(1.32−1.44)	0.89	(0.81−0.98)
Gainfully employed in November 2007 with an occupation	1.12	(1.10−1.14)	0.77	(0.75−0.80)
Not gainfully employed in November 2007	3.46	(3.41−3.51)	2.19	(2.11−2.28)

.. Less than two deaths. No SMR was calculated

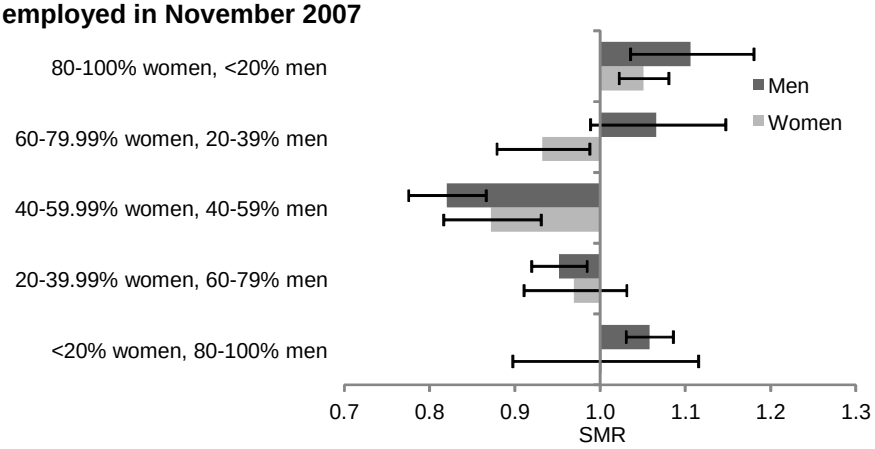
Foreign born persons do not have a high mortality

There are no clear differences in mortality between Swedish born and foreign born persons in most major and sub-major occupational groups. Mortality was relatively high among Swedish born persons but not among the foreign born in elementary occupations and office clerks. In contrast, foreign born persons had an elevated mortality compared with the Swedish born in the occupational group metal, machinery and related trades workers.

Small differences in occupations by sex distribution

The mortality rate is slightly lower in occupations with an even distribution of the sexes than where the sex distribution is very skewed. The differences are mainly due to the fact that occupations with a skewed sex distribution are largely occupations with low skill requirements, which have relatively high mortality rates for both women and men. The relatively low mortality in occupations with an even distribution of sexes is due to the fact that these are occupations primarily requiring higher education, professionals and associate professionals, which are occupations that have low mortality for both sexes.

Figure. Age standardized mortality ratios (SMR) from 2008 to 2012 by occupations with different sex distribution and 95 percent confidence limits. Reference population is persons with an occupation who were employed in November 2007



Several factors contribute to differences in mortality

There are several possible explanations why occupations have abnormally low or high mortality compared to the employed on average. There are clear differences in the occupational work environments and overall conditions in the labour market, such as physical and mental workloads, risk of death associated with carrying out the work, income and job insecurity. In addition, there are clear occupational differences in behaviours and lifestyle with significance for the risk of dying during the working years, including smoking, alcohol and dietary habits. Systematic mobility and selection factors may also contribute to certain occupations attracting individuals with poorer health potential than other occupations. All these factors likely interact in the development of mortality differences between occupations.