

All-cause and cause-specific mortality differences among women in Belgium: dimensions of socio-economic position considered

S. GADEYNE

P. DEBOOSERE

Interface Demography

Vrije Universiteit Brussel

Introduction

Social inequalities in mortality have been studied thoroughly in the Western World. Traditionally, research has focussed on men. The role of socio-economic position in women's health and mortality has received less consideration. This contribution investigates mortality differences among women in different age groups. Specific attention will be paid to inequalities by cause of death as causes of death can give us a clue to understand health inequalities.

Usually, socio-economic position and poverty are conceptualised as uni-dimensional concepts in inequality research. In Europe, professional class is the most popular indicator whereas in the United States educational level and income/wealth are most frequently used. Socio-economic position is a multidimensional concept however, covering simultaneously different aspects such as education, professional class and income or wealth. The issue whether each of these dimensions generate different patterns of inequalities – in terms of the magnitude of differentials and the cause of death they act on – has not been discussed thoroughly and certainly not among women and in relation to the life-cycle stage. Specific attention will be drawn to the specificity of patterns among women compared to men.

Data

The Belgian data consist of an individual record linkage between the 1991 census and register data on vital status and cause-specific mortality during the period 1991-1996. The databank covers the total Belgian population, almost ten million persons, and provides information on a large number of socio-economic and socio-demographic variables (education, occupational class, housing quality, marital status, number of children, etc.). As a consequence, the dataset allows for analyses of small subgroups, minimises the risk of artefactual findings and random fluctuations and avoids the classical numerator-denominator problem. The data also permit to relate mortality to a multitude of factors and to integrate different dimensions of socio-economic position simultaneously.

Methods

To get an idea of the association of different socio-economic dimensions and mortality as a function of the life-cycle stage, the analyses focus on four large age groups: Belgian women at young age (15-29), adult age (30-44), middle age (45-59), old age (60-74) and oldest age (75 and over).

In a first stage, inequalities in overall mortality are studied as a function of socio-economic position, using educational level, occupational class and housing class as indicators. Relative differences are estimated with the Poisson regression method as the ratio between the mortality of each class and that of the standard class (the class with the lowest mortality level).

In the cause-specific analyses, the share of each cause group to inequalities in overall mortality is estimated using a simple decomposition method which divides the absolute difference for each cause by the absolute difference in all-cause mortality. Secondly, relative differences are estimated for each cause group, using the same Poisson regression model as for all-cause mortality.

Results

Compared to inequalities among men, differences are smaller for women and less straightforward. However, it is important to underline that results generally confirm the expected patterns, the poor and deprived classes having the highest mortality irrespective of age and socio-economic dimension. Mortality differences are recurrent in all generation groups, from youth and young adulthood until old age, despite differences in their lifetime experiences. The impact of each variable seems to follow a 'life-cycle trend'. In youth and young adulthood, inequalities are largest for education. With increasing age, education loses its discriminative power compared to both other variables (housing quality for women and occupational class for men). Obviously, education is the most important dimension of an individual's *personal* socio-economic position at young age, housing quality being a parental, not a personal characteristic for many respondents at that age. With increasing age, the impact of education attenuates under the influence of other effects that develop later in the life cycle (housing quality and occupational class). Clearly, socio-economic position cannot be conceptualised as a uni-dimensional factor. Using different indicators leads to different results, depending on the age group. Most variables do generate significant inequalities, but there are some subtle differences by age in terms of their effects, patterns and gradients.

When comparing men and women, patterns for individual variables – education and occupation – are obviously less straightforward for women. In education, the main difference is not between the least and the most educated as with men, but rather between women with primary education (or less) and women in other educational groups, whereas among men, the distance between the secondary and the higher level is larger. As in other studies, this is much less the case in a city context: in Brussels Capital Region educational differences are much more alike among men and women.

Similarly, occupational class is a less discriminating variable among women and the highest positions do generally not show the lowest mortality. A plausible explanation is that women suffer from a double burden: a high job level responsibility combined with the household tasks that women traditionally fulfil. Another explanation is the role of childlessness among high class women, leading to a higher prevalence of breast cancer among these women.

From adult age on, the largest inequalities generally arise for housing quality among women. For this variable, inequalities are much more alike for men and women. This should not surprise, as characteristics of *all* household members are used to compose this housing variable. The effect of individual variables among women is much more 'disturbed' by the characteristics of her husband. This is probably why among unmarried single women differentials are much more comparable to those observed for men.

Whatsoever, differences between men and women should be put into perspective. At oldest age, inequalities are more comparable among men and women. In addition, the difference between sexes diminishes or even disappears in multivariate models. Control for other variables leads to a larger reduction in inequalities among men, because of the stronger association between the distinguished variables. Men still are the main breadwinners, whereas women are influenced by their role as wife and mother and rely to a higher degree on the resources of their husband. Analyses show that differences between men and women, in terms of the magnitude of inequalities, are larger in the married than in the non-married population. Generally, in the unmarried group men and women show more comparable differentials. This pattern allows for the same conclusion, the relationship between the real level of material well-being and personal status being less straightforward among married women. Among men this is less often the case, as they still are the traditional breadwinners.

After having described inequalities in overall mortality, our analyses turn to cause-specific mortality differences. The decomposition of absolute mortality differences by cause of death reveals some interesting conclusions. Among women at young age, inequalities arise predominantly from external causes, responsible for about half of the absolute mortality differences. This share of external causes is however less pronounced than among men as medical causes play a more prominent role, essentially circulatory diseases at age 15-29 and also neoplasms and alcohol-related mortality at age 30-44. Circulatory diseases generally get the upper hand among middle-aged women, the role of neoplasms being reduced due to the negative contribution of cancer of the breast and the tractus digestivus. Lung cancer, together with respiratory diseases and alcohol-related mortality, all related to lifestyle, account for a fourth to a fifth of inequalities among women. This percentage is smaller than among men, but still is quite impressive. At old age, circulatory diseases account for about half (at age 60-74) to more than a third (at age 75 and over) of inequalities. IHD loses weight as cerebrovascular and congestive heart diseases become more important. The group of remaining causes (mainly diabetes, diseases of the digestive system, diseases of the genitor-urinary system and mental disorders)

and respiratory diseases (essentially pneumonia/influenza) are important too in explaining absolute differences in mortality.

In summary, circulatory diseases are determining and are more important contributors to mortality differences among women. Smoking-related diseases have an important share too, but more so among men than among women

A final aspect that has been studied is the magnitude of relative inequalities in cause-specific mortality. Research results clearly indicate that relative inequalities are not limited to a few causes of death, but occur for all specified causes. Lower classes have a higher mortality than higher classes for almost all causes, and hazard ratios lower than one, indicating that higher classes have a higher mortality, are exceptional. Breast cancer is one of the important exceptions among women. At young age, inequalities are not limited to external causes, but extend to endogenous mortality. From adulthood until old age, the largest relative differentials occur for alcohol-related mortality, respiratory and circulatory diseases.

Our results also indicate that each socio-economic indicator acts in a specific way. The effect of each indicator does not only depend upon age and sex, but also on the cause of death. Housing quality for instance generally produces the largest differentials in alcohol-related mortality; education acts more profoundly upon respiratory diseases and circulatory diseases.

The relative inequalities in cause-specific mortality permit us to put the smaller inequalities for women into perspective again. Differences between men and women clearly depend on the cause, inequalities for circulatory diseases, essentially IHD, usually being larger for women than for men.