

ALL-CAUSE AND CAUSE-SPECIFIC MORTALITY DIFFERENCES IN BELGIUM: DIMENSIONS OF SOCIO-ECONOMIC POSITION CONSIDERED

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Objectives

Social inequalities in mortality have been studied thoroughly in the Western World. Until the 1990s, Belgium did not participate in this debate on differential mortality because of the lack of statistical data. The construction in the 1990s of the National Databank Mortality 1991-1996 (NDM) has broken this deadlock and offers numerous possibilities to study differential mortality in Belgium.

Traditionally, socio-economic position and poverty have been considered 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 in relation to the life-cycle stage. This is exactly what this contribution wishes to investigate.

Data

The data are provided in the NDM, consisting 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, somewhat less than ten million persons, and provides information on a large number of socio-economic and socio-demographic variables (education, professional class, housing quality, marital status, number of children, etc.). As a consequence, the NDM allows analyses of small subgroups, minimises the risk of artefactual findings and random fluctuations and avoids the classical numerator-denominator problem. The NDM also

permits 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 differential impact of the three dimensions of socio-economic status – education, professional class and income – as a function of the life-cycle stage, the analyses focus on four large age groups. This paper presents the results for Belgian men at young age (15-29), adult age (30-44), middle age (45-59), old age (60-74) and oldest age (75 and over). Absolute as well as relative indicators of mortality differentials are used. Absolute differences are calculated as the mortality rate of each class minus the mortality rate of a standard class. Relative differences are estimated with the Poisson regression method as the ratio between the mortality of each class and that of the standard class (hazard ratios). The standard class is the group with the lowest mortality level.

In a first stage, inequalities in overall mortality are studied as a function of the three main dimensions of socio-economic position. Educational level is measured by the highest diploma obtained, except at youngest age. At this age, many respondents are still studying and it is necessary, in order to enhance the discriminative power of the educational variable, to classify students according to the level they are studying for. The NDM provides no information on income, but does include data on housing ownership and domestic comfort, both combined in one variable ‘housing quality’, a good proxy for long-term income in Belgium. The professional class variable distinguishes the non-working and the working population and within the latter, the professional/managerial class, the non-manual and manual class. First, differences are calculated for each socio-economic dimension separately in a so-called gross model. Secondly, differences are controlled in a net model for all three dimensions of socio-economic status and additional control variables (age, region and household position).

After having shown what socio-economic differences exist, the question is why or due to which causes of death differences exist. To answer this question, analyses are repeated for cause-specific mortality. First, the share of each cause group to total mortality differences is estimated with a simple decomposition method dividing 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

The research results confirm the internationally observed patterns. The poor and deprived classes have the highest mortality irrespective of age and socio-economic dimension. Inequalities are significant for virtually all dimensions. In the net model, hazard ratios remain significant, but attenuate, especially in the most deprived classes. Obviously, deprivation on one dimension goes together with deprivation on other dimensions. As a consequence, the mortality excess of deprived classes results from a state of “multiple deprivation”, subjects in the lowest educational level are more often being single, jobless and renters of low quality housing. The combination of low education, low wealth, unemployment or low occupational status thus results in a cumulated health-threatening effect. Although partially overlapping, each dimension exerts an independent effect in our analyses.

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’ however. In youth and young adulthood, inequalities are large for education and smaller for housing quality. With increasing age, education loses its discriminative power compared to both other variables, professional class and housing quality. 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. With increasing age, the impact of education attenuates under the influence of other effects that develop later in the life cycle: professional class and housing quality. Socio-economic position can thus not 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.

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 clearly illustrates that the predominant causes of death are also the most discriminating causes of death, independently of the indicator of socio-economic position. At young age, inequalities are almost entirely dominated by traffic accidents and suicide. Endogenous mortality plays a more prominent role among men aged 30-44 and signs exist already of the high toll smoking and alcohol-related mortality take in the deprived classes. This toll becomes more and more pronounced with increasing age. Among middle-aged men, cancer accounts for a third to half of inequalities, and especially lung cancer and cancer of the tractus digestivus are important. Among men aged 60-74, circulatory diseases (especially IHD) and neoplasms have similar shares, each explaining a third of inequalities. The toll taken by smoking-related diseases is astonishing, two single causes – lung cancer and COPD – generating more than a third of inequalities. Circulatory diseases dominate inequalities among the oldest old, but from the perspective of single causes, COPD and lung cancer are still the most important contributors. The order of importance of each cause of death in generating absolute inequalities does not vary as a function of the dimension of socio-economic position considered (education, professional class and income).

The analyses of relative differences in cause-specific mortality allow a different conclusion, the magnitude of inequalities depending on the dimension used. Our results indicate that each socio-economic indicator acts in a specific way. The effect of each indicator does not only depend on age, but also on the cause of death. Housing quality produces larger differences in alcohol-related mortality than education and professional class, education in respiratory diseases and circulatory diseases; and professional class in the residual group ‘other causes’.

In short, the new case-study of Belgium confirms international results: Belgian men in deprived classes have a higher mortality for the majority of causes. Especially smoking-related diseases, alcohol-related mortality and CVD occur as most discriminating from adulthood on. The choice of the socio-economic indicator is an important choice: depending on age and cause of death, one indicator will be more discriminating than the other, at least when relative differences are considered.