

Excess Mortality in the Glasgow Conurbation: Exploring the Existence of a ‘Glasgow Effect’

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ABSTRACT

There exists a ‘Scottish effect’, a residue of excess mortality that remains for Scotland relative to England and Wales after standardising for age, sex and local area deprivation status. This residue is largest for the most deprived segments of the Scottish population. Most Scottish areas that can be classified as deprived are located in West Central Scotland and, in particular, the City of Glasgow.

A method to compare the deprivation status of several UK cities was devised using the deprivation score first calculated by Carstairs and Morris. The population of mainland UK was broken into deciles according to the Carstairs score of Scottish postcode sectors and English wards. Deprivation profiles for a particular cities were drawn according to the percentage of the local population that lived in each Carstairs decile. Using data from the three censuses since 1981, longitudinal trends in relative deprivation status for each city could be observed.

Age and sex adjusted standardised mortality ratios (SMR) were calculated for cities based on demographic and mortality data at postcode sector and ward level. These were calculated for each census time point. Where appropriate, SMRs were also calculated for conurbations. A second set of SMRs was calculated with adjustment for Carstairs decile.

Regression analysis of death rates in small areas was also undertaken. Poisson models were dismissed because of overdispersion of death counts and negative binomial models were used instead. Covariates in the models were age-group, sex, city of residence and Carstairs z-score. Further models were generated that examined other standardised census variables associated with deprivation. These variables included adults with no qualifications, lone parent households, persons rating their health as “not good” and unemployed individuals who had never worked. The deprivation profiles confirmed that all UK cities have a high proportion of deprived residents, although some cities have far higher proportions than others. Some cities

appeared to show relative improvement in deprivation status over time whilst others seem resistant to change.

Results from both standardisation and regression analysis were surprising. Age and sex adjusted death rates for many cities increased significantly between 1981 and 2001. After allowing for deprivation status, mortality rates in UK provincial cities were found to vary greatly. Some cities had death rates that were not significantly different from UK average and there appeared to be a protective effect conferred by residence in certain cities. More obviously, results from regression models showed that census deprivation variables were unable to fully explain the excess mortality that exists in certain cities; most notably, Glasgow, Liverpool and Manchester.

This study is rare in that it controls for deprivation status when calculating standardised death rates. It can be concluded that the relationship between area deprivation and local mortality rates is more complex than can be captured by routine sources of data such as the census. Two main possibilities are being considered. First, deprivation does explain the excess mortality but our measures of deprivation fail to capture its full effect in the 21st century therefore we need to refine our measurement of deprivation. Second, it may be that there exists in certain cities a cultural phenomenon that confounds the relationship between deprivation and health.

Key Words: mortality, cities, deprivation