

The contribution of migration to changes in the distribution of health over time: Five-year follow-up study in Northern Ireland

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Abstract

A number of recent studies have highlighted the potential contribution of migration to increasing inequalities in health between areas with different levels of deprivation. Some of these studies have reported that increasing inequalities between areas can, at least partly, be explained by selective migration. Both mortality and morbidity have been used as indicators of health status, but many of the studies focusing on morbidity have suffered from specific methodological problems, including the use of self-reported health measured after migration had occurred, thereby ignoring the possible effect that migration itself may have on health and the reporting of health. This study used general practice records assessed prior to movement, an arguably more objective measure of health status, from 40 general practices, to determine whether selective migration influenced the distribution of health in Northern Ireland between the years 2000 and 2005. Evidence of selective migration was found in the study, with migrants often having significantly different levels of health to non-migrants. However, overall migration within this cohort did not substantially alter the distribution of health through time, partly because the migrants out of the deprived and affluent areas were replaced by in-migrants with similar levels of health. The absence of an effect of migration in this instance should not be used, however, to conclude that migration effects are unimportant in assessing changes in inequalities through time. Rather, migration should be viewed in the context of the underlying population dynamics, which at the time of this study were characterised by a process of urban regeneration. Varying population movements, operating at different times and locations, require that the effects of migration be considered in all studies which examine changes in the spatial distribution of health.

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Introduction

A number of studies in recent years have showed an increased polarisation of health between areas; examples within the UK include Dorling (1997), Dorling, Davey Smith, and Shaw (2001), McLoone and Boddy (1994), Phillimore, Beattie, and Town-

send (1994) and Shaw, Davey Smith, and Dorling (2005), and outside the UK, include Geronimus, Bound, and Waidmann (1999), Michelozzi et al. (1999), and Singh (2003). Many of these studies have used mortality as the health outcome measure but the presumption is that an increase in the differentials in morbidity levels have also occurred. A common methodology for measuring changes in inequalities is to use ecological studies repeated at two separate time periods. This methodology is currently used by both the Department of Health in

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England and Wales (Department of Health, 2003) and the Department of Health, Social Services and Public Safety (DHSSPS) in Northern Ireland (Department of Health, Social Services and Public Safety, 2002) and involves the use of the same assessment tools to produce a snapshot of health or inequalities in health at the two points and comparing for any changes. The justification for this approach has been that it is a fair comparison as the areas (or groups of areas) are unchanged and the same instruments have been used to assess the population. However, such comparisons may not be reasonable if the populations being compared have changed. One important way that populations change over time is through migration and if the health of the migrants (in and out of an area) differs systematically from that of the non-migrants, then the average level of health of an area can change while the health status of the individuals remain constant. For example, if it is the more wealthy (and healthier) who leave deprived areas, then an ecological study of inequalities will show a decline in the average health status of that deprived area and a likely increase in inequality across areas. This increase in inequality would not be due to an improvement or deterioration in the health status of any individual or group of individuals but rather to the selective movement of individuals between areas with different levels of deprivation.

The premise that population movement may significantly influence the spatial distribution of health is not new. Farr (1864) indicated the possible impact that health selective migration may have on cross-sectional comparisons of mortality rates between areas, and Hill (1925) commenting on selective migration between urban and rural areas, noted that *“not only is it the stronger element that tends to migrate, the weaker element that tends to remain at home, but that this stronger element secures a higher economic position in the towns, while the weaker element in the country is subjected to worse housing conditions and to a lower diet”*. The effects were explored by Fox and Goldblatt (1982) in their first report on socio-demographic differentials from the Office for National Statistics Longitudinal Study, though by 1998, Davey Smith, Shaw, and Dorling were still commenting that population change was an important factor that had not been sufficiently investigated in relation to spatial patterns of mortality.

A number of studies over the last two decades have attempted to quantify the impact of migration

on spatial gradients in health, but these have produced conflicting results. For example, a study by Brimblecombe, Dorling, and Shaw (1999) concluded that migration explained all of the observed inequalities in mortality between districts in Britain; while a later study by Boyle, Exeter, and Flowerdew (2004) found that the widening mortality gap in Scotland between 1981 and 2001 could not be explained as an artefact of population change. While both of these studies focused on mortality as the outcome measure, a similar study by Norman, Boyle, and Rees (2005) examined both mortality and morbidity, with the later being assessed by responses to the limiting long-term illness question in the census. That study compared the mortality and morbidity gradients across the deprivation spectrum for people in 1991 with the gradients for the same group of people in 1971. They found that, particularly for limiting long term illness, the gradient was steeper in 1991 than it would have been had people remained in the same deprivation circumstances they were experiencing at the time of the 1971 census, suggesting that migration had explained some of the increase.

Many of the studies, investigating the effects of migration on patterns of morbidity, have suffered from two related methodological problems; one concerning the use of self-reported measures of health and the other with the potential effect of change of residence on health status. There is therefore a potential for both confounding, if the tendency to migrate and reporting of health are in some way related, and reverse causation, if migration influences reported health. The measures of morbidity used were usually based on self-report, which is known to reflect both the expectations of health and the experience of it (Calman, 1984) and an increasing number of studies (such as Bentham, Eimermann, Haynes, Lovett, & Brainard, 1995; Boyle & Duke-Williams, 2004; Norman et al., 2005; O'Reilly, Rosato, & Patterson, 2005) have indicated that the perception and reporting of health may be influenced by demographic, socio-economic and cultural factors. This subjectivity of the morbidity measures could potentially lead to confounding if migratory propensity was related to factors that also influenced the perception and reporting of health status. For example, those who migrate may have a more optimistic outlook on life, a personality characteristic that is perhaps related to the perception and propensity to report poor self-reported health.

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