



Regional risk factors for health inequalities in Scotland and England and the “Scottish effect”

Nicola Jane Shelton*

Department of Epidemiology and Public Health, University College London, UCL, 1-19 Torrington Place, London WC1E 6BT, United Kingdom

ARTICLE INFO

Article history:

Available online 31 July 2009

Keywords:

Scotland
England
Regional inequalities
“Scottish effect”
Cardiovascular risk factors
Health inequalities
Geography
UK
Gender
Area

ABSTRACT

This paper uses data from the Scottish Health Survey 2003 and the comparable Health Survey for England 2003 to look at whether Scotland's poor health image and mortality profile is reflected in regional inequalities in prevalence of four risk factors for cardiovascular disease: fruit and vegetable consumption, smoking, obesity and diabetes. It also looks at the “Scottish effect” – how much of any difference between and within Scotland and England remains once socio-demographic factors have been taken in to account. The paper then uses regional analyses to determine the extent to which areas within England and Scotland contribute to their national health advantage and disadvantage. All 2003 strategic health authorities in England and Scottish health boards were compared with Greater Glasgow health board as the reference category.

The results showed that significant geographic variation in the risk factors remained once individual economic status was taken into account, but the relationship was complex and varied in strength and direction depending upon risk factor involved and gender of respondent. A small number of areas had significantly lower odds of fruit and vegetable consumption of five portions or more a day in men, compared with Greater Glasgow. In contrast some areas had significantly higher odds of fruit and vegetable consumption for women compared with Greater Glasgow.

There was greater geographic variation in the odds of smoking in women than in men. Respondents in the south west and southeast of England (areas which usually show health advantage) did not show significantly lower odds of smoking compared with Greater Glasgow once socio-economic variation, age and urban residence was taken into account. It was respondents from central England that had lower odds of smoking than might be expected. Obesity stood out as the single risk factor that had demonstrated a “Scottish effect” in women only.

© 2009 Elsevier Ltd. All rights reserved.

Introduction

There is much media coverage of Scotland's relative poor position in health terms within Europe. ‘The sick man of Europe...is sticking to diet of binge drinking and over-eating’ and ‘Scots are failing to heed warnings about their health by continuing to drink, smoke and eat to excess, a new report has shown’ were quotes from The Scotsman newspaper in November 2005 (*The Scotsman*, 2005); the report so loosely described is the Scottish Health Survey 2003 which had just been published. Scotland's poor diet continues to attract particular attention. The Daily Record described Scotland as ‘A nation famous for deep-fried Mars bars’ in November 2006 (*The Daily Record*, 2006).

This paper uses individual data from the Scottish Health Survey 2003 referred to above and the comparable Health Survey for

England 2003 to look at whether Scotland's poor health image and mortality profile is reflected in prevalence of risk factors for cardiovascular disease. It also looks regional and national “Scottish effect” differences in prevalence between and within Scotland and England once individual socio-economic and demographic status are taken into account.

Regional health inequalities

Many studies have shown that mortality and morbidity vary across both small and larger areas, in Britain both today and in the past, (e.g. Boyle, Gatrell, & Duke-Williams, 1999; Cliff, Ord, & Versey, 1981; Dorling, 1995; Shelton, Birkin, & Dorling, 2007; Woods & Shelton, 1997, chap. 10). Despite this extensive literature, the influence of the area of residence on health has been questioned (e.g. Sloggett & Joshi, 1994). Area differences were found to be significant after controlling for variation in individual socio-economic status in several studies (e.g. Boyle, Gatrell, & Duke-Williams, 2001; Congdon, Shouls, & Curtis

* Tel.: +44 20 7679 5648.

E-mail address: n.shelton@ucl.ac.uk

1997; Duncan, Jones, & Moon, 1995; Pickett & Pearl, 2001, Riva, Gauvin, & Barnett, 2007; Shouls, Congdon, & Curtis, 1996; Stafford, Bartley, Mitchell, & Marmot, 2001). The publication of 'The Geography of Health Inequalities in the Developed World: Views from Britain and North America' in 2004 (eds, Boyle, Curtis, Graham, & Moore, 2004) restated the case both for a geography of health and health having a geography.

A "Scottish effect"?

One country which has particular place-specific health concerns is Scotland. Scotland is relatively less healthy over a range of indicators from age standardised mortality to specific disease outcomes. Carstairs and Morris (1989) linked this disadvantage to area level deprivation. But even when matched with deprivation quintiles in England health disadvantage remains. This suggests that there are factors at work, other than simply poverty affecting health in Scotland. This unexplained difference has been termed the "Scottish effect" (McCormick & Leicester, 1998) (Scottish Executive, 2005, chap. 1; Hanlon et al., 2005). Improvements have been slower than in many other comparable countries. In the first half of the twentieth century, Scotland ranked around seventh to ninth in terms of mortality among 16 Western European countries but by the mid-1990s its position had fallen to fifteenth, only slightly ahead of Portugal (Leon, Morton, Cannegieter, & McKee, 2003). In particular, Scotland continues to have the highest death rates from heart disease and lung cancer and the second highest death rates for stroke in Western Europe. However, Hanlon et al. have shown that, by 1991, deprivation appears to explain only 40% of the excess deaths in Scotland (Hanlon et al., 2001). Mitchell, Fowkes, Blane, and Bartley (2005) found substantially and significantly higher risk of ischaemic heart disease persisted among Scottish respondents despite controlling for a wide range of risk factors. Doran, Drever, and Whitehead (2004) showed that the health divide within the same social class across Scotland, England and Wales was widest in Scotland and London. More recently Sridharan, Tunstall, Lawder, and Mitchell (2007) concluded that there was an unexplained "Scottish effect" (after allowing for deprivation) with Scotland's relative mortality disadvantage worsening over time. Walsh, Whyte, & Gordon's, 2007 study also showed the enduring nature of health differences between areas in Scotland, and provided further evidence of widening health inequalities between affluent and deprived areas.

In order to investigate the factors affecting this Scottish effect this paper uses nationally representative data from the Scottish Health Survey 2003 and the comparable Health Survey for England 2003 to determine the regional and national inequalities in the prevalence of four modifiable risk factors for cardiovascular disease: obesity, fruit and vegetable consumption, smoking and type II diabetes. Preliminary analysis of the Health Survey for England 2003 and the Scottish Health Survey 2003 illustrated that there were regional and national differentials in the adult prevalence of risk factors for cardiovascular diseases including, fruit and vegetable consumption (Doyle, 2004, chap. 4; Speight, Wardle, & Bromley, 2005, chap. 3), smoking (Macgregor & Wardle, 2005, chap. 2; Wardle, 2004, chap. 3), obesity (Hirani, 2004, chap. 6; Hirani & Stamatakis, 2005, chap. 5) and diabetes (Shelton, 2004, chap. 8; Shelton, 2005, chap. 10). The paper also looks at the "Scottish effect" – how much of any difference between and within Scotland and England remains once socio-demographic factors have been taken into account.

Methods

The 2003 Scottish Health Survey was conducted to monitor the health and diet of the Scottish population living in private

households. Interviewers collected information on health-related topics and measured height and weight and nurses collected a range of anthropometric and physiological measurements (Bromley, Sproston, & Shelton, 2005). The 2003 Health Survey for England also had a focus on cardiovascular disease (Sproston & Primatesta, 2004). The methods used were very similar to the Scottish Health Survey. The sample and sampling methods are described in detail in the survey reports (Bromley et al., 2003; Sproston & Primatesta, 2004).

The studies adopted a multi-stage stratified probability sampling design. Both surveys used weights to correct for survey design (large households were underrepresented) and non-response biases. The analysis detailed here was restricted to adults aged 16+. In the 2003 Health Survey for England 14,836 adults were interviewed (response rate 66%). Of those interviewed 91% had their height and weight measured. Smoking status was collected by face to face interview for older adults and by self completion booklet for all young adults aged 16–17 and some aged 18–19. Over 99% of those interviewed answered questions about their smoking status and all respondents answered questions about their intake of fruit and vegetables and if they had ever had doctor-diagnosed type 2 diabetes (Sproston & Primatesta, 2004). In the Scottish Health Survey 2003, 8148 adults aged 16+ were interviewed (response rate 60%). Of these 85% had their height and weight measured, more than 99% answered questions about their smoking status, and all respondents answered questions about their intake of fruit and vegetables and if they had ever had doctor-diagnosed type 2 diabetes (Bromley, Sproston, & Shelton, 2005).

Logistic regression

Standard logistic regression was used to determine whether any geographic variations in prevalence were remained once social-economic status of the head-of household (NS-SEC), equivalised household income, age, urban residence (smoking only) and English/Scottish region, were taken into account. Only factors that were significant at the 0.05 level or lower were included in the models, with relevant weighting applied for each surveys. Greater Glasgow was used as the reference category and a larger number of areas were included. Greater Glasgow was chosen as it had high mortality and deprivation and it was anticipated that variation would be greatest between this and other areas. Also it was a small, mostly urban geographic region compared to other regions in Scotland and England, and was not as ethnically diverse as London, the other major urban region considered in the model. It also had the largest sample size.

The models show the odds for each region after controlling for socio-economic status and age. Odds are expressed relative to a reference category (in this case Greater Glasgow), with a given a value of 1. Odds ratios greater than 1 indicate higher odds than the reference category, and odds ratios less than 1, indicate lower odds. Limiting inference to statistically significant differences may ignore small, but important differences that may be found with increased sample size, but the large sample sizes used here for these regions does something to overcome this limitation. The English regions were used for the tabulation to demonstrate the variation in risk factors at a very broad geography. The health board areas in Scotland and the 2003 English SHAs (2001 Census, 2003) were chosen for the logistic regression for their more similar sample sizes. All the analyses were weighted for survey design and non-response.

Results

Table 1 shows the differences between the prevalence of four risk factors for cardiovascular disease between Scotland and

Download English Version:

<https://daneshyari.com/en/article/953637>

Download Persian Version:

<https://daneshyari.com/article/953637>

[Daneshyari.com](https://daneshyari.com)