

The geography of health in Britain

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This article considers what the 2001 census can tell us about the geography of health in Britain. The census asked questions which allow us to look at the geographical distribution of poor health and of healthcare workers, as well as those providing informal care. It is relevant to the study of social and population geography.



A mountain of census forms awaiting processing in the South London Mail Centre, 2001

The first census in Britain was in 1801. Every 10 years since then (except for 1941), the government has carried out a census to count the population and to understand more about people's lives. Doing a census involves sending a questionnaire to every single household and communal establishment (such as prisons and boarding schools) in the UK to ask questions about the people who live there.

The results are presented as statistics for the whole country and also for smaller parts of it. This makes the census useful for studying the geography of the population and its characteristics such as age, sex, educational qualifications, jobs, housing, car ownership, ethnicity and religion. The census can be used by national and local governments to allocate funding and other resources. For

example, in areas where there are large numbers of older people, more money will need to be spent on operations such as hip replacements. The census helps the government work out where older populations are, and therefore how best to distribute money to fund these operations through the National Health Service.

Questions about health

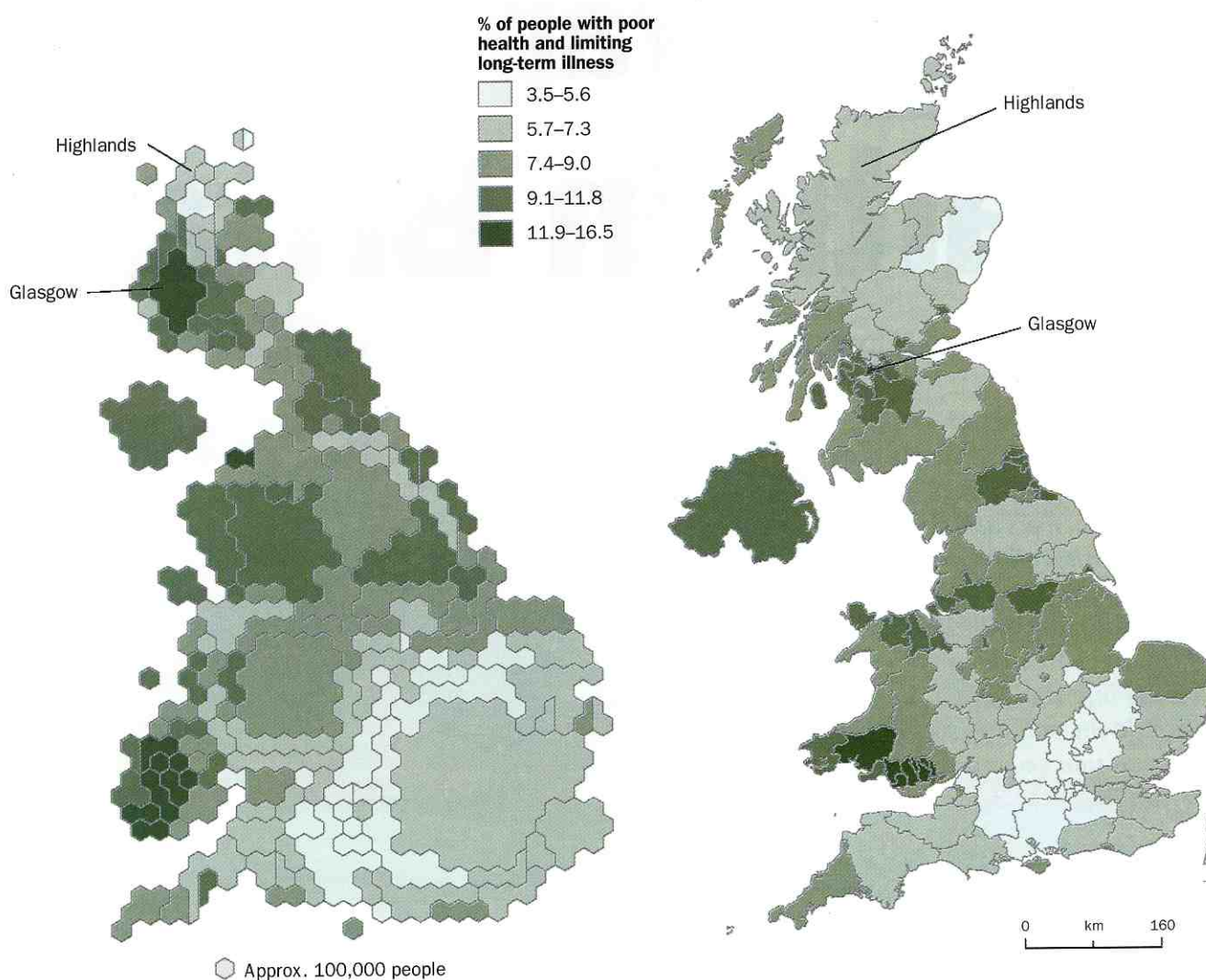
The census included two specific questions about people's health. One asked whether each individual in the household had a long-term illness or disability that limited their

Your chances of being ill or healthy can be strongly influenced by where you live. In Britain, location influences the kinds of health services a person might have access to, and the physical and social environments they experience. The 2001 UK decennial census showed where doctors, dentists and nurses live and work. It was the first census to ask people about their general health as well as any long-standing illnesses they have, and to ask about the time people spend providing unpaid care to others with healthcare needs. This article reveals what the census tells us about our health.

What is the decennial census?

According to the *Oxford English Dictionary* **decennial** means 'of or pertaining to a period of 10 years'. **Census** originally referred to 'the registration of citizens and their property in ancient Rome for purposes of taxation'. Its more recent definition is 'an official enumeration of the population of a country or district, with various statistics relating to them.'

Figure 1 Geographical variation in the percentage of people reporting poor health in the 2001 census (see Inset 1)



inset 1 Maps and cartograms

You might have noticed that the map on the left of Figure 1 looks a bit odd. This map is a **cartogram**, and it shows the same information as the map on the right, but in a different way. Each of the areas is re-sized so that its space on the page is proportional to its population. This is helpful, because on the normal map, urban areas (like London) that are small but have large populations, can be hard to see, and rural areas (like the Highlands) that are very large, but have relatively small populations, are dominant. The cartogram allows us to see geographical patterns that otherwise might not be visible.

The distribution of doctors is not closely related to that of people in need of medical treatment



daily activities or work (a 'limiting long-term illness' or LLTI). The other asked each person to rate their general health over the previous 12 months as 'good', 'fairly good' or 'not good'. We decided that a good estimate of the number of people in an area in need of some form of healthcare would be to count those people with both an LLTI and 'not good' health in the previous 12 months.

How many people are in poor health?

In responding to the 2001 census 4.5 million people in the UK reported having both an LLTI and 'not good' health. This is 7.8% of the population overall, but the percentage varies from 3.5% to 16.5% in different parts of the country (see Figure 1). For these maps and analyses, the UK is divided into 142 areas, consisting of the counties, unitary authorities and former metropolitan authorities of Great Britain and Northern Ireland.

Is poor health evenly distributed?

Figure 1 shows enormous differences in the rates of poor health across the country. Compare Glasgow to areas just to the west of London! In very general terms, health is worst in the north and west of the country, and best in the south and east. The census

gives general geographical statistics about the population, such as age and sex, which are important for understanding why health varies across the country. For example, areas with a lot of older people tend to look 'sicker' on the map, because older people are more likely to report bad health.

Questions about people who provide care

For the first time ever, the 2001 census asked each person to say whether they provided care on an informal basis (i.e. not paid

work) to family members, friends or neighbours with long-term physical or mental ill-health or disability, or problems due to old age. The total number of people who said they provided this kind of care was about 5.9 million. Table 1 gives more details.

The census asks each person for their occupation. In England and Wales, the census also asked whether each person was a qualified medical doctor, dentist, nurse, midwife or health visitor (the census in Scotland and Northern Ireland did not ask this question). Using these pieces of information we could find out how many

Table 1 Informal carers in the UK, 2001

	Number in UK	Per 10,000 population
Informal carers: 1-19 hours per week	3,952,571	685
Informal carers: 20-49 hours per week	659,071	114
Informal carers: 50+ hours per week	1,247,294	216
All informal carers	5,858,936	1,015

Source: Wheeler et al. 2005.

Table 2 Health professionals in England and Wales, 2001

Practising qualified health professionals	Number in England and Wales	Per 10,000 population
Medical doctors	115,239	23
Dental practitioners	20,947	4
Nurses, midwives and health visitors	403,994	79
Other health-associated professionals and therapists	122,209	24
All health professionals	662,389	130

Source: Wheeler et al. 2005.

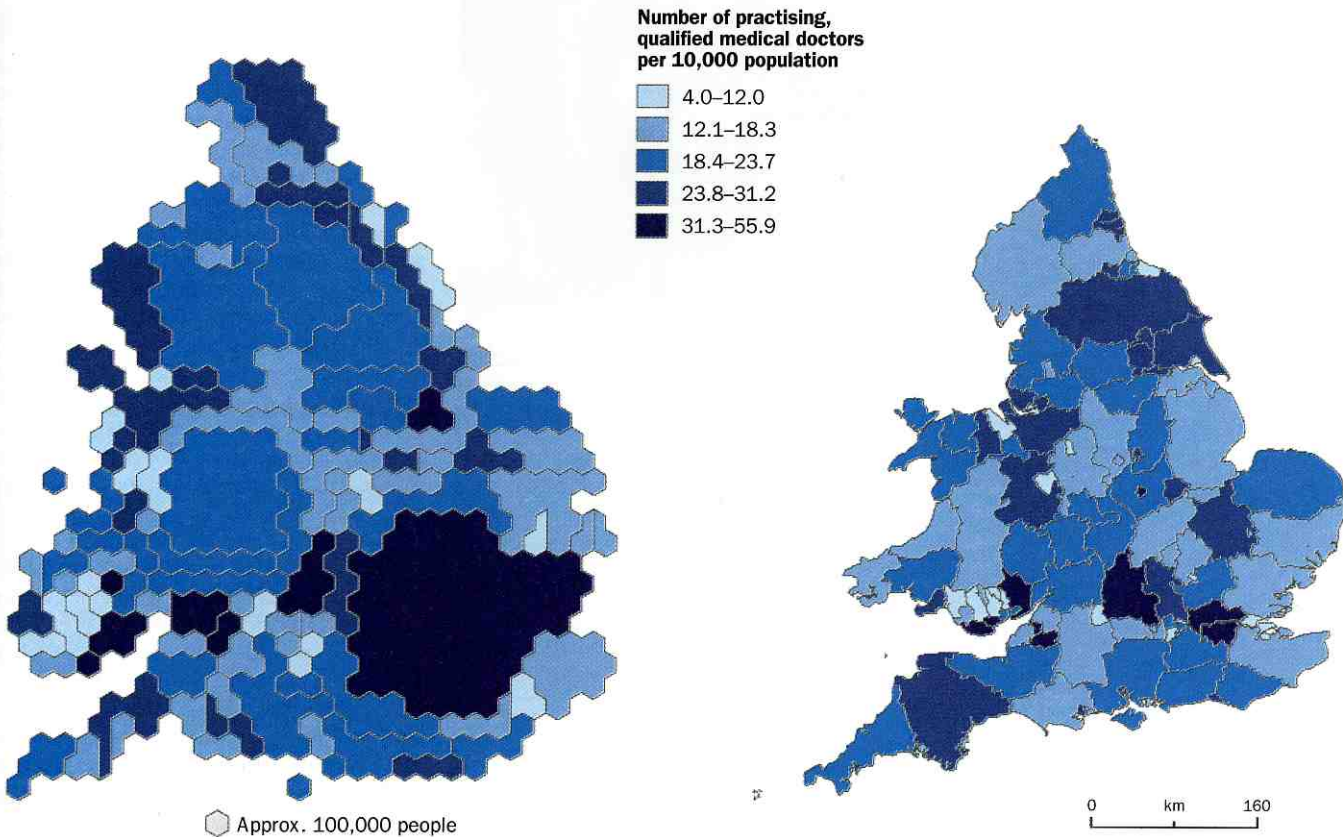


Figure 2 Medical doctors per 10,000 population in England and Wales, 2001 (see Inset 1)

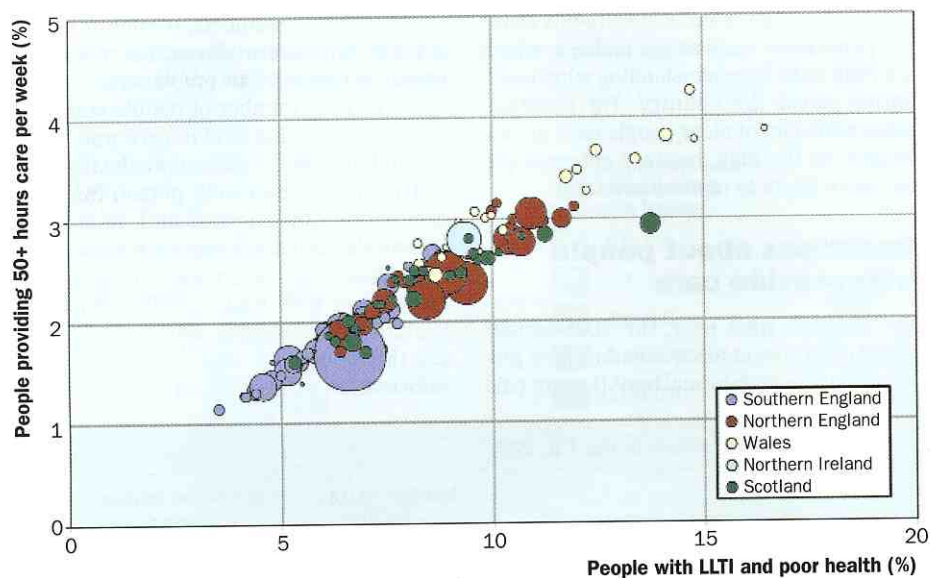
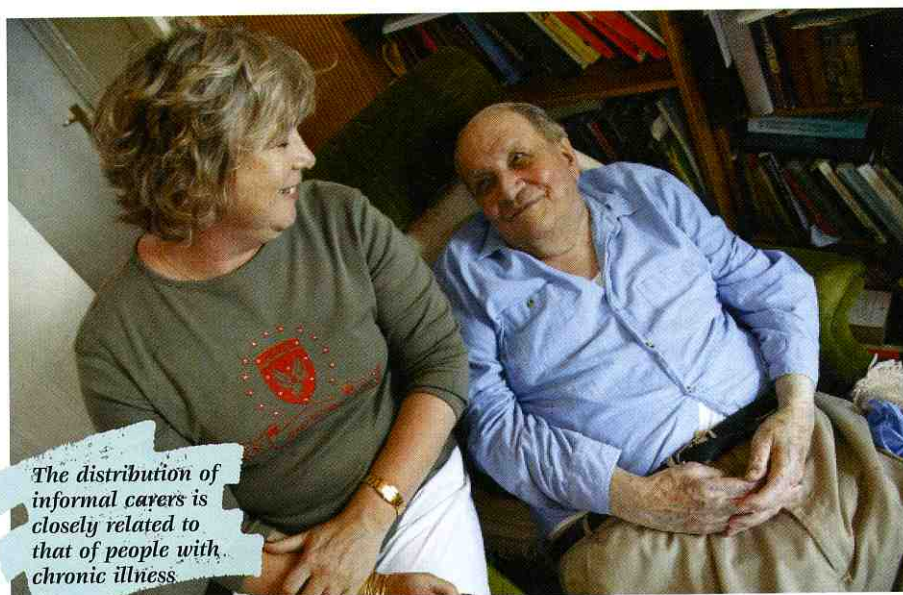
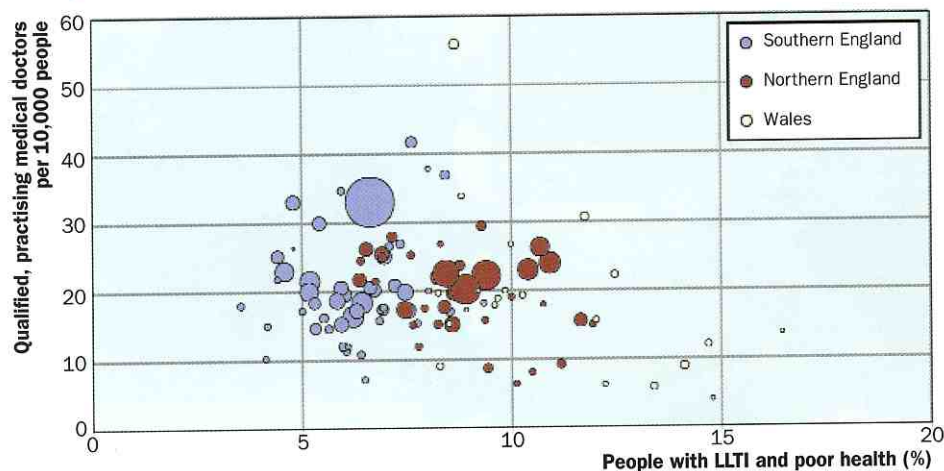


Figure 3 Graph showing the percentage of people with poor health and LNTI against the number of informal carers per 10,000 population for each area (each circle is in proportion to the area's population)

Source: Wheeler et al. 2005



The distribution of informal carers is closely related to that of people with chronic illness.



Source: Wheeler et al. 2005

Figure 4 Graph showing the percentage of people with poor health and LNTI against the number of doctors per 10,000 population for each area

qualified and working health professionals there were in each area of England and Wales. This means that we did not include, for example, someone who is qualified to be a doctor but is not currently working as a doctor. Table 2 shows the total figures for England and Wales, and Figure 2 shows the distribution of practising, qualified doctors across the country.

The geographical relationship between health and care

Figures 3 and 4 graph the percentage of people with LNTI and 'not good' health against the number of informal carers (Figure 3), and doctors (Figure 4), per 10,000 people. Figure 3 shows that areas with high numbers of people in poor health tend also to have high numbers of people providing informal care. This suggests that informal care tends to be provided most where it is needed most.

The situation with doctors, however, is different. Figure 4 suggests that, in general, areas with higher numbers of people in poor health tend to have lower numbers of doctors living in them. (Remember though, that the census does not tell us exactly where doctors see their patients.) This result demonstrates that the 'inverse care law', first described by a general practitioner (GP) called Julian Tudor-Hart in 1971, continues in modern Britain. The 'law' suggests that the more need people have for healthcare, the less likely they are to receive that care (an inverse relationship is one in which one factor decreases as the other increases). In addition, this law operates more strongly where care provision is more exposed to market forces. We found this still to be the case in Britain in 2001. For example, a similar graph for dentists showed an even stronger inverse relationship, and dentistry is more exposed to market forces (since people tend to have to pay to see a dentist but not an NHS doctor).

What does all this tell us?

The new data from the 2001 census showed us — for the first time — that people provide care on an informal (free) basis for their relatives, friends and neighbours in almost direct proportion to the need for such care. This does not, of course, mean that the care provided is sufficient, or that it is easy for those who provide that care to do so. What it does tell us is that people in Britain care for each other to a remarkably high and predictable degree. If you were running a business to provide care where it was needed, and these were your performance results, you would be delighted!

Sadly, the distribution of working, qualified medical personnel is not so well

Competition

If you would like the chance to win a copy of *Life in Britain* (the report on the census data from which the material in this article is taken) for your school library, send us the answer to this question:

The 2001 census counted a large number of young people providing care for friends and relatives. To the nearest thousand, according to the census, how many people aged under 18 were providing informal (unpaid) care in England and Wales in 2001?

Please send the answer on a postcard or the back of a sealed down envelope, including your name and the name and address of your school to:

Life in Britain
c/o Danny Dorling
Department of Geography
University of Sheffield
Sheffield S10 2TN

The first ten correct answers from different schools to be pulled out of the hat will win a copy of the pack for their school library.

Life chances can be affected by where you are born



organised. It is almost 60 years since the NHS was established and attempts are still being made to give those people living in the worse off parts of the country equal access to NHS resources, let alone a share appropriate to their greater need. Private healthcare is provided most where there is least need for healthcare in general, but where the population is most affluent.

Questions to discuss or investigate

- (1) Why do you think it might be useful to draw the graphs in Figures 3 and 4 with the circle size relative to population?
- (2) Why do you think rates of poor health vary across the country?
- (3) The geographical data from the census on health professionals tell us about where they live, not where they work. Can you see how this might affect the research? What could be done about it?
- (4) How could the government work towards making sure that doctors and other health professionals are located where they are needed?

References, further reading and resources

Data from the 2001 census are available on the internet from the National Statistics website: www.statistics.gov.uk/census2001/census2001.asp.

You can also find census statistics for the area where you live by putting in your postcode at: <http://neighbourhood.statistics.gov.uk> (this gives other statistics for your local area as well as those from the census).

For more information on the study this article refers to see: www.sasi.group.shef.ac.uk/research/life_in_britain.htm or www.jrf.org.uk/knowledge/findings/socialpolicy/0425.asp

Tudor-Hart, J. (1971) 'The inverse care law', *Lancet*, Vol. 1, pp. 406–412.

The research project from which the material in this article comes is published as: Wheeler, B., Shaw, M., Mitchell, R. and Dorling, D. (2005) *Life in Britain: Using Millennial Census Data to Understand Poverty, Inequality and Place*, The Policy Press. All ten reports in this series can be purchased from Policy Press, (ISBN 1861347731) as a pack including five posters for £39.99. <https://www.policypress.org.uk>

The authors are based at the Universities of Bristol, Edinburgh and Sheffield in departments of medicine and geography. They most recently collaborated on the report series Life in Britain for the Joseph Rowntree Foundation. The 'health' section of the series provided the basis for this article.

Key points

- Every 10 years, the decennial census gives us a detailed picture of what life is like for people in the UK.
- The 2001 census measured, for the first time, people's health, the informal care they give to each other and the 'formal' health-service workforce.
- Rates of poor health vary hugely within the country; generally they are worse in the north and the west.
- Informal care is given most where it is needed most. In areas where a lot of people are in poor health, there are a lot of people giving informal care.
- Working doctors and dentists tend not to live in the areas where more people are sick and this is an example of the 'inverse care law'.