

Is it who we are or where we live? Life expectancy in Yorkshire and the Humber by ethnicity

Recently the Office of National Statistics (ONS, 2008) released new estimates for life expectancies across the UK, gaining immediate media attention by pointing out the closing gender gap in life expectancy and the gap between north and south. These trends lead to a further question: Do life expectancies of the various ethnic groups living in the UK also vary? The answer is not straightforward as little is known about the mortality experienced by different ethnic groups. This article reports on the first ever estimates of life expectancy of ethnic populations across Yorkshire and the Humber.



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'What happens when international migrants settle? Ethnic group population trends and projections for UK local areas' is an ESRC funded project that aims to understand present and future demographic changes in the UK's local ethnic populations.

This will be achieved by designing a projection model which uses demographic intensities for ethnic groups and ultimately will enable us to view possible future population developments under different scenarios.

In view of ongoing globalisation and the accompanying international migration, alteration in the ethnic composition of the UK population is already significant today and therefore will be of importance in our future.

For example, in England alone, the non-White ethnic population grew by 96 per cent between 1981 and 2001, while the White groups remained stationary.

Nowadays, there is profound local variation in ethnic composition and change. In future, it can be foreseen that today's international immigrants will migrate internally, just as current population does, thus increasing the mix.

However, mortality data are not only a key variable for population models but are also a vital indicator for assessing inequalities between population groups. By estimating mortality for ethnic groups

and local areas, we might be able to identify and explain distinctions in the population. In the longer term, this will help to reach the goal to reduce inequalities in health and mortality.

Estimating mortality for ethnic groups

Mortality data for ethnic groups are not readily available in the UK. Unlike some other countries, the UK does not register a person's ethnic group or race when they die.

Even though a place of birth has been noted since 1969 on English death certificates, this only helps to estimate mortality for first generation immigrants and is also biased, for example, by White British born in India before its independence.

On the other hand, data from countries which do collect mortality data by ethnicity or race, suggest strong differences in mortality by ethnic group. Existing evidence in the UK is that people from different ethnic backgrounds report significant differences in their health status.

How do we obtain data that do not exist?

To estimate mortality for ethnic groups, we use a proxy measure, illness. Various studies across Europe and the US found that self-reported health or illness are good predictors for subsequent mortality, for total populations as well as their subgroups.

Self-reported illness data are available for the total population as well as ethnic groups in the UK from the 2001 Census, when people were asked whether they

suffer from a limiting long-term illness.

Our method to estimate mortality for ethnic groups is as follows:

- Step 1: Calculate the indirect standardised mortality ratio (SMR) for the total population by local authority, using mid-year population estimates and mortality data for single years of age and local area for total population supplied from vital statistics.
- Step 2: Calculate standardised illness ratios (SIR) for each local authority for the total population and for each ethnic group, using data that are readily available from the 2001 Census.
- Step 3: Estimate an 'all person SMR' as a function of the 'all person SIR'.
- Step 4: Apply the all person function to each ethnic group's SIR to compute the group's SMR.

Different SIR/SMR relationships were found for men and women, men reporting slightly lower illness but experiencing higher mortality at the same time.

In some local areas, low numbers of either people ill or population or both in an ethnic group led to unlikely SIR values. Therefore we defined a small number threshold. If this threshold was not reached, then a model which took both national ethnic group results as well as a local component into consideration was used. A full description of methods and literature referred to can be found in Rees and Wohland (2008).

For Yorkshire and the Humber, about 43 per cent of male SIR data and 40 per cent of female SIR data were modelled. None of the White groups fell under the threshold values. For Leeds, Sheffield and Bradford, no model was used for any of the ethnic groups.

On the other hand, for Craven, Hambleton, Richmondshire, Ryedale, Scarborough and Selby, all SIR data for non-White males were modelled, and for York and Hull, all 13 SIRs for non-White groups for women were modelled.

Ethnic groups in Yorkshire and the Humber

The proportion of non-White British population in Yorkshire and Humber varies considerably between local authorities. In the 2001 Census, the smallest non-White British population was in Selby with just 1.8 per cent of the total population; in contrast, almost a quarter of the population defined themselves as non-White British in Bradford.

Overall, the largest proportion of non-White British population is found in West Yorkshire, the lowest in South Yorkshire.

Five of the 21 local authority areas (Bradford, Calderdale, Kirklees, Leeds and Sheffield) had above the 8.2 per cent national average of non-White British population in 2001. Across the region, the Pakistani and Bangladeshi communities make up the highest proportion of the non-White groups.

Mortality in Yorkshire and the Humber

Our results are presented as life expectancy at birth which is an easy way to comprehend the summary variable of mortality and also informs on ageing of the population.

Spatial patterns of estimated life expectancy at birth for men and women in 2001 in the region for all ethnic groups recorded in Census 2001 are shown in Figure 1.

The series of maps have a simple tricolour code which relates to the overall distribution of life expectancy across all local authorities in the UK. Red shading denotes that the area belongs to the 25 per cent highest life expectancies observed in the UK (81.2 years to 85.9 years for women and 77.2 years to 84.6 years for men), blue the 25 per cent lowest (73.8 years to 78.9 years for women and 68.7 years to 74.5 years for men), and the 50 per cent in the middle are grey.

Men and women

The maps show, as expected, that the levels of female life expectancy are higher than male life expectancy: the weighted average across all ethnic groups in the region is 4.6 years difference in life expectancy between men and women. The gaps range from just 1.4 years (Black Africans in Kirklees) to 7.8 years (Mixed White and Black Africans in Selby).

The spatial patterns of men and women are similar, but the variation across local authorities is larger for men than the variation for women. The differences across local authorities between lowest and highest life expectancy for men is on average 5.4 years and 4.0 years for women.

The largest variation in a group is observed in the Mixed White Asian group for both men (7.5 years) and women (5.0 years). The least difference is again in the same group for men (4.6 years) and women (3.1 years) in the Black African group.

Even though spatial patterns for men and women are similar, we find, for example, that White British and Irish men have about 24 and 29 per cent more areas in the bottom 25 per cent than

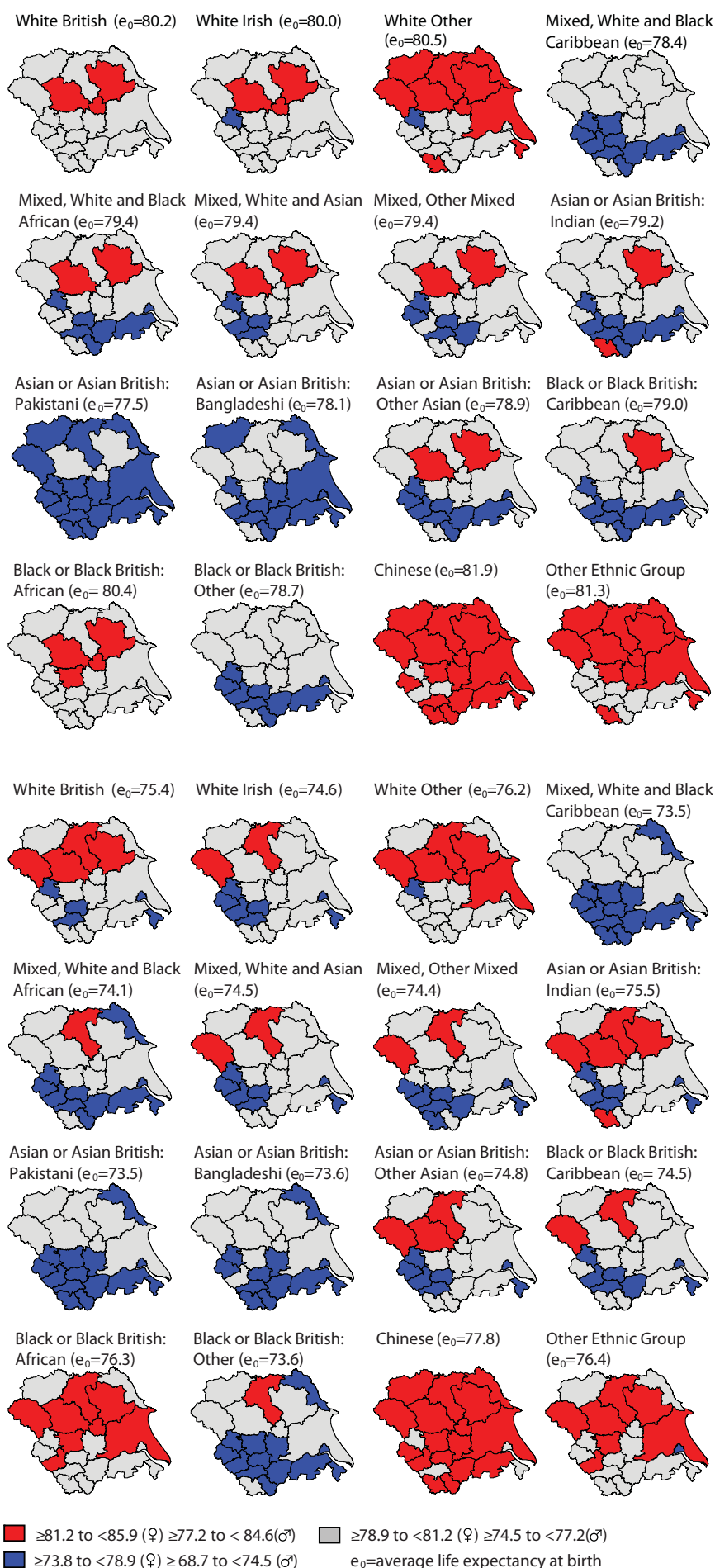


Figure 1. Life expectancy at birth for women and ethnic groups (top panel) and for men and ethnic groups (bottom panel), 2001

White British and Irish women do, and for the Mixed, White and Black Caribbean and White and Black African and the Black Other group men, each have 19 per cent more areas in the bottom 25 per cent group compared to their female counterparts.

The opposite is true for some Asian groups, where women tend to have slightly more local areas in the lowest 25 per cent group and Pakistani women have 24 per cent more areas in the lowest 25 per cent compared to Pakistani men.

The life expectancies of ethnic groups

When analysing the all England data, we found that four ethnic groups stood out as having most areas in the top 25 per cent of the distribution: Chinese, Black African, Other Ethnic and White Other groups.

Four ethnic groups had a large number of local areas in the bottom 25 per cent: Mixed-White and Black Caribbean, Pakistani, Bangladeshi and Black Other groups.

The remaining groups – White British, White Irish, Mixed-White and Black African, Mixed-White and Asian, Mixed – Other Mixed, Indian, Other Asian and Black Caribbean – had a mixture of high, middle and low life expectancies.

In Yorkshire and the Humber, similar patterns are observed, but with different intensities. Only the Chinese group and women of Other ethnicity have over half of local areas in the upper 25 per cent of the distribution. Black African and Chinese men and women do not have any areas in the bottom 25 per cent of the national distribution.

In the Other White group, both men and woman only have one area in the bottom 25 per cent (Bradford), women of the White groups have none (White British) or one in the bottom quarter.

The mixed, White and Black Caribbean, Pakistani and Bangladeshi groups are not represented in the top 25 per cent of the national distribution for either men nor women, White and Black Caribbean men have no area in the top quarter and over half of areas in the bottom quarter as have Mixed White and Black African men, Black Other men and Pakistani and Bangladeshi men and women.

Spatial pattern

Now that we have established significant differences in life expectancies between different ethnic groups, how are space and life expectancy interlinked?

The all person data already indicate a geographical variation in life expectancy within the region. Life expectancies

across England are more variable than within Yorkshire and the Humber.

In the all women group, life expectancy varied by up to 6.3 years across England, but only 3.5 years across the Yorkshire and Humber region; for all men, life expectancy varied by 8.2 years across England but only 4.9 across the region.

Yorkshire and the Humber is situated more in the north with regard to the north-south gradient, which finds higher life expectancies in south and east England and lower expectancies in northern England and Scotland.

Already observed in earlier studies (Brown and Rees, 2006), this gradient is modified by the urban/rural status of local areas, of which Yorkshire and the Humber is a good example with, as a general rule, higher life expectancies in the more rural North Yorkshire compared to the more urban South Yorkshire.

Life expectancy in the total male population in the region varied in 2001 between 73.6 (Wakefield) and 78.5 (Ryedale) compared to all England males with 71.3 (Manchester) and 79.5 (Blaby, Leicestershire), and for women with 78.8 (Bradford), 82.3 (Ryedale) compared to all English women: 77.3 (Liverpool) to 83.6 (East Cambridgeshire).

If we rank the life expectancy for each ethnic group, we find a rather uniform ranking in life expectancy across the local authorities and genders. The top three local authorities in the region with the highest life expectancies are Ryedale, Harrogate and York for men and women. The bottom three are Bradford, Wakefield and Barnsley for men and women.

Interesting here is that Bradford has the lowest life expectancy in 12 ethnic groups for women and Wakefield shows ten times the lowest life expectancy for men, whereas Barnsley is the second bottom place for men and women.

There are exceptions to this uniformity. For example, Sheffield overall occupies rank nine for men, rank seven for women. The better rank for female life expectancies results from high variability within the data for women. Most striking is that Sheffield is ranked one for Indian women and occupies ranks four and five for Pakistani and Bangladeshi women respectively.

Final remarks

Our estimates show the importance of considering mortality for ethnic groups on a local area level, as we find both significant variations in life expectancies between different ethnic groups as well as for different parts of the region. The differences between ethnic groups mirror estimates for England, but also reflect that Yorkshire and Humber is in the north.

Just as in other parts of England, in general, rural areas experience higher life expectancies than urban areas, a pattern we also found reflected within each ethnic group.

It is important to note the low life expectation of the Pakistani and Bangladeshi communities, which together are presently the largest non-White ethnic group in the region. If health inequalities in Yorkshire and the Humber are to be reduced, the health issues experienced by these two Asian groups need to be addressed.

These estimates of mortality experiences of ethnic groups in England and in the region have the status of provisional statistics and are currently being quality assessed by ONS. If they are accepted as experimental statistics, then the next steps will be to build explanations of the variations across ethnic groups and local areas. These explanations will include socioeconomic and environmental factors. Preliminary analysis indicates that the level of educational qualification explains much of the differences between ethnic groups.

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