

Estimates of ethnic mortality in the UK revisited

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Summary

The ethnic diversity of the UK population is increasing rapidly. Between 1991 and 2011 the share of the population defining themselves as not White increased from 7% to 14%. Still, information on mortality for ethnic groups, an important population health indicator, is not routinely collected everywhere the country.

Previously, we developed the first estimates of ethnic mortality for local areas in the UK for 2001 using information on the geographical distribution of the ethnic populations as well as health and vital statistics information and found profound variations across groups. Because these previous estimates have been challenged by subsequent work, in this paper we review methods and results of a literature starting in 1984 before embarking on new estimation.

KEYWORDS: Ethnic mortality, Mortality by country of birth, England and Wales, United Kingdom, Local Areas

1. Introduction

The ethnic composition of the UK population is changing. Diversity has steadily increased since 1991 and the proportion of people defining themselves as not White has doubled between 1991 and 2011 and increased from 7% to 14% of the total population. The part of the population who define themselves as not White British was almost 20% in 2011 (Jivraj, 2012; Rees et al., 2009). However, unlike other immigration countries such as the USA, Australia or New Zealand, information on mortality for ethnic groups, an important population health indicator, is still not routinely collected everywhere the country. Only Scotland, which has a lower ethnic density compared to other parts of the country, had the far-sightedness and have started collecting ethnic information on the death certificate in 2012 (Christie, 2012).

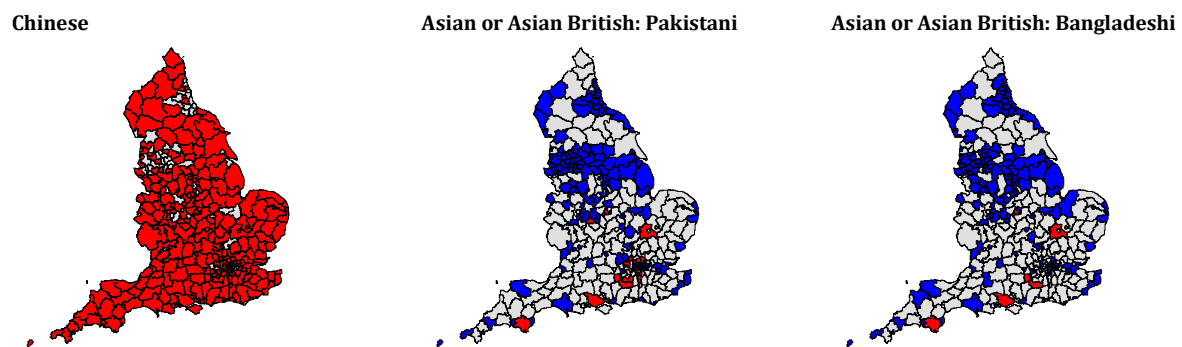
2. Ethnic groups life expectancy estimates 2001

Previously, in the course of projecting the future ethnic population for UK local areas (Rees et al., 2009) we developed the first ethnic mortality estimates for the UK and English and Welsh local areas for 2001 using information on the geographical distribution of ethnic populations as well as health

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and vital statistics information. Profound differences between groups and across space were found. Figure 1 shows maps presenting life expectancy for three ethnic groups at the opposite spectrum of expected length of life. Chinese men born in 2001 could expect to live between 77 and 85 years in most parts of the UK. On the other hand, Pakistani and Bangladeshi men, born in 2001 could only expect to live between 75 to 77 years in about half of local areas and just between 68 and 75 years in the other half. Only in a few places could these groups expect to reach the same age as the Chinese group. We found that life expectancies (male and female) for many ethnic minorities were below those of the White British. Life expectancies for ethnic minorities were related to the degree of deprivation groups experienced, counter-acted in part by recent arrival.



Country average:

Figure 1: Maps of life expectancy at birth, for 3 ethnic groups, England, males, 2001 (source Rees and Wohland 2009)

■ ≥ 77.22 to <84.56 □ ≥ 74.52 to <77.22 ■ ≥ 68.72 to <74.52

3. Discussion of mortality estimates for migrants and ethnic groups in the UK

Before our estimation of ethnic group mortalities, similar previous research concentrated on immigrant mortality. Immigrant mortality in England and Wales has been monitored since the 1971 Census when country of birth was recorded for the first time. This in combination with the country of birth information on the death certificate made it possible to study the mortality experience of people by nativity, that is, of mainly first generation immigrants. Various studies (see Table 1) have used this information to compare mortality experience between different immigrant groups.

The different studies of immigrant or ethnic group mortality used diverse mortality measures, ranging from standardised mortality ratios to relative risks of dying, hazard ratios of mortality and life expectancy. In addition, different reference populations -White British or total population- were used as well as different ethnic group categories examined. Most studies also varied in terms of the age range they looked at. For these reasons a comprehensive comparison of the results is difficult.

When reviewing literature we therefore examined only whether a study found better or worse or similar health outcomes compared to the reference group. Results are graphically represented in Figure 2. We refer to the different mortality measures as health experience. Two studies did not supply confidence intervals for their results Marmot et al. (1984) and Rees et al. (2009), for this reason, only show better or worse health compared to the reference population. Other studies often did not find significant differences, which in part might be the result of using small sample populations.

In this paper we will discuss common findings and recommendations resulting from the literature review. For example, the studies in general agreed that Irish and Scottish people had poorer health compared to the reference population and that other Europeans/White Other had better health. On the other hand, there are groups where findings varied. One example here is the Caribbean group. Whereas Marmot et al. (1984) found better health for Caribbean migrants if they were men and worse if they were women, Scott and Timaeus (2013), who did not distinguish by gender found better health for the foreign born Caribbean group and worse for UK born Caribbean. Rees et al. (2009) who distinguished by gender, but looked at ethnic groups, that is first and later generations combined, found worse health for both gender. Observations like these suggest future research into ethnic group health should include foreign and UK born categories.

Table 1 Various studies since the 1970s investigating the mortality experience of migrants to the UK or UK ethnic groups

Study (in order of year of publication)	Measure	Groups		Time frame	
Marmot, M. G., Adelstein, A. M., & Bulusu, L. (1984). Lessons from the Study of Immigrant Mortality. <i>Lancet</i> , 1(8392), 1455-1457.	PMRs SMRs	Ireland Poland Italy Indian-subcontinent Caribbean	Indian-Indian Indian-British Africa Europe	Country of birth	1970-72
Wild, S., & McKeigue, P. (1997). Cross sectional analysis of mortality by country of birth in England and Wales, 1970-92. <i>British Medical Journal</i> , 314(7082), 705-710.	SMRs	Scotland Ireland East Africa (68% South Asian) West Africa (73% Black African) Caribbean South Asia		Country of birth	1970-1992 Two time points (1970-1972) (1990-1992)
Wild, S. H., C. Fischbacher, A. Brock, C. Griffiths, and R. Bhopal. 2007. "Mortality from All Causes and Circulatory Disease by Country of Birth in England and Wales 2001-2003." <i>Journal of Public Health</i> 29 (2): 191-198. doi:10.1093/pubmed/fdm010	Indirect SMRs	E&W Scotland Ireland Eastern Europe East Africa West Africa	West Indies Middle East Bangladesh India Pakistan China and Hong Kong	Country of birth	2001-2003
Rees, P. H., Wohland, P. N., & Norman, P. D. (2009). The estimation of mortality for ethnic groups at local scale within the United Kingdom. <i>Social Science & Medicine</i> , 69(11), 1592-1607. doi: 10.1016/j.socscimed.2009.08.015	LE and SMR	16 Ethnic groups (Census definition England and Wales, 2001)		Ethnic group	2001
Scott, A. P., and I. M. Timaeus. 2013. "Mortality Differentials 1991-2005 by Self-reported Ethnicity: Findings from the ONS Longitudinal Study." <i>Journal of Epidemiology and Community Health</i> 67 (9): 743-750. doi:10.1136/jech-2012-202265	Relative risk of dying Also compares foreign born to UK born	White Black Caribbean Black African Other Black Indian	Pakistani Bangladeshi Chinese Other Asian Other	Ethnic group	1991-2005
Wallace, M., & Kulu, H. (2014). Low immigrant mortality in England and Wales: A data artefact? <i>Social Science & Medicine</i> , 120, 100-109. doi: DOI 10.1016/j.socscimed.2014.08.032	Hazard ratios of mortality	E&W Scotland NI Ireland India Pakistan Bangladesh Jamaica Other Caribbean	E&S Africa W&C Africa W Europe E Europe China Other Asia Rest of World Unresolvable	Country of birth	1971-2001
Morris, M., Woods, L. M., & Rachet, B. (2015). A novel ecological methodology for constructing ethnic-majority life tables in the absence of individual ethnicity information. <i>Journal of Epidemiology and Community Health</i> . doi: 10.1136/jech-2014-204210	Majority population life table	White Black Asian		Ethnic group	2001

First Author	Marmot	Wild	Wild	Scott	Wallace		Morris
Ages	20-69 20-69 15-64	20-69 20-69	20+ 20+	1-79 1-79 1-79	20+	0-100	1-80
Gender	Men Women Men	Men Women	Men Women	All All All	ALL	Men SIR Men GWM Women SIR Women GWM	Men Women
Additional Info				Born inUK Born abroad			
Measure	SMRs SMRs SMRs	SMRs SMRs	SMRs SMRs	Relative risk of dying	Hazard Ratio	LE LE LE LE	LE LE
White	Ireland Poland Italy Europe Indian-British	Scotland Ireland	E&W Scotland Ireland Eastern Europe	White	E&W Scotland NI Ireland W Europe E Europe	ALL WBR WIR OWH	White
Asian	Indian-subcontinent	South Asia East Africa (68%)	East Africa Bangladesh India Pakistan China and Hong Kong	Indian Pakistani Bangladeshi Chinese Other Asian	India Pakistan Bangladesh China Other Asia	IND PAK BAN OAS CHI	Asian
Black	Caribbean Africa	Caribbean West Africa (73%)	West Indies West Africa	Black Caribbean Black African Other Black	Jamaica Other Caribbean E&S Africa W&C Africa	BCA BAF OBL	Black
Other	Better= Same= Worse= Compared to standard		Middle East North Africa	Other	Rest of World Unresolvable	OET WBC WBA WAS OMI	

Figure 2 Graphical representations how ethnic/migrant group health compared to reference categories (White British or total population)

Notes: SIR = method uses standardised illness ratios, GWM = geographically weighted method

Wild et al. (2007) and Rees et al. (2009) also found significant health differences within broad groups, especially the Asian group. This confirms the importance of using finer groupings, wherever possible.

In the 1970s, when research into the health of migrant minorities began, it was effective to research the mortality of first generation immigrants to establish health inequalities between the minority populations compared to the majority population. Nowadays, many second, third and fourth generation descendants of post WW2 immigrants live in the UK. These people's country of birth is the UK, but their ethnicity is "not White British". Various small cohort studies show that specific health outcomes vary by ethnic group (in which first and later generations are combined). This suggests that ethnic groups overall have different mortality experiences. Alas, the data to prove this are not available. In the ESRC funded NewETHPOP project we will provide further evidence on mortality differentials of UK ethnic groups and also for the first time show how ethnic groups' mortality changed over time, using the newest census information from 2011, analysing the mortality of ethnic-nativity (born in the UK/born outside the UK) groups. New methods will be needed to generate life tables for these groups from available data.

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Biography

Dr Pia Wohland is a Senior Research Associate at the Institute for Health and Society (IHS) and Newcastle University Institute for Ageing (NUIA). She has researched ethnic mortality and health differences for local areas in the UK and developed software for ethnic population projections.

Philip Rees is Emeritus Professor of Population Geography at the University of Leeds, with interests in ethnic population projections, health outcomes and ageing of the population.

References

- Christie, B. 2012. *Scotland introduces record of ethnicity on death certificates*.
- Jivraj, S. 2012. *How has ethnic diversity grown 1991-2001-2011?* Manchester: Centre on Dynamics of Ethnicity, The University of Manchester.
- Marmot, M.G. et al. 1984. Lessons from the Study of Immigrant Mortality. *Lancet*. **1**(8392), pp.1455-1457.
- Morris, M. et al. 2015. A novel ecological methodology for constructing ethnic-majority life tables in the absence of individual ethnicity information. *Journal of Epidemiology and Community Health*.
- Rees, P. and Wohland, P. (2009) Estimates of ethnic mortality in the UK. *Working Paper 08/04*, School of Geography, University of Leeds, Leeds, UK. Online at: <http://www.geog.leeds.ac.uk/fileadmin/documents/research/csap/08-04.pdf>
- Rees, P.H. et al. 2009. The estimation of mortality for ethnic groups at local scale within the United Kingdom. *Social Science & Medicine*. **69**(11), pp.1592-1607.
- Scott, A.P. and Timaeus, I.M. 2013. Mortality differentials 1991-2005 by self-reported ethnicity: findings from the ONS Longitudinal Study. *Journal of Epidemiology and Community Health*. **67**(9), pp.743-750.
- Wallace, M. and Kulu, H. 2014. Low immigrant mortality in England and Wales: A data artefact? *Social Science & Medicine*. **120**, pp.100-109.
- Wild, S. and McKeigue, P. 1997. Cross sectional analysis of mortality by country of birth in England and Wales, 1970-92. *British Medical Journal*. **314**(7082), pp.705-710.
- Wild, S.H. et al. 2007. Mortality from all causes and circulatory disease by country of birth in England and Wales 2001-2003. *Journal of Public Health*. **29**(2), pp.191-198.