Health and Ethnicity in Scotland: SHELS project

A collaboration between:

The University of Edinburgh
ISD, National Services Scotland
National Records of Scotland (NRS)

Anne Douglas on behalf of the SHELS Researchers

Acknowledgements

SHELS Steering Group and subgroups
National Records Scotland (NRS)
NHS National Services Scotland, Information Services Division (ISD)

SHELS 1&2 funded by: CSO

SHELS 3 funded by: CSO & British Lung Foundation

SHELS 4 funded by: CSO, CRUK, HPS

Background

- We suspect wide ethnic variations in health outcomes in Scotland
- Limited information available to assess the size of the problem or to monitor progress in reducing those inequalities
- We need information on ethnic group (ideally self-defined) but routine data sources are still incomplete
- Priorities for research - developing data linkage methods

Ethnic distribution in SHELS based on 2001 Census

Ethnicity	Percentage
White Scottish	88.6%
Other White British	7.3%
White Irish	0.9%
Other White	1.4%
Any mixed background	0.2%
Indian	0.3%
Pakistani	0.6%
Other South Asian	0.1%
African origin	0.1%
Chinese	0.3%
All Other Ethnic group	0.2%
TOTAL	**100.0%**

≈ 2%

SHELS methods

- Census holds self-defined ethnicity
- Hospital discharge data hold diagnoses and mortality
- We used probability linkage techniques, using the Community Health Index number
- SHELS links 2001 census (ethnicity & sociodemographic data), hospitalisation, mortality and other health records
- SHELS has data on 4.6 million people

Fischbacher et al BMC Public Health 2007;7:142
Bhopal et al Int J Epidemiol 2011; 40 (5):1168-1175

Ensuring data protection & confidentiality

- Approvals & permissions
- Baseline security clearance
- Information governance training
- Statistical disclosure protocol for release of results from NRS

Evolution of SHELS

- Phase 1 30 months (2003-2006)
  Testing methods including name search, country of birth, data extrapolation, linkage (best).
- Phase 2 36 months (2007-2010) health/census linkage for 4 priority health areas (CVD, Cancer, Maternal and child health, Mental health), with 7 years of follow-up and breast cancer screening.
- Phase 3 30 months (2011-2013) health/census linkage for GI and respiratory diseases (9 years of follow-up) and pilot of linkage to primary care data.
- Phase 4 36 months (2013-2016)
  All-cause mortality, all-cause hospitalisation, infectious diseases, injuries (12 years of follow-up) and bowel cancer screening.

7

Confidentiality reminder

Please note this presentation contains some confidential and unpublished data.

NRS has approved this confidential data to be shared specifically for this conference.

Please do not cite the data without consulting the SHELS team.

8

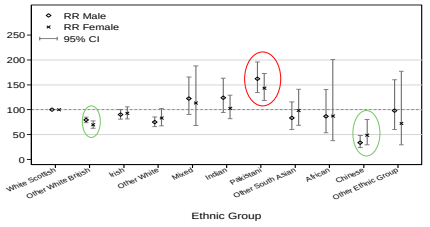
Outcome

- First diagnosis (Hospital admission or death)
- Denominator: Person-Years at risk

- Relative risks (RR) using Poisson regression
- Adjusted for age
- Further adjusted for-
  - Generation: country of birth (COB)
  - Socio-economic status: Scottish Index of Multiple Deprivation (SIMD) or individual education level

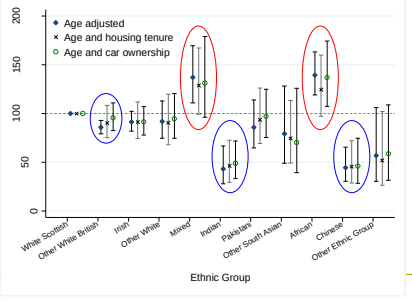
9

First myocardial infarction age and education adjusted risk ratios, 01/05/2001 – 30/04/2008 (Bansal et al BMJ Open 2013 September 1;3(9)



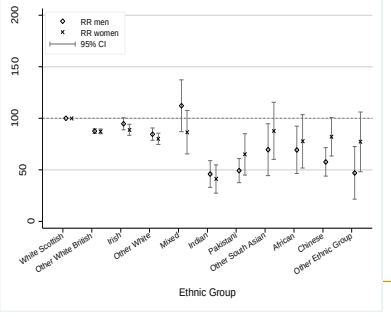
First psychiatric disorder (any diagnosis): Women

(Bansal et al Ethnicity and Health, 19, (2) 217-239)

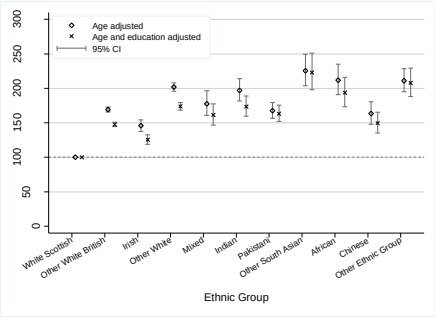


Any cancer: age standardised rate ratio by ethnic group

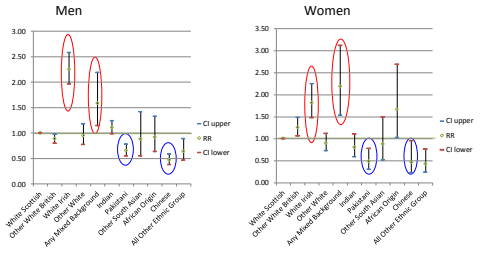
(Bhopal et al BMJ Open 2012;2:e001957)



Breast feeding (Bansal et al European Journal of Public Health, May19 2014)

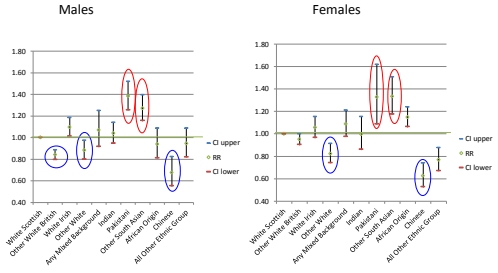


Risk Ratios (RR) of first alcohol related disease hospital admission or death, age adjusted and 95% confidence intervals



Adjustment for country of birth (COB) and the Scottish Index of Multiple deprivation (SIMD) did not greatly alter these patterns.

Risk Ratios (RR) of first any respiratory disease hospital admission or death (age adjusted and 95% confidence intervals)



Adjustment for country of birth (COB) and the Scottish Index of Multiple deprivation (SIMD) did not greatly alter these patterns.

Primary Care : Pilot linkage & analysis

- Risk factor, morbidity and prescribing data extracted in 2013 from 10 practices
- 57% (n=**54,802**) were linked to the 2001 census
- Risk factor data (weight, BMI, BP, smoking) were complete as expected with little variation between ethnic groups
- Morbidity - highest rates amongst South Asians for diabetes, CHD and asthma as expected in this population
- Tested feasibility of adjusting for smoking status to explain ethnic differences found in CVD rates

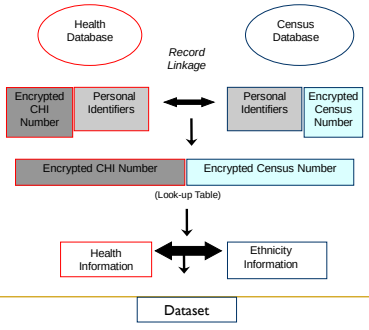
Conclusions

- Epidemiological studies in multi-ethnic societies have potential for giving insights helpful to all populations
- Even in the most health-disadvantaged groups (Pakistanis) there are advantages e.g. cancer, breastfeeding
- Little is known about the mixed ethnic group- on our sparse data we see reason for concern
- The viewpoint that ethnic variations largely reflect socio-economic differences is not true in Scotland

Conclusions and the future

- Developing a cohesive group of initiatives – and interventions - that will address health inequalities directly
- Opening access to SHELS data for other researchers
- Linkage to 2011 census

Scottish Health and Ethnicity Linkage Study



19