

Varying mental health in the population across Scotland during the recent recession: what do we know and what are the implications for public health policy?

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Varying mental health in the population across Scotland during the recent recession

Public Health Information Network for Scotland Seminar
29th September 2017, Glasgow

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Acknowledgements

The help provided by staff of the **Longitudinal Studies Centre Scotland** is acknowledged. The LSCS is supported by the **ESRC /JISC, the Scottish Funding Council, the Scientists Office and the Scottish Government.**

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We also acknowledge help and advice from colleagues at:

- **The Centre for Research on Environment, Society and Health, University of Edinburgh**
- **The Administrative Data Research Centre, University of Edinburgh**
- **NOMIS, Durham University**
- **NHS Scotland**

This research is supported by the Economic and Social Research Council, UK

Background to this study

**NHS Health Scotland 2015
*Good Mental Health for All***

**called for a
“*public mental health approach*”**

...which.....



“...ensures mental health is represented across all policy and works to address the social, environmental and individual determinants of mental health...”

..and is

“..universal yet calibrated to the level of disadvantage...providing action proportionate to the level of need..”

NHS Health Scotland 2015

Good Mental Health for All

Also recommended :

“strengthen information systems, evidence and research”

“ greater exploration and use of national and local data”

These recommendations fit well with aims of research in health geography:

How do changing conditions in places relate to health variation in the population?

(eg: Centre for Research on Environment, Society and Health, Edinburgh University:

<https://cresh.org.uk/>)

What do we know from earlier research?

Use of mental health medication in Scotland varies in relation to deprivation, gender and age (Francis, J., McTaggart, S., 2015; Gronowski & Williams, 2016 - NHS Scotland; Curtis et al, 2016)

Prescriptions for antidepressants and anti-psychotics increased 2005-2016, (but not for anxiolytics) (Gronowski & Williams -NHS Scotland, 2016)

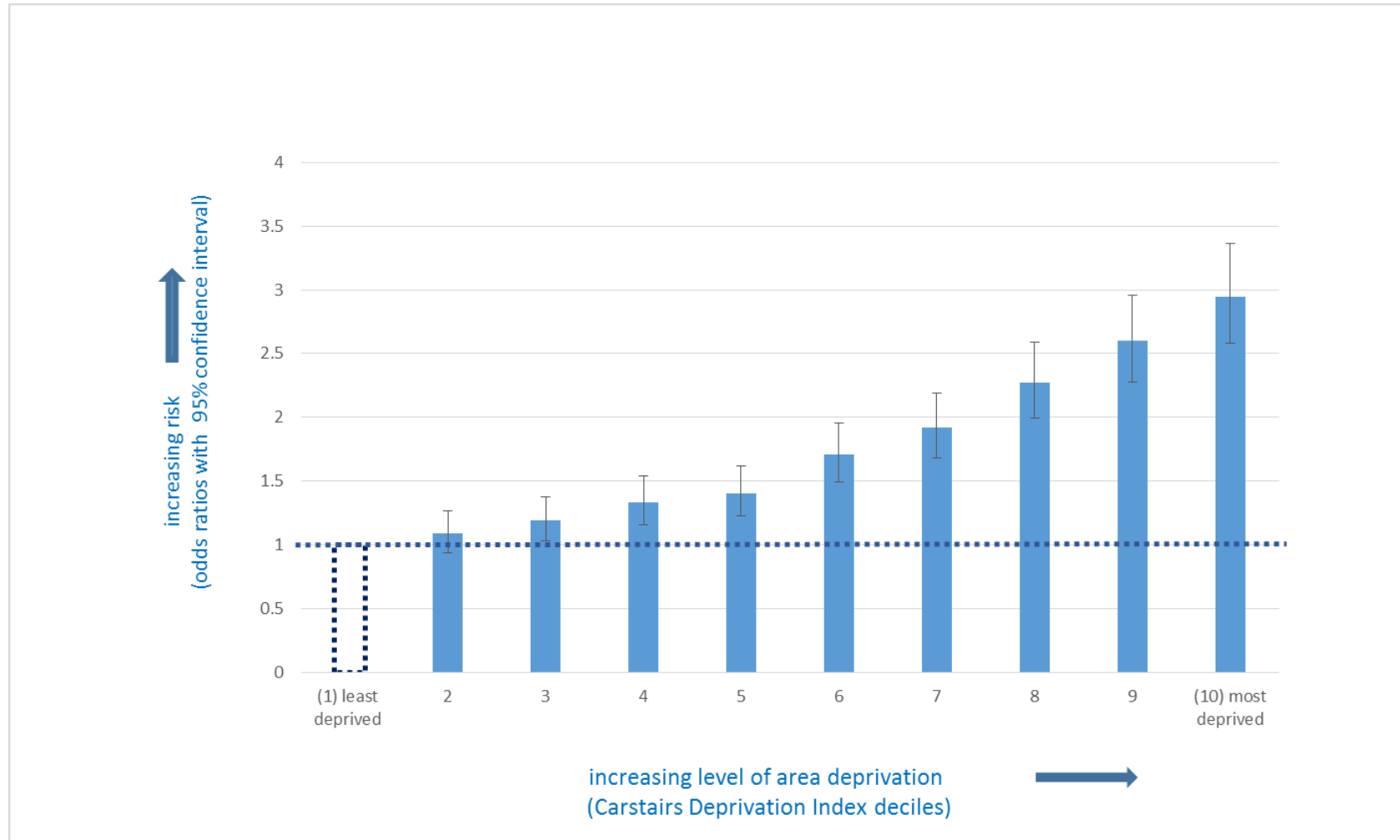
Mortality in Scotland due to self harm worsened relative to England and Wales 1981-2011 Scottish policies seek to protect mental health care from austerity cuts. (Schofield et al, 2016)

Self reported poor health increased during the recession with differences between Strathclyde and the rest of Scotland (Astell-Burt, T. and X. Feng, 2013)

For those in work in the UK, negative wellbeing effects of dissatisfaction with work, workload & working hours increased 2006-2012 (Heyse; 2017)

Data from the Scottish Longitudinal Study (5% of population) (supported by the ESRC/JISC, the Scottish Funding Council, the Chief Scientist's Office and the Scottish Government)

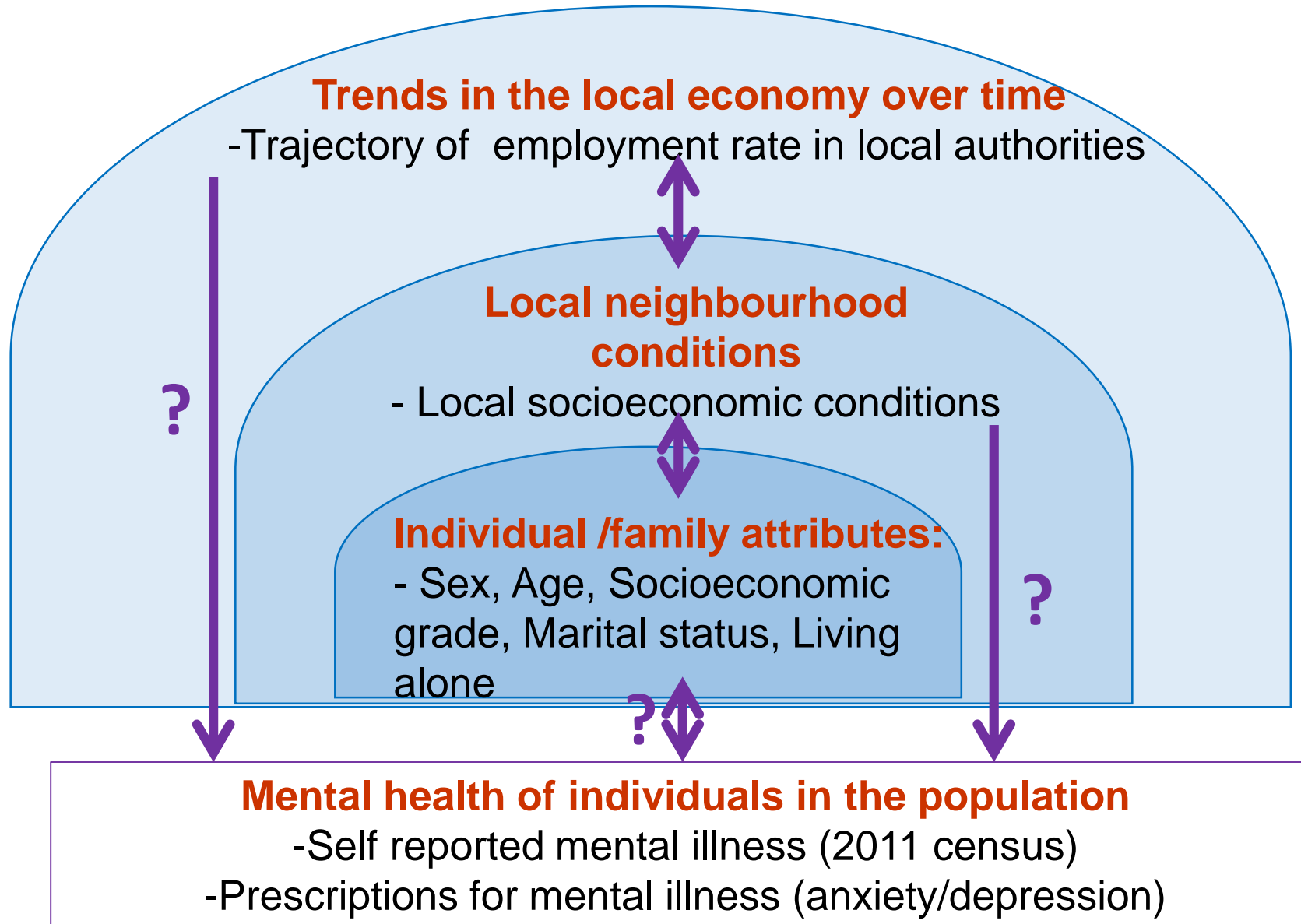
The risk (odds ratio) of reporting a mental illness (in 2011) increases with Carstairs deprivation score – 3 x higher in most deprived areas compared with least deprived (Curtis et al., 2016)



Our research adds to knowledge on local and regional trends in mental health in Scotland during the recession:

How the economic life course of places relates to mental health of residents in different parts of Scotland?

conceptual framework : key variable groups in red



Capturing area variation in the economic impact of recession in 32 Local Authority areas in Scotland

Local authorities classified according to indicators of the economic impact of recession:

- **employment rates since 2007 (3 year moving averages)**
- **Derived from indicators for Local Authorities published by NOMIS (based at Durham University)***
- **Group based trajectory models (Jones and Nagin, 2012) used to identify groups of areas with similar employment trajectories**

* a service provided by the Office for National Statistics, ONS, providing free access to the most detailed and up-to-date UK labour market statistics from official sources.

* Data from regular cross-sectional population surveys (Annual Population Survey, Annual Survey of Hours and Earnings)

Groups of Local Authorities used for this study (based on employment trajectory model)

| |
|--------------------------------|
| Glasgow City |
| North Ayrshire |
| Clackmannanshire |
| Dundee City |
| East Ayrshire |
| Inverclyde |
| North Lanarkshire |
| South Ayrshire |
| West Dunbartonshire |

| |
|----------------------------------|
| Angus |
| Argyll and Bute |
| Dumfries and Galloway |
| East Dunbartonshire |
| East Lothian |
| East Renfrewshire |
| Edinburgh, City of |
| Eilean Siar |
| Falkirk |
| Fife |
| Perth and Kinross |
| Renfrewshire |
| Scottish Borders |
| South Lanarkshire |
| Stirling |
| West Lothian |

| |
|----------------------|
| Aberdeen City |
| Aberdeenshire |
| Highland |
| Midlothian |
| Moray |

| |
|-------------------------|
| Orkney Islands |
| Shetland Islands |

| Local Authority | Employment Trajectory |
|-----------------------|-----------------------|
| Glasgow City | 1 |
| North Ayrshire | 1 |
| Clackmannanshire | 1 |
| Dundee City | 1 |
| East Ayrshire | 1 |
| Inverclyde | 1 |
| North Lanarkshire | 1 |
| South Ayrshire | 1 |
| West Dunbartonshire | 1 |
| Angus | 2 |
| Argyll and Bute | 2 |
| Dumfries and Galloway | 2 |
| East Dunbartonshire | 2 |
| East Lothian | 2 |
| East Renfrewshire | 2 |
| Edinburgh, City of | 2 |
| Eilean Siar | 2 |
| Falkirk | 2 |
| Fife | 2 |
| Perth and Kinross | 2 |
| Renfrewshire | 2 |
| Scottish Borders | 2 |
| South Lanarkshire | 2 |
| Stirling | 2 |
| West Lothian | 2 |
| Aberdeen City | 3 |
| Aberdeenshire | 3 |
| Highland | 3 |
| Midlothian | 3 |
| Moray | 3 |
| Orkney Islands | 4 |
| Shetland Islands | 4 |

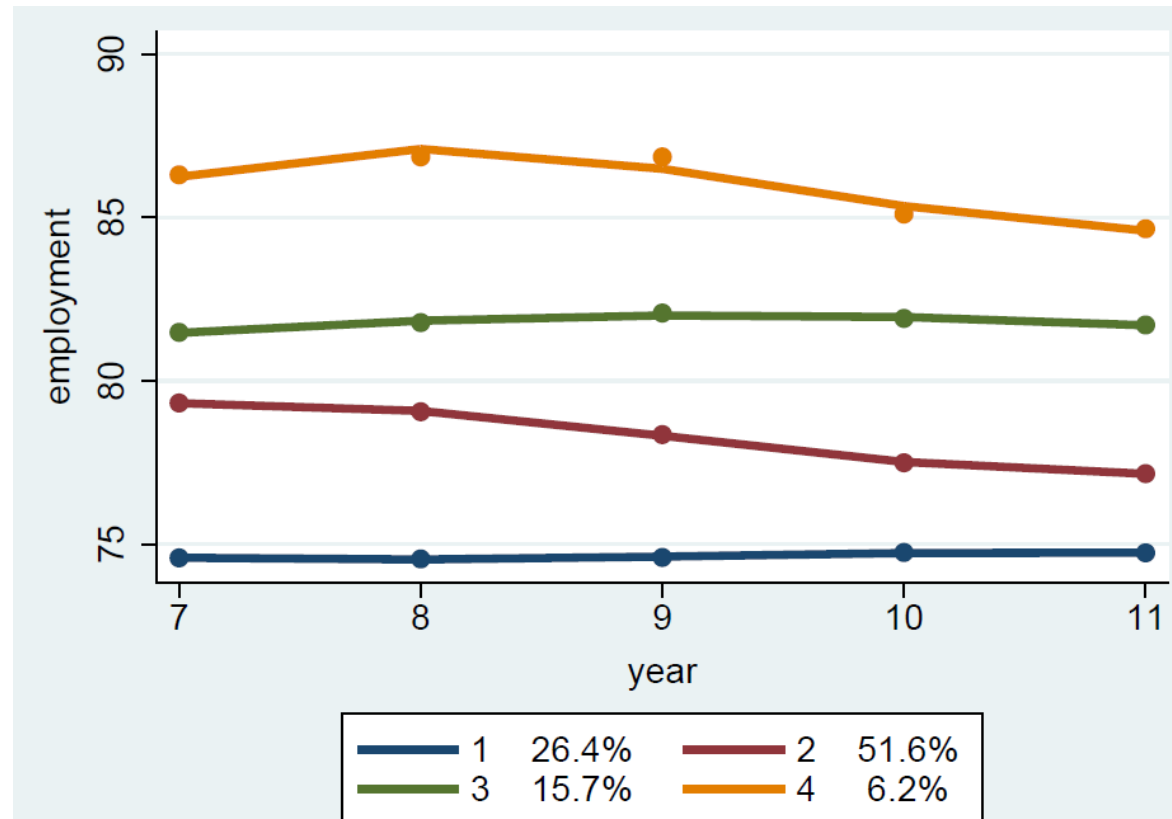
NB classification of LAs depends on the trajectory modelling specification:

1 = low employment throughout (eg Glasgow) (9 LAs)

2 = falling employment (eg Edinburgh) (16 LAs)

3 = higher, levelling employment (eg Aberdeen) (5 LAs)

4 = high, but declining employment (Orkney, Shetland Islands) (2 LAs)



Research Question

Groups of local authorities varied in level of employment since 2007.

Some areas show a steeper decline in employment than others during the recession.

Were these varying trajectories among places significant for mental health inequalities?

Linking to Scottish Longitudinal Study (SLS)

The Scottish Longitudinal Study (SLS):

- a large (5.3%) representative sample of the Scottish population
- Data on members of the SLS are longitudinal

census data for SLS members includes (for those present at each time point):

- self-reported mental illness in 2011
- Individual demographic & socioeconomic 'risk factors' for long term illness/mental illness
- Place of residence in 2001 and 2011

Data on economic trends in local authorities presented previously were linked to the SLS members according to their place of residence in 2011



Method of analysis

Multilevel logistic regression on individual SLS members aged 16-59 years in 2001, grouped in local authorities of residence 2011.

Dependent variables indicate:

whether a mental illness was reported in 2011

whether antidepressants were prescribed in study period

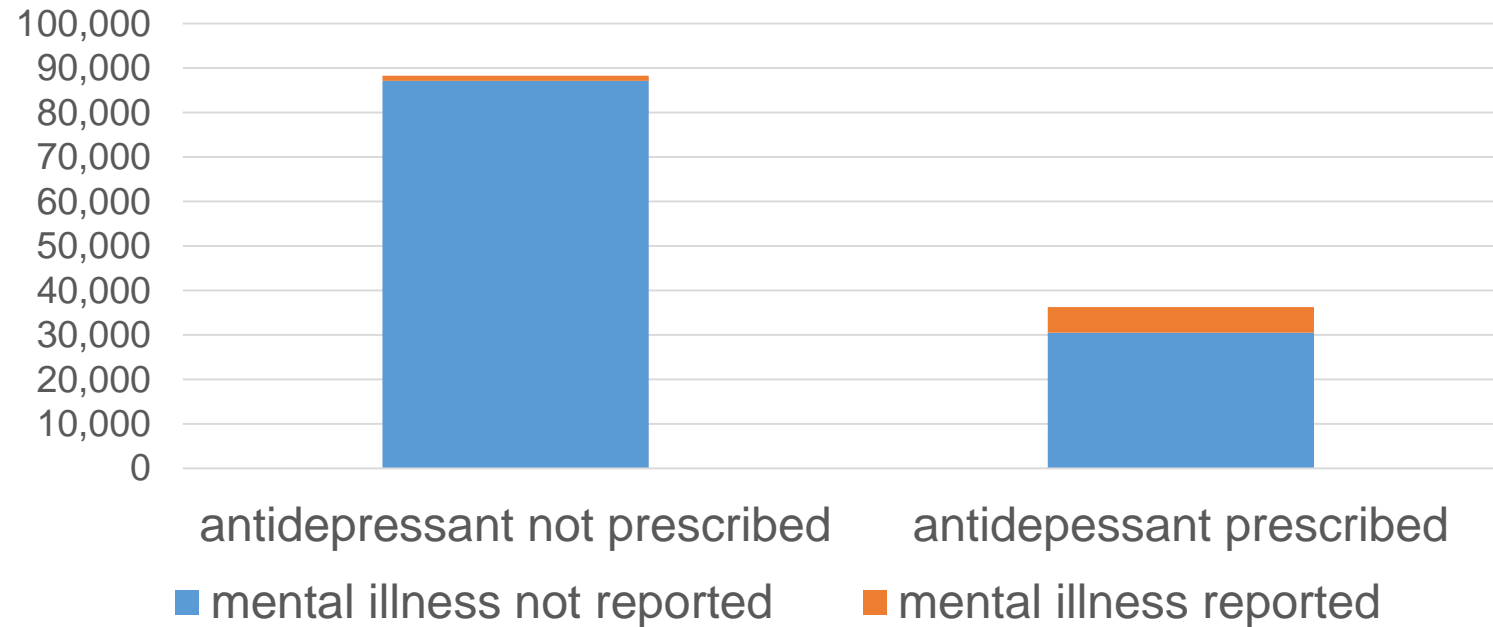
whether antidepressants 'newly' prescribed since 2010

Analysis controls for:

- individual attributes that may affect risk of mental illness (sex, age group, social class 2011, whether unemployed in 2011, marital status 2011, whether living alone in 2011;
- **Local neighbourhood deprivation** – Carstairs Index 2001)

Analysis examines significance of the employment trajectory for the dependent variables listed above

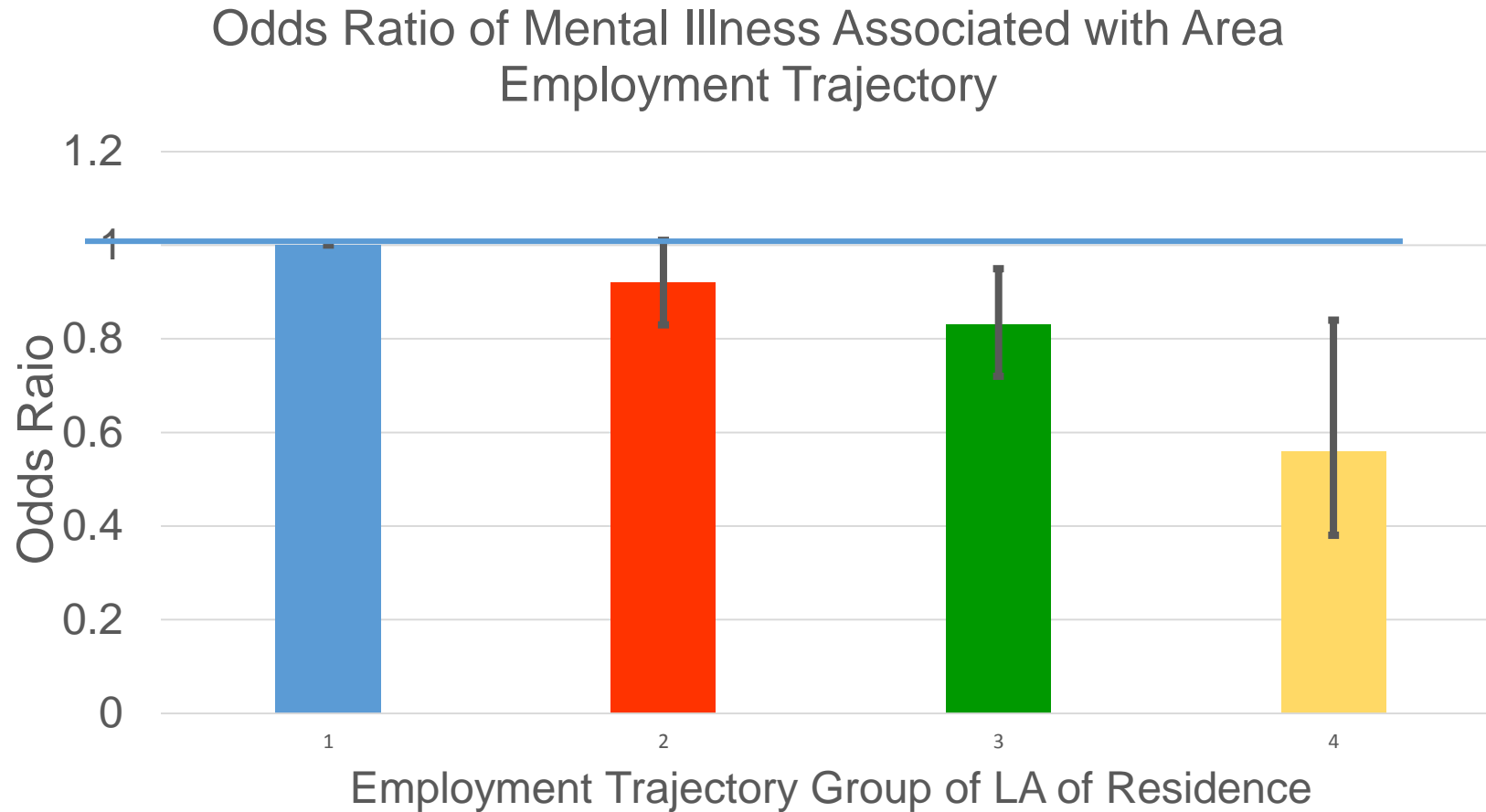
Relationship of reported mental illness to antidepressant prescription 2009-2014



Source: SLS likelihood-ratio $\chi^2(1) = 9.6e+03$ Pr = 0.000

Among SLS members in this study (aged <60 years in 2001) reporting a mental health condition in 2011, 84% were prescribed antidepressants 2009-2014, compared with 26% of those who did not report a mental illness. (However only a minority of those being prescribed antidepressants reported a mental illness in 2011)

Employment rate trajectory of local authority as predictor of self reported individual mental illness for SLS members aged < 60yrs (total no of observations (SLS members) in this analysis = 123,804) Source: SLS



There is a statistical association between risk of reporting mental illness in 2011 and employment trajectory of local authority of residence by 2011, (after controlling for individual risk factors and neighbourhood deprivation in 2001).

Employment rate trajectory of local authority as predictor of reported individual mental illness for SLS members aged < 60 (total no of observations (SLS members) in this analysis = 123,804)

| Trajectory group for employment | Odds Ratio of mental illness (compared with reference group 1) | Std. Err. | z | P> z | | 95% c.i. | |
|---------------------------------|--|-----------|-------|-------|----|----------|------|
| 2 | 0.92 | 0.048 | -1.58 | 0.114 | | 0.83 | 1.02 |
| 3 | 0.83 | 0.058 | -2.61 | 0.009 | ** | 0.73 | 0.96 |
| 4 | 0.56 | 0.11 | -2.92 | 0.003 | ** | 0.37 | 0.82 |

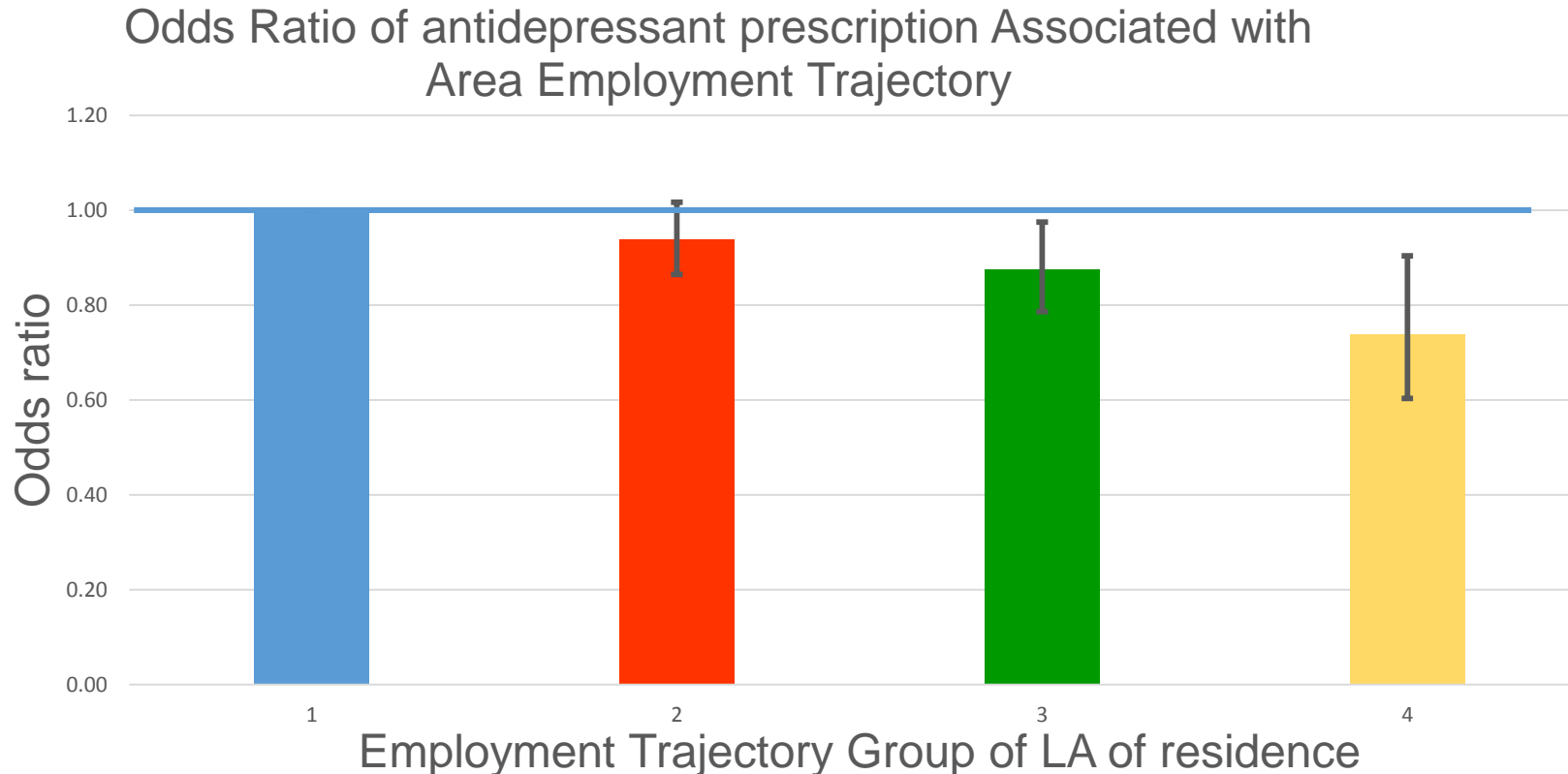
Source: SLS

There is some statistical association between risk of reporting mental illness in 2011 and employment trajectory of local authority of residence by 2011, (after controlling for individual risk factors and neighbourhood deprivation in 2001).

(NB Initial Employment rate as well as trend influences trajectory groups.)

For those aged <60yrs in 2001: relationship of trajectory group to prescription of antidepressants (2009 - 2014)

Number of observations = 123804



Source: SLS

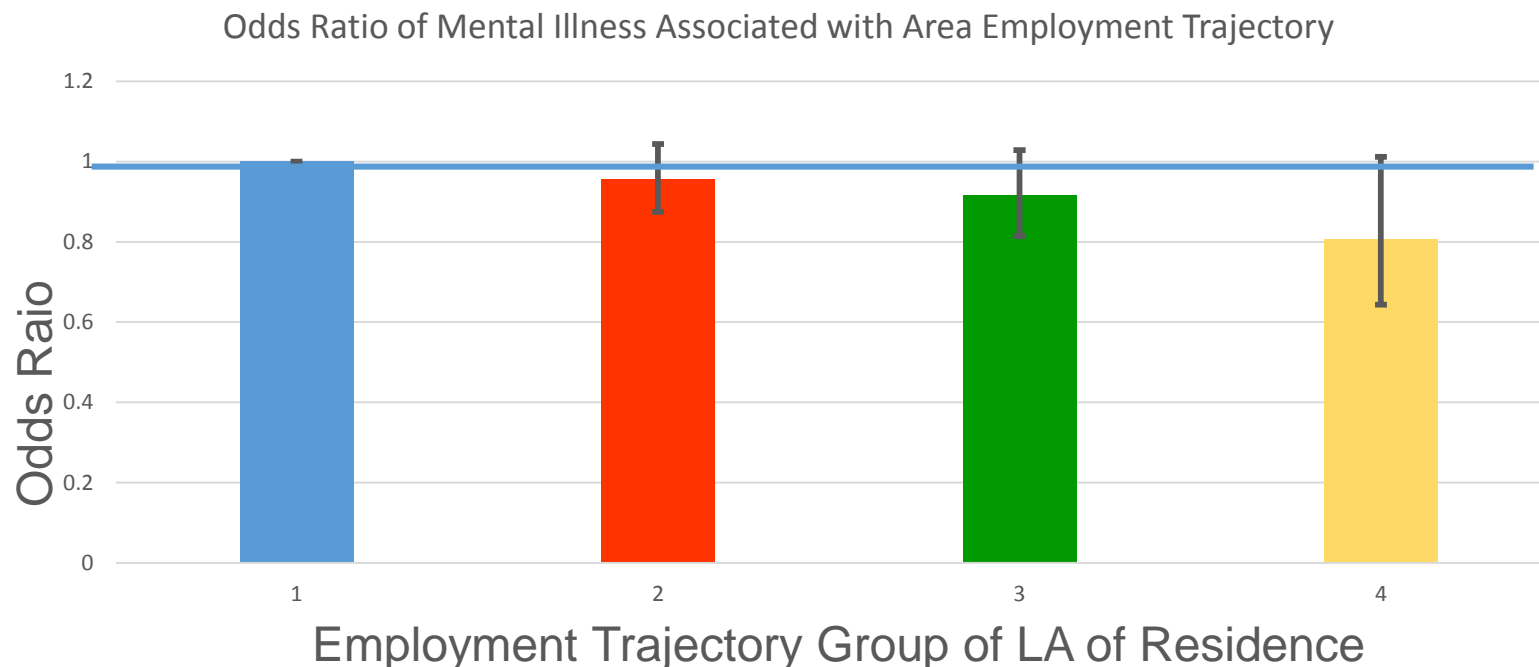
There is a statistical association between risk of antidepressant prescription and employment trajectory of local authority of residence

CONTROLLING FOR : SEX, AGE, SOCIAL GRADE, WHETHER UNEMPLOYED IN 2011, MARITAL STATUS, LIVING ALONE, LOCAL CARSTAIRS INDICATOR IN 2001

For those aged <60yrs in 2001, and not prescribed antidepressants before June 2009:

Relationship of trajectory group to prescription of antidepressants since June 2009

No of observations 110792



Source: SLS

There is a **weak** statistical association between risk of 'new' prescription and employment trajectory of local authority of residence

CONTROLLING FOR : SEX, AGE, SOCIAL GRADE, WHETHER UNEMPLOYED IN 2011, MARITAL STATUS, LIVING ALONE, LOCAL CARSTAIRS INDICATOR IN 2001

Main conclusions

- A range of personal, family and neighbourhood factors are associated with mental illness (self reported or treated with antidepressants)
- Allowing for individual/family factors and local deprivation, People in some regions of Scotland, where employment rates remained higher during the recession, had lower risk of mental illness.
- Areas with better employment rates during the recession were particularly in the highlands and Islands
- The pattern seems long standing, and may have existed prior to the recession.

Limitations

Area factors influencing health are complex; the trajectory groups based on employment rates may reflect other area conditions that are important for health inequalities

Trajectory groups reflect initial employment rates as well as trend during recession.

Analyses reported here do not control for any residential migration of SLS members

Policy implications

Importance of maintaining mental health services across Scotland during the recession to protect mental health and control inequality

Mental Health seems consistently better in Highlands and Islands than in Southern Scotland – consider implications for targeting of resources and development of population mental health?