

**Patterns, predictors and
implications of multi-morbidity:
early research findings**

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Outline of talk

- Brief recap on project
- Data linkage and processing
- Early findings

Aim of the research study

The research will:

- involve further analysis of the Sheffield Health and Illness Prevalence Survey (SHAIPS 2) dataset.
- focus on multi-morbidity among survey respondents
 - particularly the coincidence of depression and chronic physical conditions.
- seek to identify both the predictors and implications of multimorbidity involving depression

SHEFFIELD HEALTH AND ILLNESS PREVALENCE SURVEY 2 (SHAIPS 2)

- a postal survey by the then Sheffield Health Authority in 2000
- determine the prevalence of common illnesses and other influences on health and wellbeing in Sheffield
 - results summarised in Coy, Reid, Skinner, and Stead (2002)
- a follow up to the 1994 SHAIPS I survey

SHAIPS 2 Sample

- 16,191 adults
- stratified by age, sex and electoral ward
- enables analysis at electoral ward level
- 66% response (10,185 cases) after 2 reminders

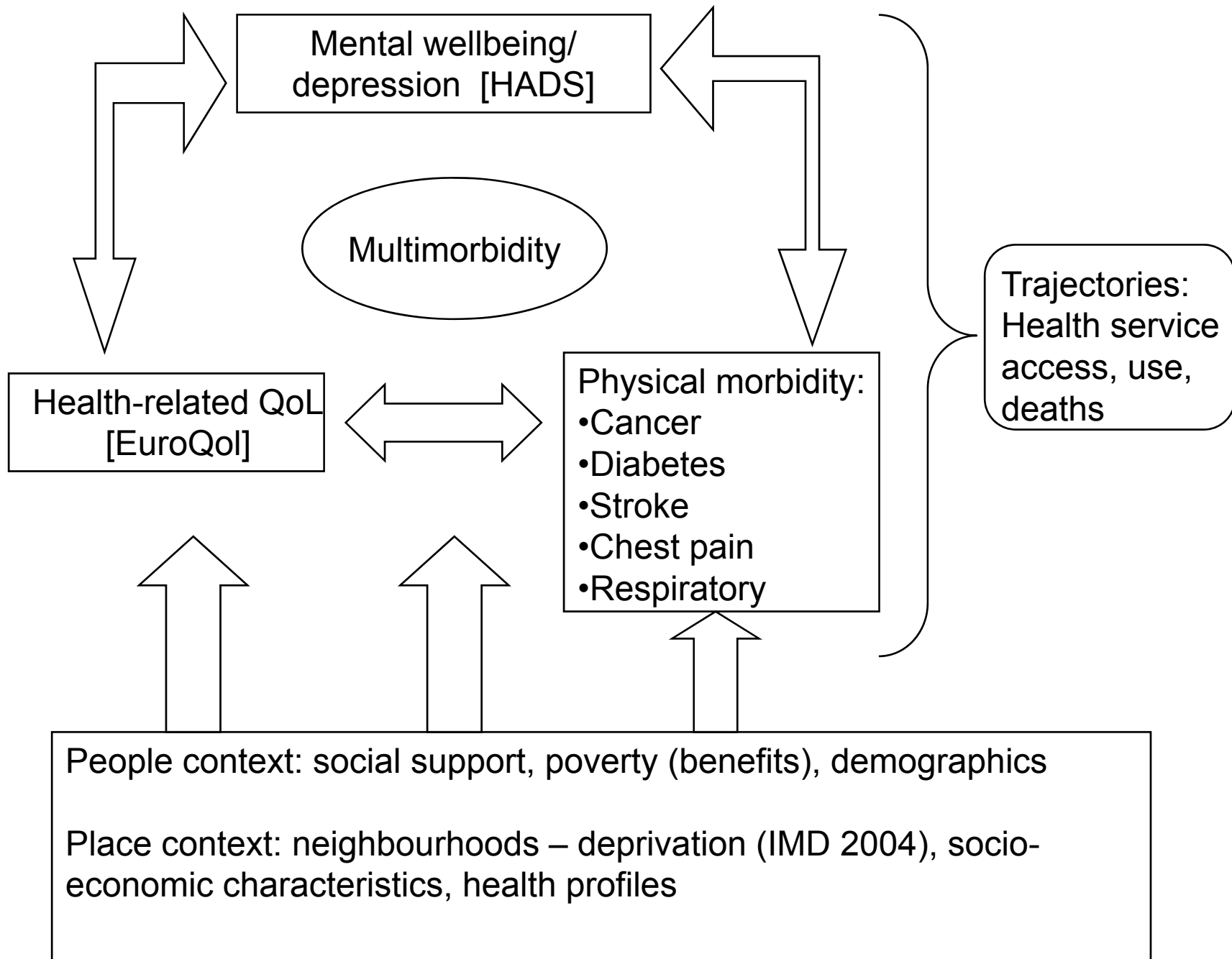
SHAIPS 2 Questionnaire

Used validated questions in the following areas:-

- long term limiting illness, respiratory problems, angina, diabetes, stroke, and depression.
- informal carers, social isolation, access to a car, receipt of state benefits, the use of primary care and social and community services,
- smoking
- ethnicity (using the 2001 census question)
- EuroQol EQ-5D health status measure

Key research questions

- What are the levels and patterns of the co-occurrence of depression and other chronic conditions among this sample of Sheffield residents?
- How are levels and patterns of multimorbidity involving depression related to measures of social support, health-related behaviour and socioeconomic characteristics (at individual and community level)?
- How is multimorbidity involving depression related to pathways of health and social care use? Do pathways of care (relating to both depression and physical conditions) differ between those with multimorbidity and those with single morbidities?



Linkage to other Data

- Secondary care service use data for Sheffield residents
 - hospital inpatient admissions and outpatient attendances April 2000 to March 2009
- Cancer registrations
- Mortality data
- Data linkage uses NHS number of survey respondents

Problems accessing the data

- Underestimated the amount of data
 - i.e. hospital service use per respondent
 - Underestimated how long it would take to process the data
 - influenced by lack of capacity in NHS
- Sheffield Database Management Team

Tracing of Survey Respondents

- Establish whether respondents have left Sheffield
 - of those who left, currently trying to establish when this occurred
 - also shows whether respondents who left Sheffield have died
- Database management team submitted tracing query
- Demographics Batch Service (DBS)

Hospital inpatient admission data

- Over 31,000 admissions April 2000 to March 2009
- Grouped into categories, based on International Classification of Diseases (ICD-10) diagnosis codes
- Categories based on clinical advice

Hospital inpatient admission data: health categories

7 broad health categories

- Mental Health, Circulatory, Respiratory, Digestive, Genitourinary, Cancer, Other

- 6 minor categories

- CHD, Stroke, COPD (including bronchitis), Asthma, Diabetes, depression

Summarising admissions data per respondent

- The hospital inpatient data have been summarised for each survey respondent
 - multiple admissions summarised to create one line of data for each person
- Data have been summarised separately for elective and non-elective admissions.
- For each health condition (e.g. respiratory), 7 variables have been created for type of admission
 - elective or non-elective
 - i.e. a total of 14 variables.

Variables to summarise admissions data

- The variables for each health category are:
 - total number of inpatient admissions
 - total cost of admissions
 - number of admissions that have cost information
 - percentage of admissions that have cost data
 - average cost (based on admissions with cost data)
 - total bed-days
 - average length of stay.
- New variables merged with main survey file

Mortality Data

- Focus on deaths occurring up to 31st March 2009
- Two sources of mortality data
 - Public health deaths file, supplied by Office for National Statistics (ONS) Sheffield residents only
 - Supplies detailed information on cause of death
- Data from DBS tracing system
 - only shows whether alive or dead, no cause of death

Cancer Data

- Cancer registrations 1980 to March 2000 held by Trent Cancer Registry
- Used in multi-morbidity score
- Awaiting data on national cancer registrations since March 2000

Defining multi and co-morbidity

- 2 types:
 - general multi and co-morbidity across all health conditions
 - Multi and co-morbidity involving the presence of depression and one or more types of physical ill-health
- In both cases, multimorbidity score created by summing presence or absence of the health conditions
- Comorbidity defined as a multimorbidity score of 2 or more

Input into the multi and comorbidity variables

- Two main sources:
 - cancer registrations 1980 to March 2000
 - the 7 'core' conditions derived from symptoms reported in the SHAIPS 2 survey
 - respiratory (asthma, chronic bronchitis, COPD), depression, angina, stroke, diabetes
- Feeds into multi-morbidity score: 1 if present, zero if absent
- Score of 2 or more is classed as comorbidity

7 'core' SHAIPS 2 conditions & multi-morbidity score

- The 7 core conditions feed into the score
- respiratory
 - asthma, chronic bronchitis, COPD, depression, angina, stroke, diabetes
- To avoid double counting, chronic bronchitis is counted only if COPD is not present
- Based on clinical advice

Cancer registrations and multi-morbidity score

- Malignant cancer registrations excluding non-melanoma skin cancers
- Registrations 1980-March 2000 feed into the multi-morbidity score
- Pre-1995 registrations count only if led to a hospital admission between 1995 and 2000
- Based on discussion with clinicians

Project Advisory Group

- 1 meeting to date but discussion via email
- Membership drawn from a range of health professional, academic, and lay/patient backgrounds
- Provide valuable advice e.g.
 - defining multi-morbidity
 - creating admissions categories for service use data

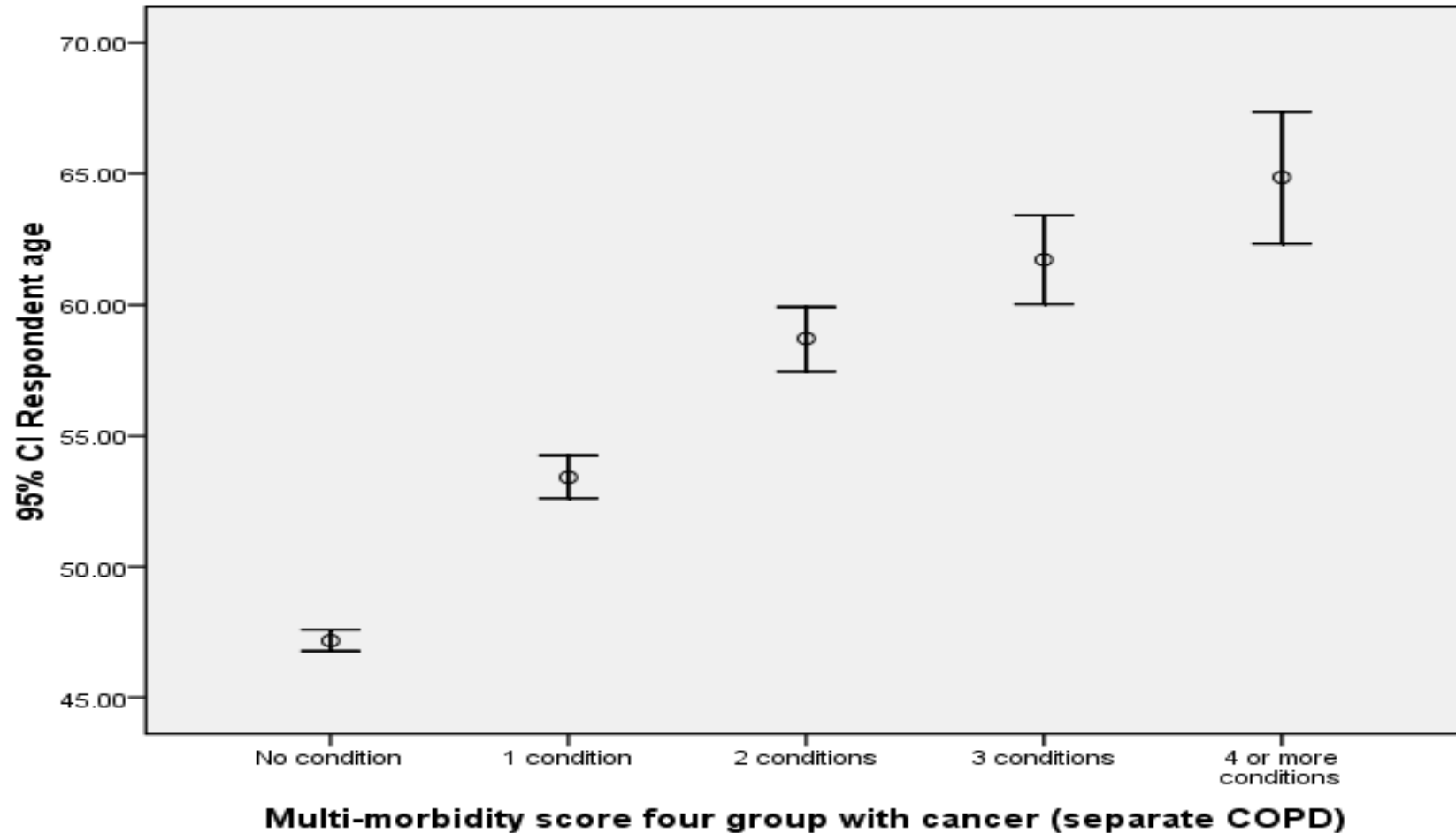
Merging new data into the SHAIPS 2 dataset

- Variables created to capture information for each survey respondent on:
 - inpatient service use
 - mortality
 - whether still resident in Sheffield
 - cancer registrations
- Merged with the main SHAIPS 2 dataset

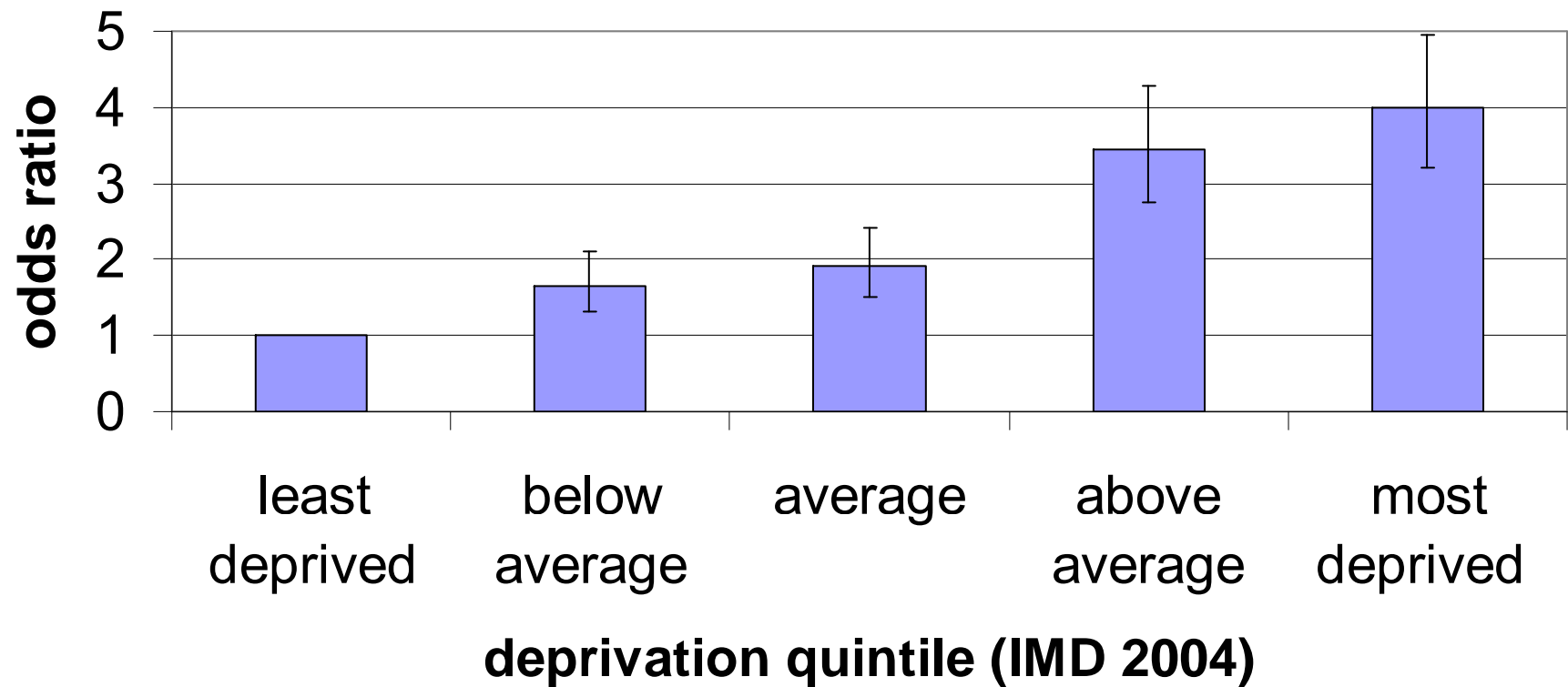
Early Findings

- Overall prevalence of comorbidity was 12.0%
- 64.6% of people who reported depression also had a physical morbidity

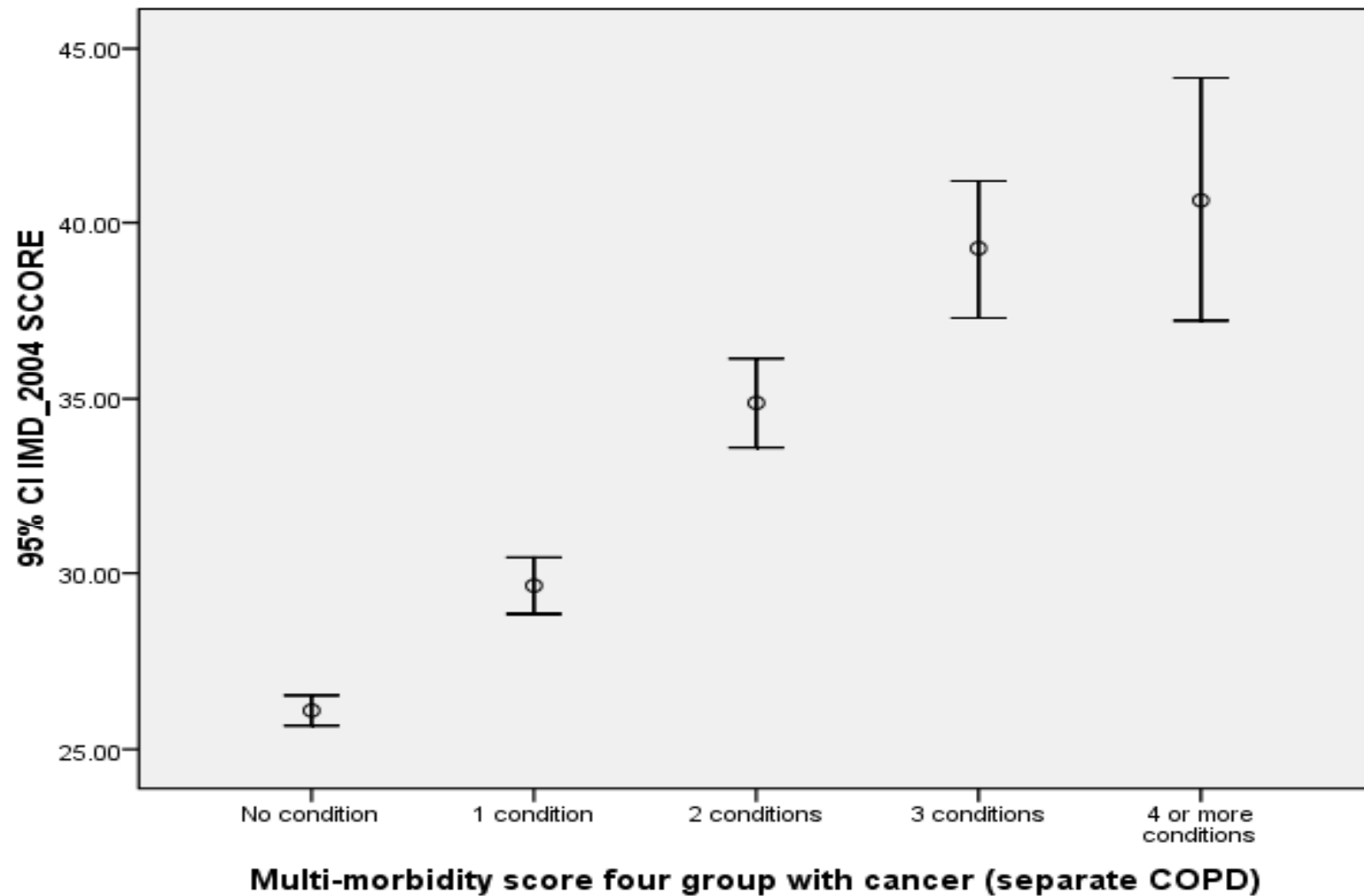
Number of conditions increases with age



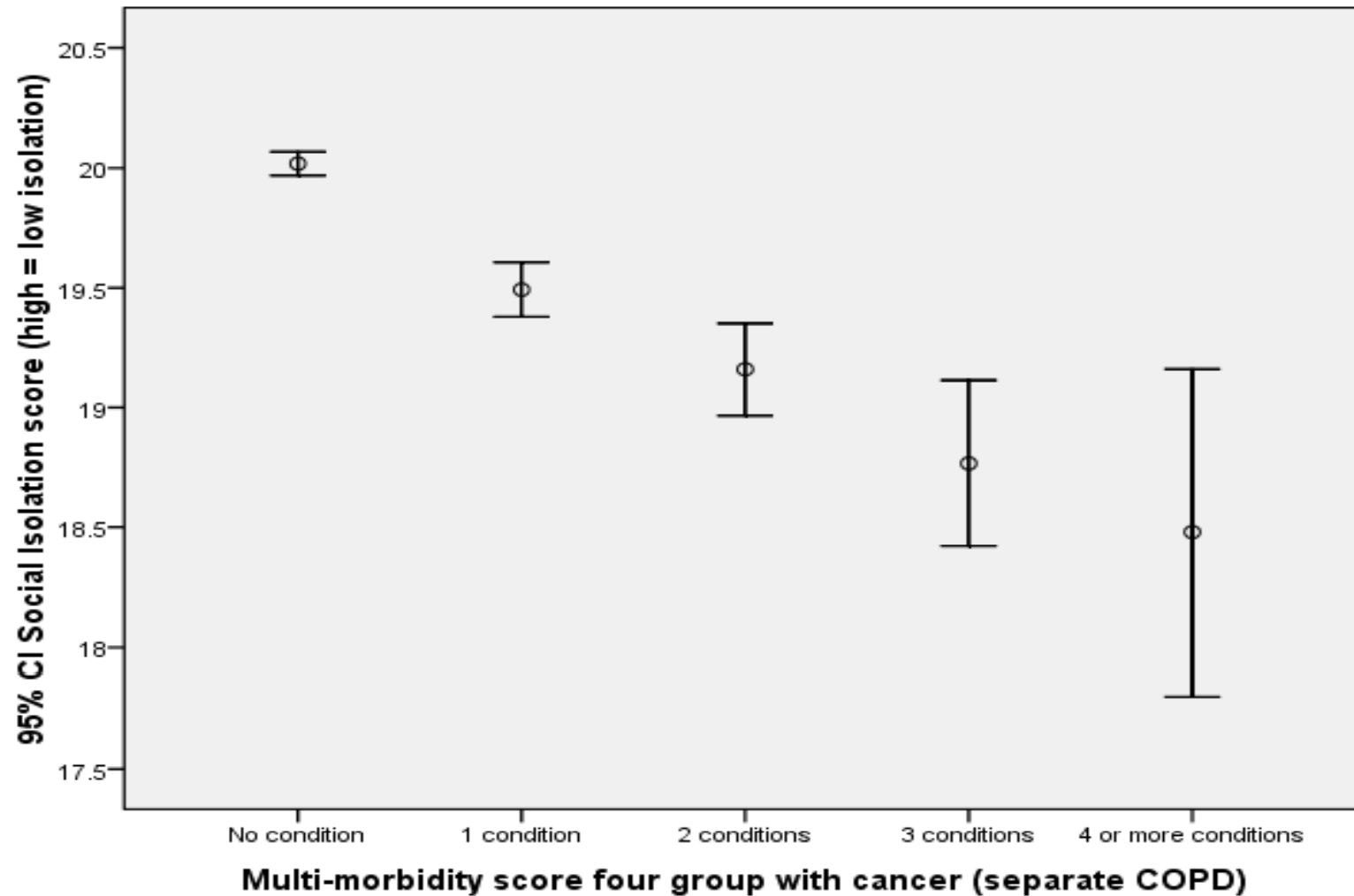
Odds of having comorbidity by deprivation quintile in Sheffield (adjusted for age and sex)



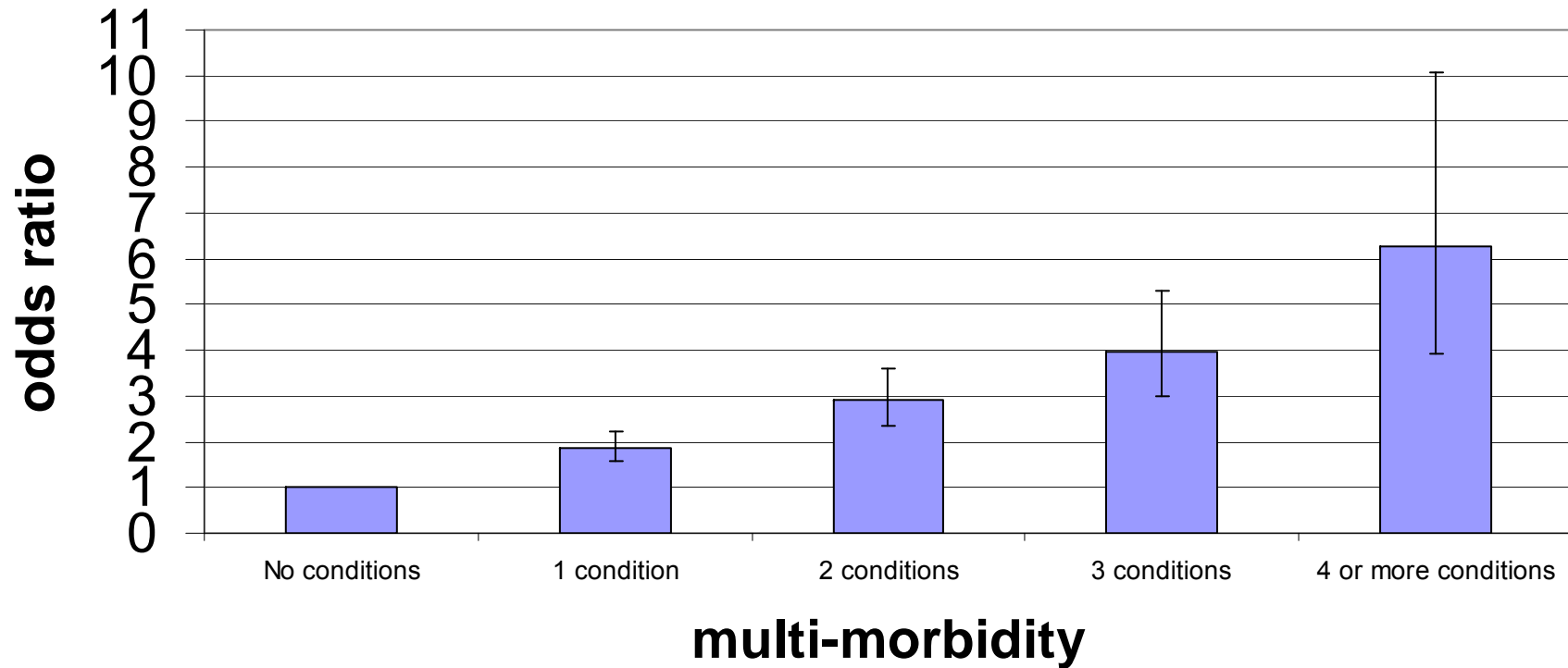
Deprivation and multi-morbidity



People with multi-morbidity more likely to be socially isolated

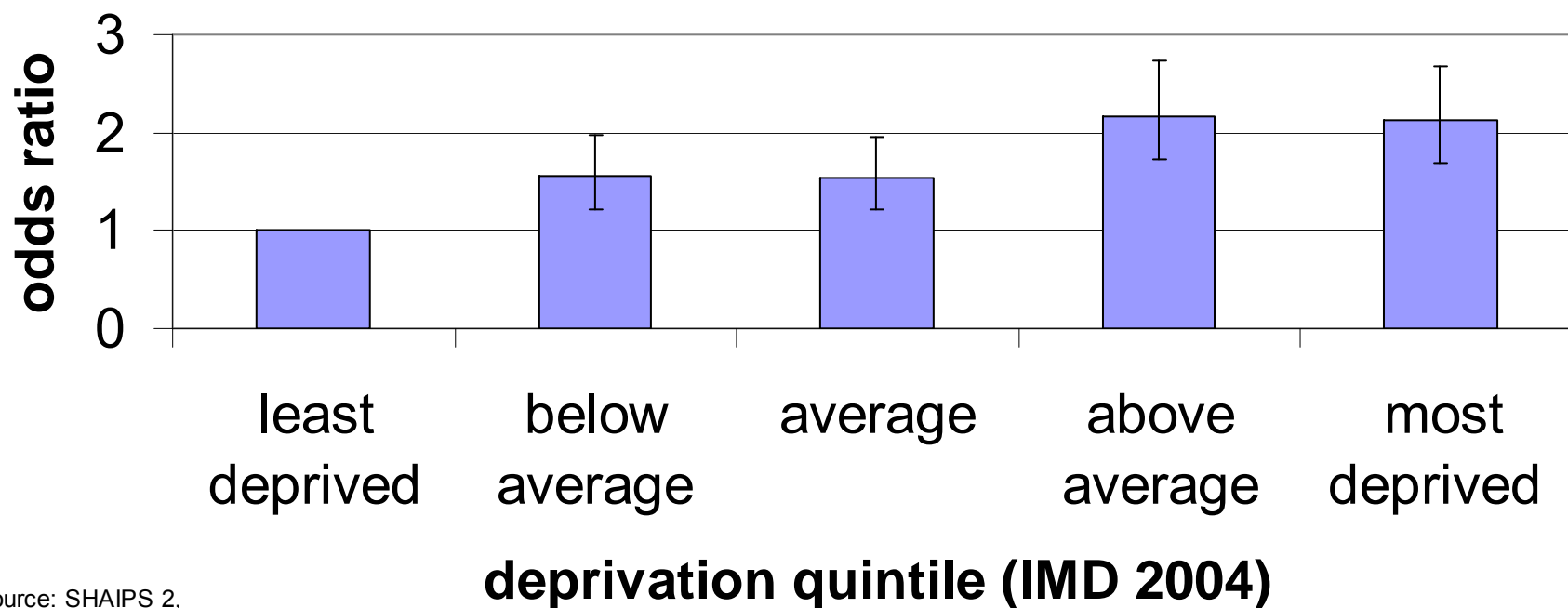


Odds of having died between April 2000 and March 2009 by multi-morbidity (adjusted for age and sex)



Source: SHAIPS 2, NHS Sheffield

Odds of having died between April 2000 and March 2009 by deprivation quintile in Sheffield (adjusted for age and sex)



Source: SHAIPS 2,
NHS Sheffield

Planned Analyses Include

- Further analysis of service use data
- Analysis of EuroQol EQ_5D health status data
- Logistic regression modelling to explore the relationship between depression, multimorbidity, and other key variables

Reference

- Coy, J., Skinner, J., Stead, M., Reid, G (2002). Sheffield – a picture of health? Sheffield Health Authority/Sheffield Primary Care Trusts
 - Downloadable from:
<http://www.sheffield.nhs.uk/shaips/>