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Mental Health Phenotyping

Who do you think you are?



Why use data linkage in MH?

Epidemiological investigations into causal influences face problems:

- People most likely to experience adverse outcomes may be less likely to participate in studies
- Many measures are self-reported and may be subject to bias and/or their clinical meaning may be unclear
- People lost to follow up

These problems may be partly overcome through using linkage to routine health and social data

Physical and mental health interface

-Depression, Sex and Achievement of ESC/EAS Lipid Targets Following Percutaneous Coronary Revascularisation (with Halcox, Ellins)



The Health Informatics Trial Enhancement Project (HITE): Using routinely collected primary care data to identify potential participants for a depression trial

Joanna McGregor, Caroline Brooks, Padmaja Chalasani, Jude Chukwura, Hayley Hutchings, Ronan A Lyons and Keith Lloyd*

Abstract

Background: Recruitment to clinical trials can be challenging. We identified anonymous potential participants to an existing pragmatic randomised controlled depression trial to assess the feasibility of using routinely collected data to identify potential trial participants. We discuss the strengths and limitations of this approach, assess its potential value, report challenges and ethical issues encountered.

Economou et al. *BMC Research Notes* 2012, **5**:95
http://www.biomedcentral.com/1755-2800/5/95



RESEARCH ARTICLE

Open Access

The health informatics cohort enhancement project (HICE): using routinely collected primary care data to identify people with a lifetime diagnosis of psychotic disorder

Alexis Economou¹, Michelle Grey¹, Joanna McGregor¹, Nick Craddock², Ronan A Lyons¹, Michael J Owen¹, Vaughn Price¹, Sue Thomson¹, James TR Walters¹ and Keith Lloyd^{1*}

Abstract

Background: We have previously demonstrated that routinely collected primary care data can be used to identify potential participants for trials in depression [1]. Here we demonstrate how patients with psychotic disorders can be identified from primary care records for potential inclusion in a cohort study. We discuss the strengths and limitations of this approach, assess its potential value and report challenges encountered.

Methods: We designed an algorithm with which we searched for patients with a lifetime diagnosis of psychotic disorders within the Secure Anonymised Information Linkage (SAIL) database of routinely collected health data. The algorithm was validated against the "gold standard" of a well established operational criteria checklist for psychotic and affective illness (OPICAT). Case notes of 100 patients from a community mental health team (CHMT) in Swansea were studied of whom 80 had matched GP records.

Results: The algorithm had favourable test characteristics, with a very good ability to detect patients with psychotic disorders (sensitivity > 0.7) and an excellent ability not to falsely identify patients with psychotic disorders (specificity > 0.9).

Conclusions: With certain limitations our algorithm can be used to search the general practice data and reliably identify patients with psychotic disorders. This may be useful to identify potential participants for research studies.

John et al. *BMC Medical Informatics and Decision Making* 2010, **10**:35
DOI:10.1186/12911-010-0079-7

BMC Medical Informatics and Decision Making

RESEARCH ARTICLE

Open Access

Case-finding for common mental disorders of anxiety and depression in primary care: an external validation of routinely collected data

Ann John^{1,2*}, Joanna McGregor¹, David Fone^{2,3}, Frank Dunstan⁴, Rosie Cornish⁴, Ronan A Lyons^{1,2} and Keith R Lloyd¹

Open Access

Research

BMJ Open Defining adolescent common mental disorders using electronic primary care data: a comparison with outcomes measured using the CIS-R

Rosie P Cornish¹, Ann John^{2,3}, Andy Boyd¹, Kate Tilling^{1,4}, John Macleod¹

To cite: Cornish RP, John A, Boyd A, et al. Defining adolescent common mental disorders using electronic primary care data: a comparison with outcomes measured using the CIS-R. *BMJ Open* 2013, **3**:e005192. doi:10.1136/bmjopen-2012-002192

* Please see full text for author details. Full text available at: <http://bmjopen.bmj.com/content/3/2/e005192>

ABSTRACT

Objective: To compare the prevalence of common mental disorders (CMDs) derived from data held in primary care records with the findings using the revised Clinical Interview Schedule (CIS-R) to assess the potential robustness of findings based only on routinely collected data.

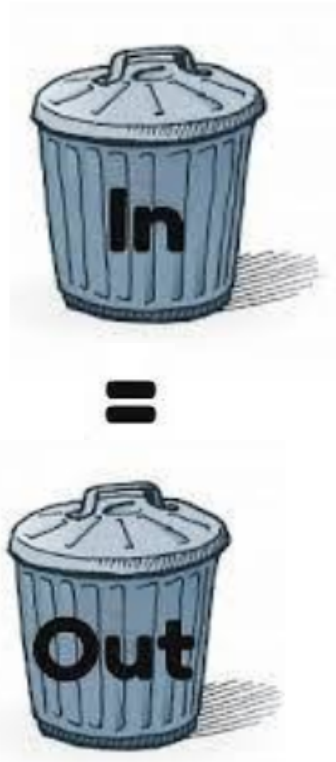
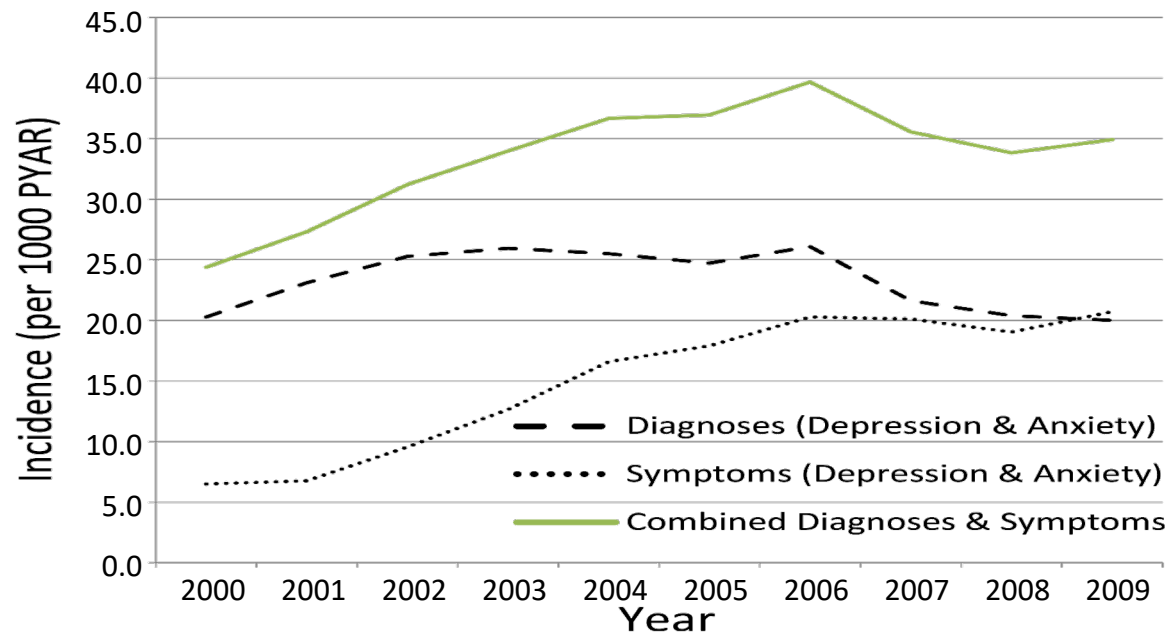
Design and setting: Comparison study using linkage between the 100,000 Family Study of Parents and Children (100K) and electronic primary care records. **Participants:** We studied 1965 adolescents who had completed the CIS-R in ALSPAC at age 15-16 years and had linkage established to their primary care records.

Strengths and limitations of this study

- We were able to successfully link data of Ann Longitudinal Study of Parents and Children (ALSPAC) individuals to their electronic primary care records.
- We were able to compare the relative performance of a number of different definitions of common mental disorders derived using routinely collected primary care data with measures derived from a structured, and widely validated, survey assessment.
- One of the first study to investigate this issue using electronic data.

Where it all started: Code Validation...

- CMD, relapsing remitting conditions, coding behaviour
- Create code lists and algorithms for use across studies, 4 nation spell
- Domain expertise
- Linked to survey data, validated measures
- Repeated for CYP using ALSPAC data
- Also SH, ED, ADHD, LD, psychotic disorders
- Keep up to date, through use across other studies and disciplines e.g. alcohol



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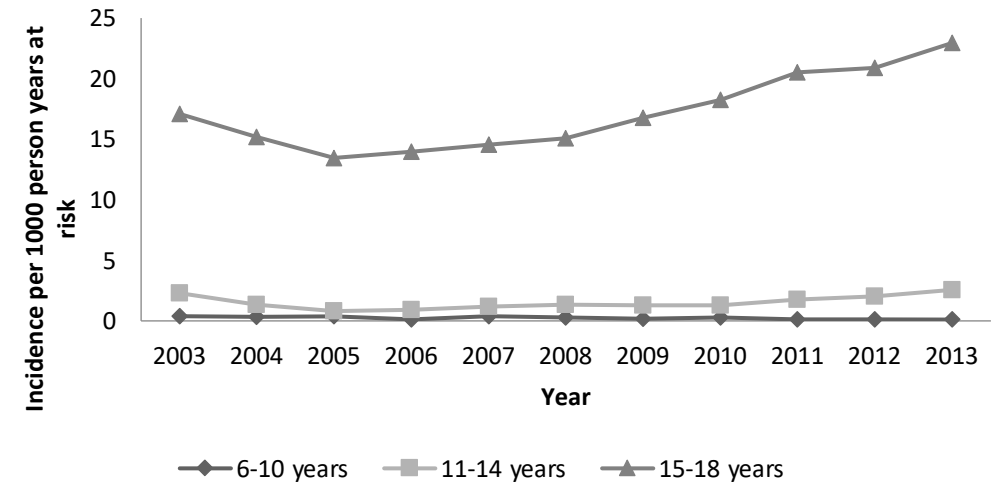
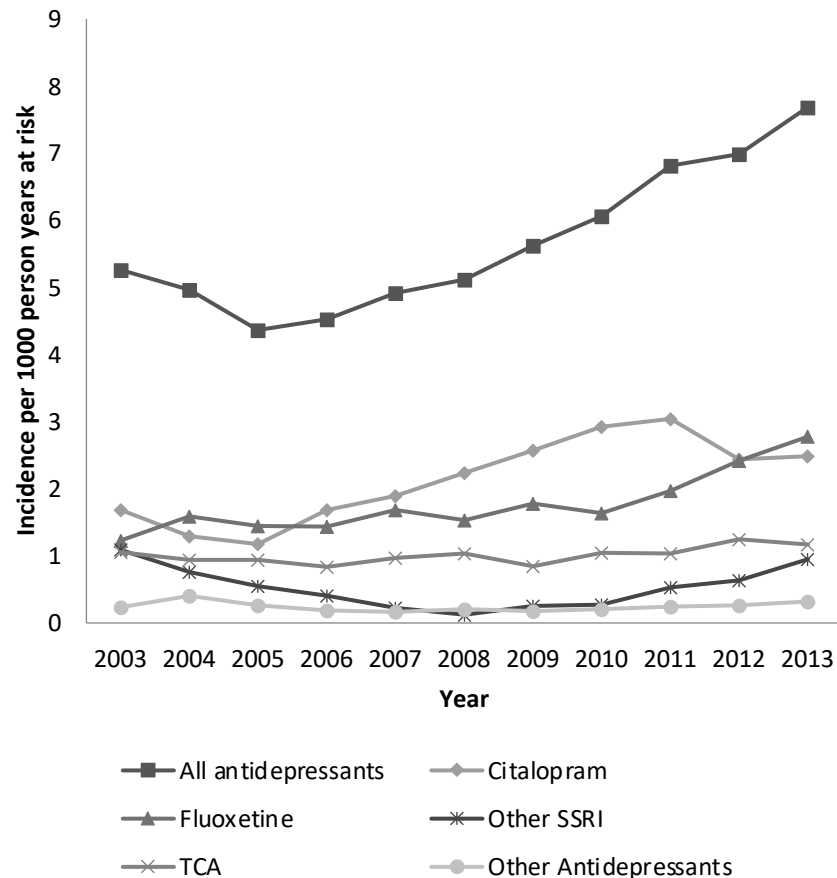
Developing a standardised approach to the aggregation of inpatient episodes into person-based spells in all specialties and psychiatric specialties

Sarah Rees^{1,2}, Ashley Akbari¹, Huw Collins¹, Sze Chim Lee¹, Amanda Marchant¹, Arfon Rees¹, Daniel Thayer¹, Ting Wang¹, Sophie Wood¹ and Ann John¹



Depression and Antidepressant prescribing

Influencing real time practice



Journal List > Cambridge Open > PMC5122314



Psychol Med. 2016 Dec; 46(16): 3315–3327.

Published online 2016 Sep 9. doi: [10.1017/S0033291716002099](https://doi.org/10.1017/S0033291716002099)

PMCID: PMC5122314

PMID: [27879187](https://pubmed.ncbi.nlm.nih.gov/27879187/)

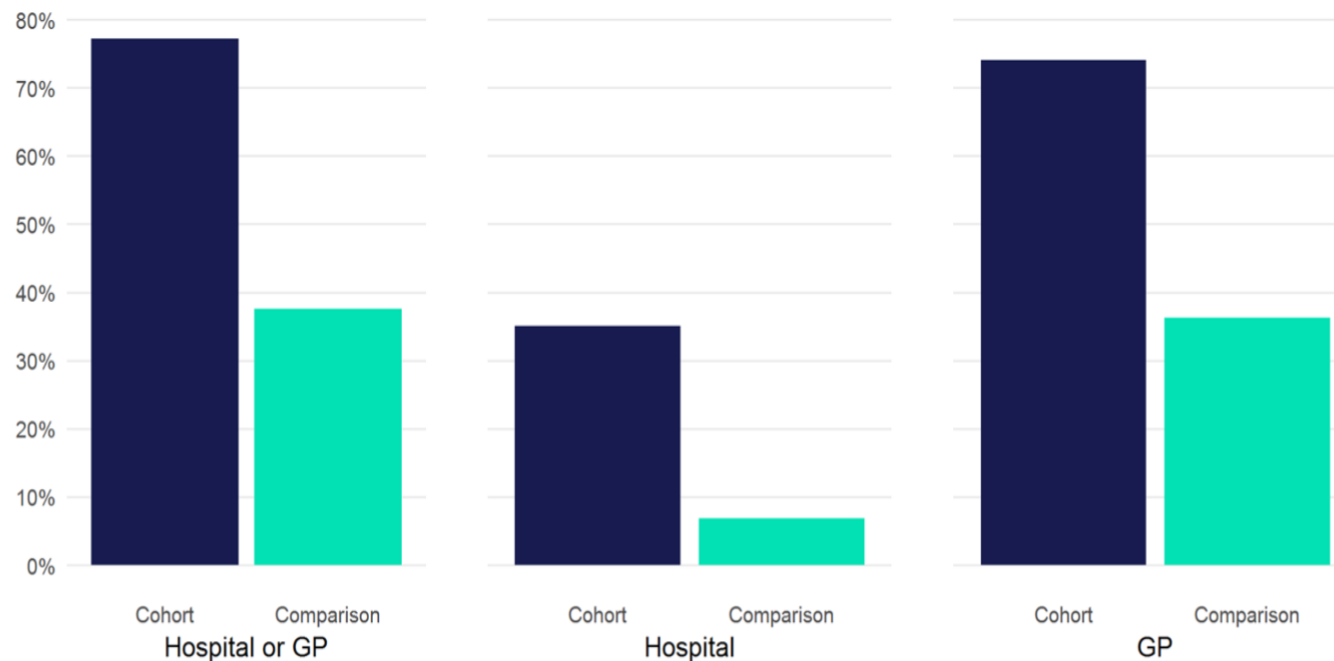
Recent trends in primary-care antidepressant prescribing to children and young people: an e-cohort study

[A. John](#),^{1,*} [A. L. Marchant](#),¹ [D. L. Fone](#),² [J. I. McGregor](#),¹ [M. S. Dennis](#),¹ [J. O. A. Tan](#),¹ and [K. Lloyd](#)¹

Cafcass data- novel linkages

Multi-disciplinary working

Figure 5: Proportion of mothers with at least one mental health-related contact or admission measured using SAIL health data



Griffiths et al. *BMC Pregnancy and Childbirth* (2020) 20:697
<https://doi.org/10.1186/s12884-020-03370-4>

BMC Pregnancy and Childbirth

RESEARCH ARTICLE

Open Access

Maternal health, pregnancy and birth outcomes for women involved in care proceedings in Wales: a linked data study

L. J. Griffiths^{1*}, R. D. Johnson¹, K. Broadhurst², S. Bedston², L. Cusworth², B. Alrouh², D. V. Ford¹ and A. John¹



Linkage of School cohort data- bias in survey responses

Table 4 Routine records of mental health diagnoses and specialty contacts among linked cohort versus Welsh population

From: [Sources of potential bias when combining routine data linkage and a national survey of secondary school-aged children: a record linkage study](#)


	Linked cohort	Welsh population (aged 11–16 yrs)	
	n (%) [95% CIs]		
Any mental health diagnoses	373 (5.8%) [5.26, 6.42]	20,551 (8.8%) [8.72, 8.95]	
Contact with a mental health speciality	334 (5.2%) [4.68, 5.78]	17,994 (7.7%) [7.63, 7.85]	
Depression & anxiety diagnoses	125 (2.0%) [1.63, 2.32]	8088 (3.5%) [3.40, 3.55]	
Self-harm	36 (0.6%) [0.40, 0.78]	3311 (1.4%) [1.38, 1.42]	

BMC Medical Research Methodology

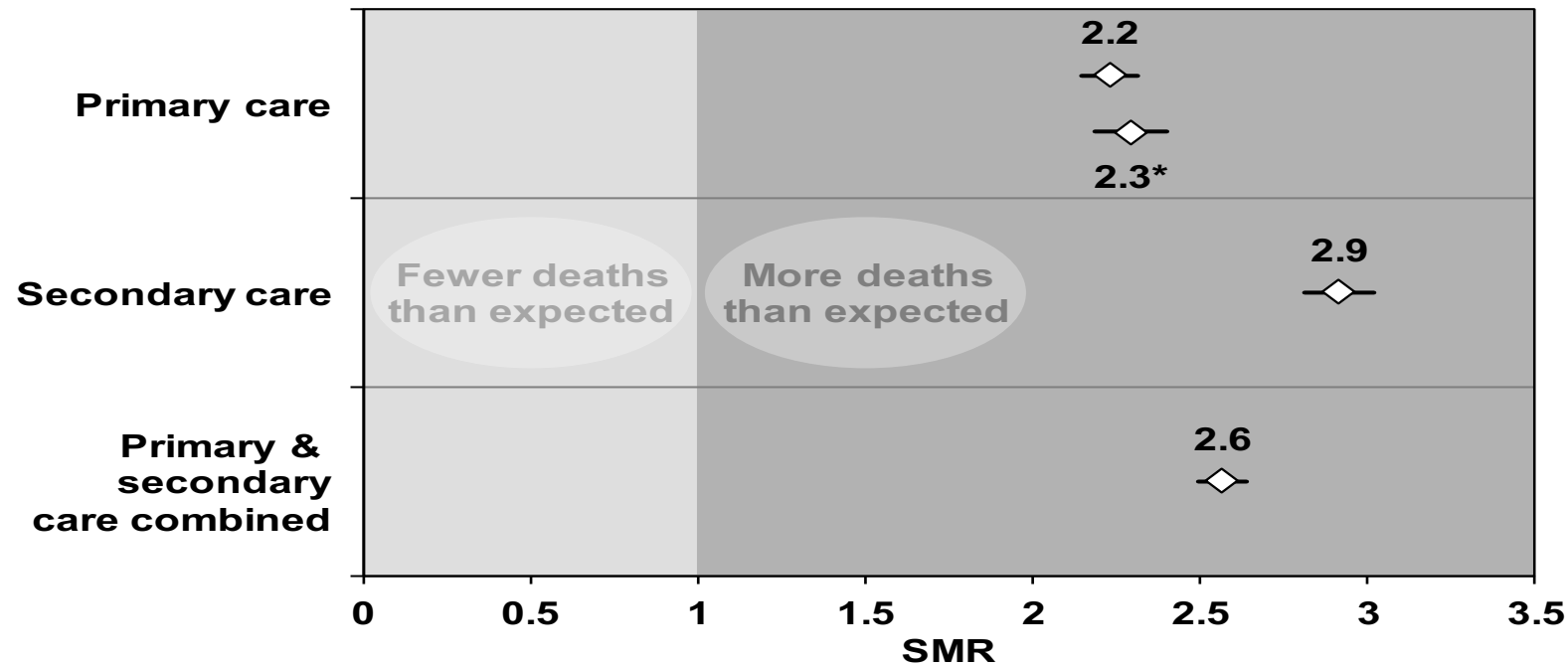
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Research article | [Open Access](#) | Published: 02 July 2020


Sources of potential bias when combining routine data linkage and a national survey of secondary school-aged children: a record linkage study

[Kelly Morgan](#) , [Nicholas Page](#), [Rachel Brown](#), [Sara Long](#), [Gillian Hewitt](#), [Marcos Del Pozo-Banos](#), [Ann John](#), [Simon Murphy](#) & [Graham Moore](#)

All-cause SMRs for the study cohorts



Published online by Cambridge University Press on 04 April 2017

 ERIC
Research Notes

The health informatics cohort enhancement project (HICE): using routinely collected primary care data to identify people with a primary diagnosis of psychotic disorder

David A. Clark, Victoria A. Morgan, David A. Clark, Robert A. Lyons, Michael J. Owen, Susan E. Layman, David H. Wagner and Keith Lloyd

Abstract

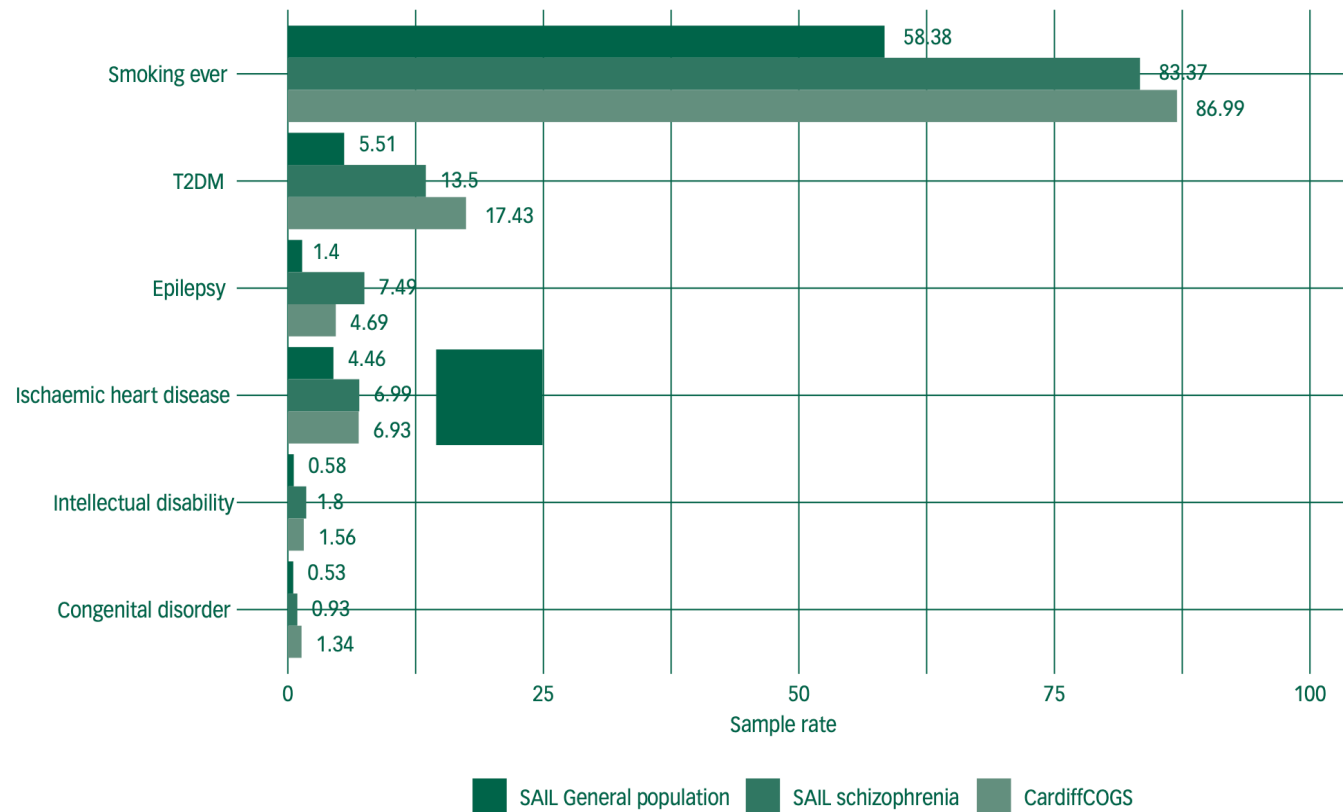
Background: The health informatics cohort enhancement project (HICE) is a large-scale project that routinely collected primary care data can be used to identify people with a primary diagnosis of psychotic disorder. The project is a collaboration between the National Institute of Mental Health (NIMH) and the National Institute of Health (NIH) to identify people with a primary diagnosis of psychotic disorder.

Methods: This paper describes the HICE project and the data sources used to identify people with a primary diagnosis of psychotic disorder. The project is a collaboration between the NIMH and the NIH to identify people with a primary diagnosis of psychotic disorder.

Results: The HICE project is a large-scale project that routinely collected primary care data can be used to identify people with a primary diagnosis of psychotic disorder. The project is a collaboration between the NIMH and the NIH to identify people with a primary diagnosis of psychotic disorder.

Conclusions: The HICE project is a large-scale project that routinely collected primary care data can be used to identify people with a primary diagnosis of psychotic disorder. The project is a collaboration between the NIMH and the NIH to identify people with a primary diagnosis of psychotic disorder.

Linkage to genetic CNV and PRS



BJPsych Open (2020)
6, e139, 1–7. doi: 10.1192/bjo.2020.42

Impact of schizophrenia genetic liability on the association between schizophrenia and physical illness: data-linkage study

Kimberley M. Kendall, Ann John, Sze Chim Lee, Elliott Rees, Antonio F. Pardiñas, Marcos Del Pozo Banos, Michael J. Owen, Michael C. O'Donovan, George Kirov, Keith Lloyd, Ian Jones, Sophie E. Legge* and James T. R. Walters*

Background

Individuals with schizophrenia are at higher risk of physical illnesses, which are a major contributor to their 20-year reduced

smoking (SRR = 1.44) in comparison with the general SAIL population. In those with schizophrenia, carrier status for schizophrenia-associated CNVs and neurodevelopmental

Fig. 1 Rates of physical health phenotypes in the Cardiff Cognition in Schizophrenia (CardiffCOG) schizophrenia sample, the schizophrenia population in Secure Anonymised Information Linkage (SAIL) and the general population in SAIL.

T2DM, type 2 diabetes mellitus.