

New perspectives on routine data: How can a mental health register make a valid contribution to our understanding of the aetiology of schizophrenia?

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Advantages of using a mental health case register

1. Efficient and cost-effective
2. Large samples reduce risk of Type II errors in study of rare disorders
3. Register data are collected prospectively, eliminating retrospective recall bias
4. Other potential biases may be minimised in whole-of-population registers with broad coverage:
 - ◆ urban + rural coverage reduces geographic bias
 - ◆ inpatients + outpatients reduces treatment bias: (SMI)
 - ◆ public + private facilities reduces socio-economic bias
5. Linkage between registers optimises the availability of risk exposure and confounder variables
6. The longitudinal nature of registers facilitates risk factor identification, where there is a long lag between risk exposure and illness onset
7. Genealogies (families on the registers) enable the researcher to look at gene-environment interactions

Construction of variables for analysis from the mental health register

- Age at onset
- Duration of illness
- Severity of illness:
 - Number and length of inpatient admissions
 - Total number of inpatient days
- Patterns of illness progression
- Diagnostic profiles (validation of diagnosis)
- Service use
- SES proxies: postcode for use in SEIFA* analysis
marital status
ethnicity and indigenous status

**Socio-Economic Indexes for Areas (ABS)*

Schizophrenia: a disorder of many genes of small effect + ?

Clues to environmental risk factors...

- Season of birth
- Pregnancy and birth complications
- Urbanicity
- Migration/ethnicity
- Hormonal factors
- Paternal age
- Psychosocial stress
- Cannabis use

MHIS:
Women with
another mental
disorder
1966-1996

MHIS:
Women with
schizophrenia [SZ]
and affective
psychoses [AP]

MCHRDB:
Women with
at least one
child born
1980-1992

1831 Case mothers
[382 SZ; 1449 AP]
• 3174 offspring on
MCHRDB identified
• data on OCs retrieved

1831 Comparison
mothers
• 3129 offspring on
MCHRDB identified
• data on OCs retrieved

Additional offspring linkages:

Sibships

Birth defects

Cerebral palsy

Intellectual Handicap

Mortality

Hospital morbidity

Cancer

Mental health

**MHIS: Mental Health
Information System**

79,600 women
Born 1931-80

**MCHRDB: Maternal &
Child Health
Research
Database**

308,000 births
Born 1980-92

Research database

Obstetric complications in women with psychosis relative to onset of illness: multivariate analysis

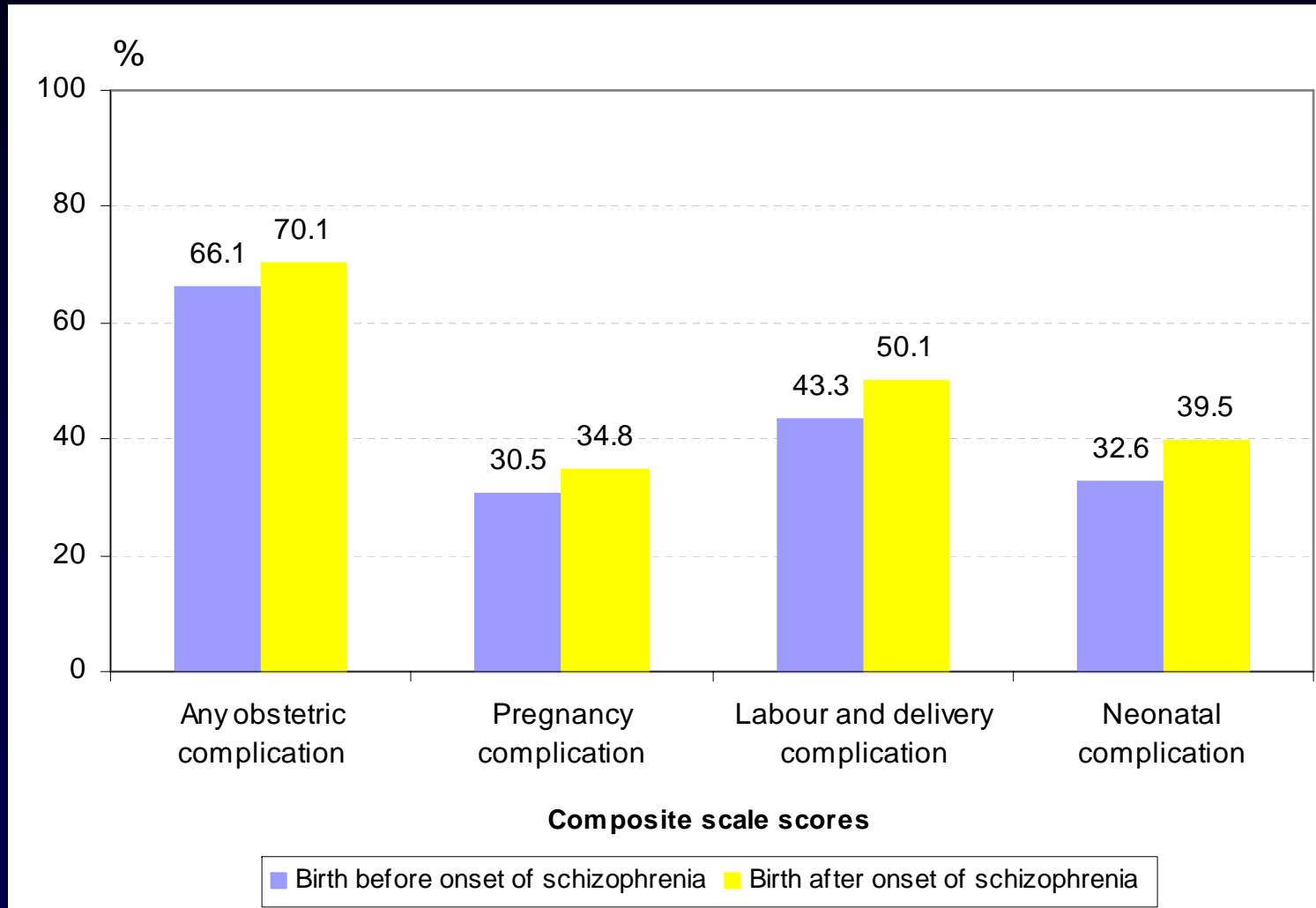
- After adjustment for confounders, the incidence of adverse outcomes was increased significantly only where the onset of illness preceded the birth

	Birth before onset	Birth after onset
Obstetric complications (adj, OR, 95% CI):		
Schizophrenia	0.9 (0.8-1.1)	1.1 (1.0-1.3)*
Bipolar disorder	1.0 (0.9-1.1)	1.1 (1.0-1.2)*
Unipolar depression	1.1 (0.9-1.2)	1.1 (1.0-1.3)*

*Odds Ratios (OR) adjusted for maternal age, height, marital status, parity;
Entire model adjusted for sibship clustering*

** significant*

Obstetric complications in women with schizophrenia relative to onset of psychiatric illness



Obstetric complications in women with schizophrenia relative to onset of psychiatric illness

OCs specific to mothers with schizophrenia where post-onset rates were not increased including

- Birthweight
- Cardiovascular defects
- Minor physical anomalies

MOTHER



BIRTH



CHILD



Schizophrenia



OC



Schizophrenia

Maternal medication use

Paternal age

Head injury

Stressful life events

Cognitive deficits

Intellectual disability

FATHER?



**Other
environmental
risk factors**

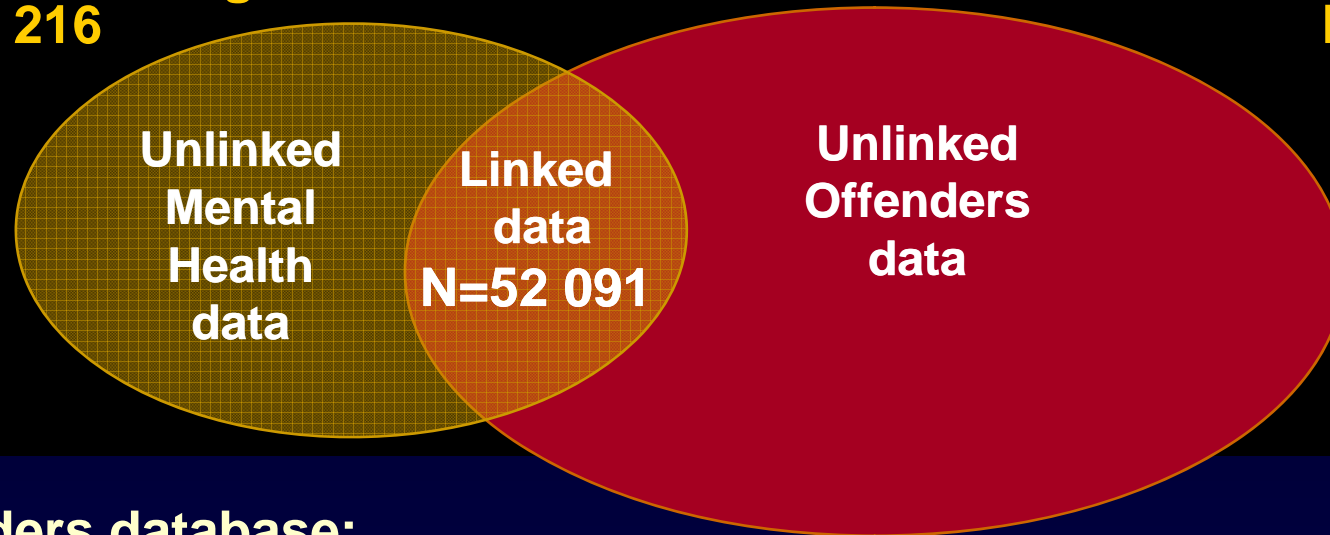
**Other
outcomes
along the
pathway**

OC: Obstetric Complications

Criminal offending and mental illness

Mental Health register
N = 217 216

Offenders Arrest database
N = 388 082



Offenders database:

- 13.4% of individuals on the Offenders Arrest database had at least one contact with in- or outpatient mental health services

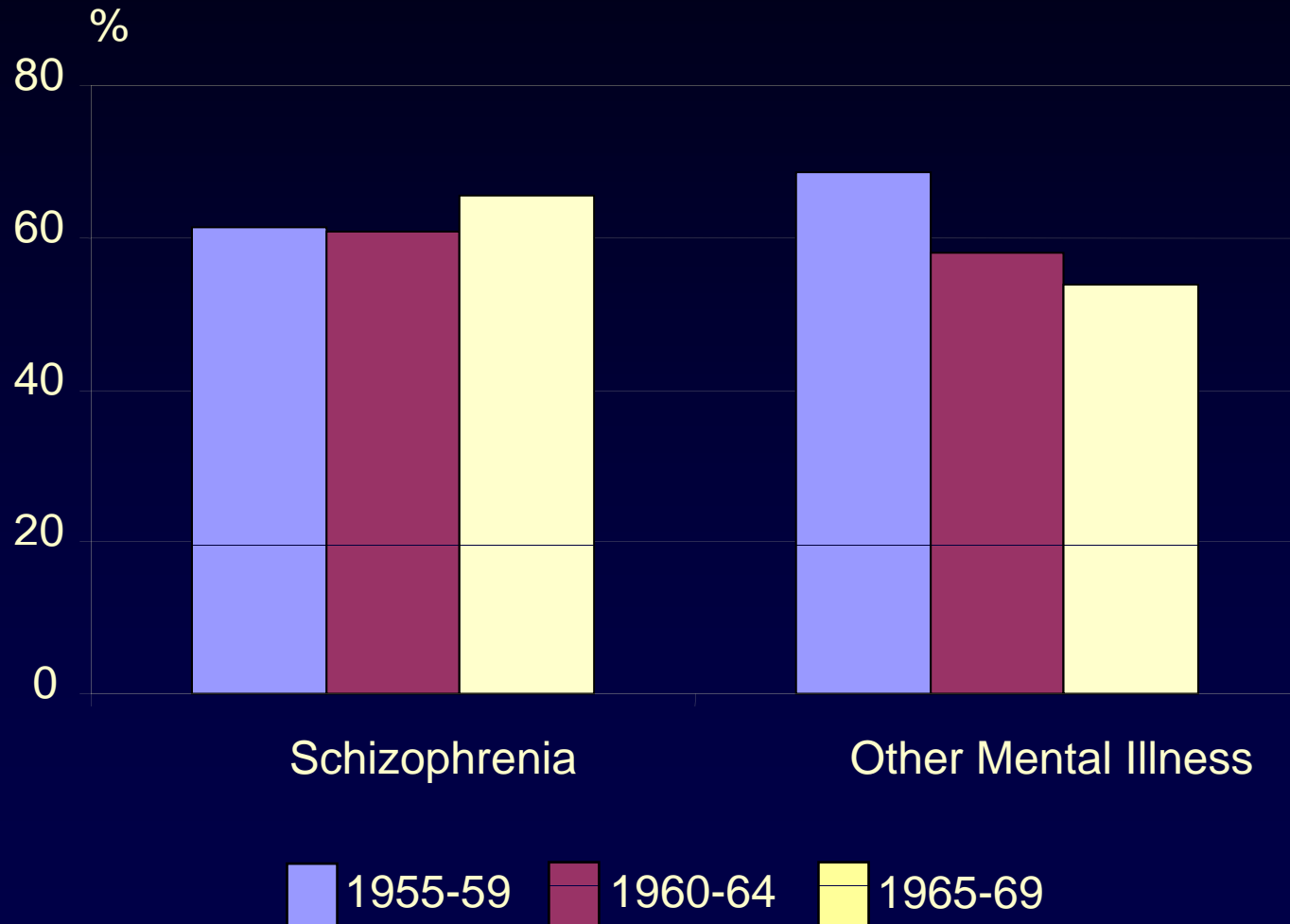
Mental Health register:

- 24.0% of individuals on the Mental Health register had at least one arrest recorded on the Offenders Arrest database

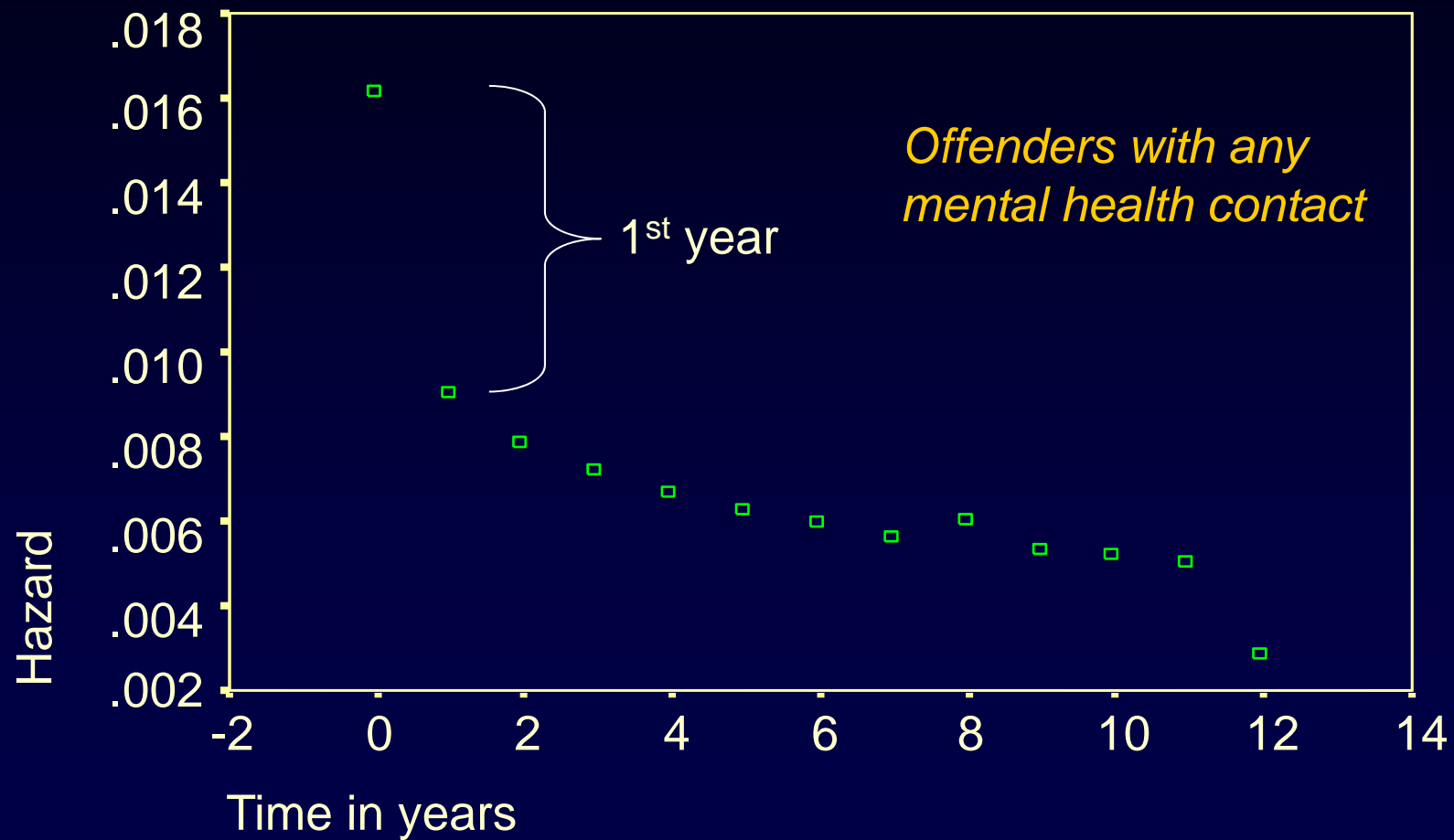
**Percentage within diagnostic category
with at least one recorded offence,
including minor offences**

	% with offence record	N
<i>Selected diagnostic categories</i>		
Alcohol & drug related	48.5	22 046
Personality disorders	39.1	7 229
Schizophrenia	32.5	8 031
Affective psychoses	21.8	10 379
Neurotic disorders	16.3	34 437
<i>All diagnostic categories</i>	24.0	217 216

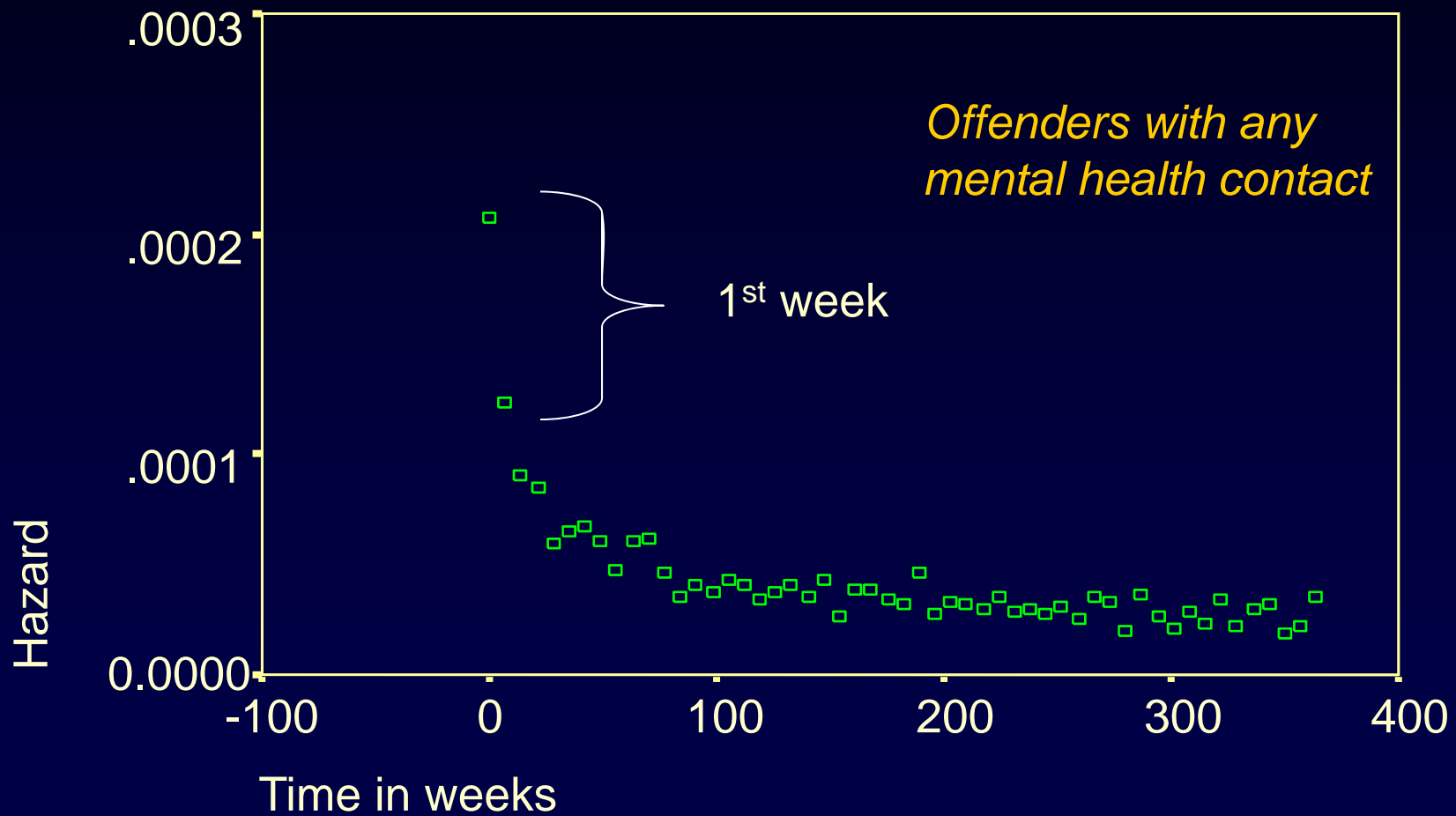
First arrest prior to first contact with mental health system (%)



Time from first arrest to first mental health contact (years)



Time from first arrest to first mental health contact (weeks)



Conclusion

- Mental health registers are an efficient and cost effective research tool, especially if used in linkage with other registers
- By exploiting the advantages of mental health registers, especially their longitudinal nature, researchers have a powerful resource for investigating the aetiology of schizophrenia and other complex disorders.
- The addition of quantitative measures of qualitative experience as well as other data fields will further enhance the capacity of mental health registers to answer important research and service related questions.

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