

**Cardiovascular disease incidence among people with major mental disorders in
Scotland, 1991-2015: a retrospective cohort study**

Supplementary material

Supplementary Table 1 Mental disorder groups and associated ICD codes*

Mental disorder	ICD10 codes	ICD9 codes
Mental and behavioural disorders due to psychoactive substance use	F10-F19	291.0-292.9; 303.0-305.8
Schizophrenia, schizotypal and delusional disorders	F20-F29	295.0-295.9; 297.0-297.9; 298.1; 298.3; 298.4; 298.8; 298.9
• Schizophrenia & schizoaffective disorders	F20 & F25	295.0-295.3; 295.6-295.9
• Other psychoses (schizotypal disorders; acute & transient psychosis; delusional disorders and other psychotic disorders)	F21-F24; F28 & F29	295.4; 295.5; 297.0-297.9; 298.1; 298.3; 298.4; 298.8; 298.9
Mood (affective) disorders	F30-F39	296.0-296.9; 298.0; 311;
• Bipolar disorder (manic episode & bipolar affective disorder)	F30-F31	296.0-296.1; 296.4-296.7
• Depressive episode; recurrent depressive disorder;	F32-F33	296.2-296.3; 298.0; 311
• persistent mood (affective) disorder; other mood (affective) disorders & unspecified mood (affective) disorders	F34, F38 & F39	296.8; 296.9
Neurotic, stress-related and somatoform disorders	F40-F48	300.0-300.9; 298.2; 306.0-306.9; 307.8-309.0
• Anxiety and obsessive compulsive disorders, stress-related & adjustment disorders and other neurotic disorders	F40-F43 & F48	300.0-300.9; 308.0-309.99
• Dissociative disorders & somatoform disorders and other neurotic disorders	F44 & F45	298.2; 306.0-306.9; 307.8-307.89
Behavioural syndromes associated with physiological disturbances and physical factors	F50-F59	307.1; 307.4-307.5; 316-316.9
• Eating disorders	F50	307.1; 307.5
• Non-organic sleep disorders & other behavioural syndromes associated with physiological disturbances and physical factors	F51-F59	307.4; 316-316.9
Disorders of adult personality and behaviour	F60-F69	301.0-302.9
Disorders of psychological development	F80-F89	299.0-299.9; 315.0-315.9
Behavioural and emotional disorders with onset in childhood and adolescence	F90-F98	312.0-314.9; 307.0-307.3; 307.6-307.7
Unspecified mental disorder	F99	No equivalent code

*headings in bold represent broad groups, which in this algorithm are further separated into subgroups for analyses of specific disorders

Supplementary Table 2 Age-standardised incidence of ischaemic heart disease and stroke among adults aged 40 years or over in Scotland, by mental health disorder, stratified by sex and time period, for 1990-2015

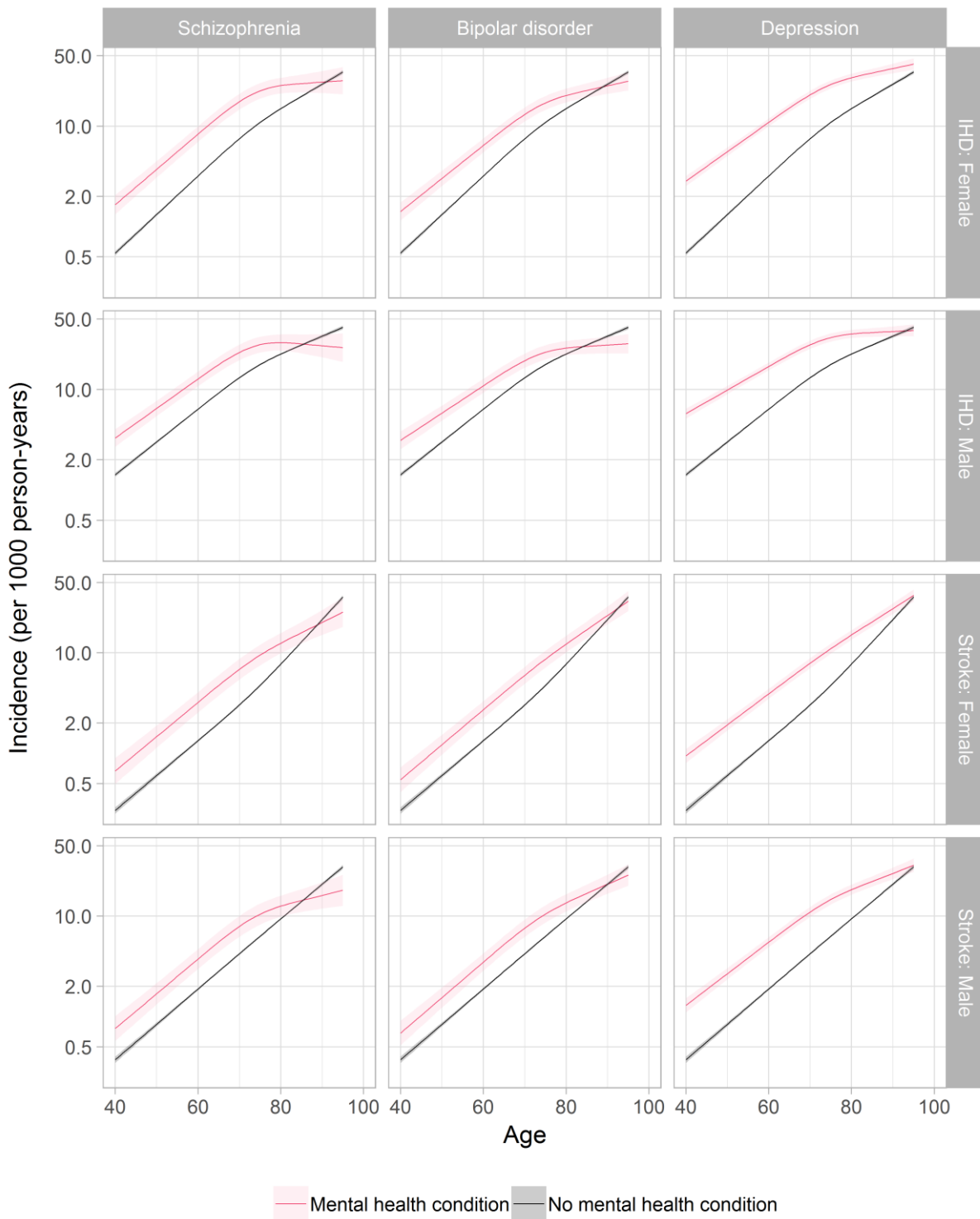
Time period	Age-standardised incidence rate, per 1000 person-years* (95% CI)			
	No mental illness	Schizophrenia	Bipolar disorder	Depression
MEN				
Ischaemic heart disease				
1991-1995	18.2 (18.1 - 18.4)	26.1 (22.9 - 29.2)	22.8 (20.6 - 25.1)	37.2 (33.5 - 40.9)
1996-2000	15.7 (15.5 - 15.8)	21.9 (19.4 - 24.4)	22.8 (20.5 - 25.0)	37.0 (34.4 - 39.6)
2001-2005	14.4 (14.3 - 14.6)	18.0 (16.1 - 20.0)	18.7 (16.7 - 20.7)	27.4 (25.7 - 29.2)
2006-2010	12.7 (12.6 - 12.8)	16.0 (14.4 - 17.7)	18.0 (16.1 - 20.0)	24.3 (22.9 - 25.7)
2011-2015	10.4 (10.3 - 10.5)	14.7 (13.2 - 16.1)	14.8 (13.1 - 16.4)	19.4 (18.3 - 20.5)
Stroke				
1991-1995	7.2 (7.1 - 7.3)	11.0 (8.7 - 13.3)	13.2 (11.5 - 14.9)	20.6 (17.9 - 23.2)
1996-2000	6.2 (6.1 - 6.3)	10.1 (8.3 - 11.8)	8.5 (7.2 - 9.8)	16.5 (14.8 - 18.3)
2001-2005	5.4 (5.2 - 5.3)	8.4 (7.0 - 9.9)	8.1 (6.8 - 9.4)	13.0 (11.8 - 14.2)
2006-2010	4.35 (4.2 - 4.3)	6.5 (5.4 - 7.6)	5.6 (4.6 - 6.7)	9.7 (8.8 - 10.6)
2011-2015	3.7 (3.7 - 3.8)	5.6 (4.6 - 6.5)	5.0 (4.1 - 5.9)	8.0 (7.3 - 8.7)
WOMEN				
Ischaemic heart disease				
1991-1995	10.8 (10.7 - 10.9)	16.9 (14.8 - 18.9)	15.6 (14.5 - 16.7)	27.4 (25.4 - 29.4)
1996-2000	9.9 (9.8 - 9.9)	13.1 (11.4 - 14.7)	14.6 (13.6 - 15.7)	24.3 (22.9 - 25.8)
2001-2005	9.0 (8.9 - 9.0)	13.2 (11.7 - 14.7)	13.9 (12.9 - 15.0)	21.3 (20.3 - 22.4)
2006-2010	7.8 (7.7 - 7.8)	12.9 (11.5) - 14.3)	11.9 (10.9 - 13.0)	17.0 (16.1 - 17.8)
2011-2015	5.9 (5.8 - 6.0)	11.5 (10.3 - 12.8)	9.3 (8.4 - 10.2)	14.0 (13.3 - 14.7)
Stroke				
1991-1995	5.7 (5.6 - 5.8)	8.5 (7.0 - 10.0)	9.7 (8.7 - 10.6)	15.0 (13.6 - 16.4)
1996-2000	5.1 (5.0 - 5.1)	9.3 (7.9 - 10.7)	7.7 (7.0 - 8.5)	12.1 (11.2 - 13.1)
2001-2005	4.4 (4.4 - 4.5)	8.1 (6.9 - 9.3)	7.5 (6.7 - 8.2)	10.7 (10.0 - 11.5)
2006-2010	3.6 (3.6 - 3.7)	7.0 (6.0 - 8.1)	5.9 (5.2 - 6.6)	8.0 (7.5 - 8.6)
2011-2015	3.2 (3.1 - 3.2)	5.1 (4.3 - 6.0)	4.9 (4.3 - 5.5)	6.5 (6.1 - 7.0)

*Standardised to the European Standard Population
CI = confidence interval

Supplementary Figure 1 Incidence (per 1000 person-years)* of ischaemic heart disease and stroke with increasing age, by mental health condition and sex, among people in the middle deprivation quintile, in Scotland in 2015

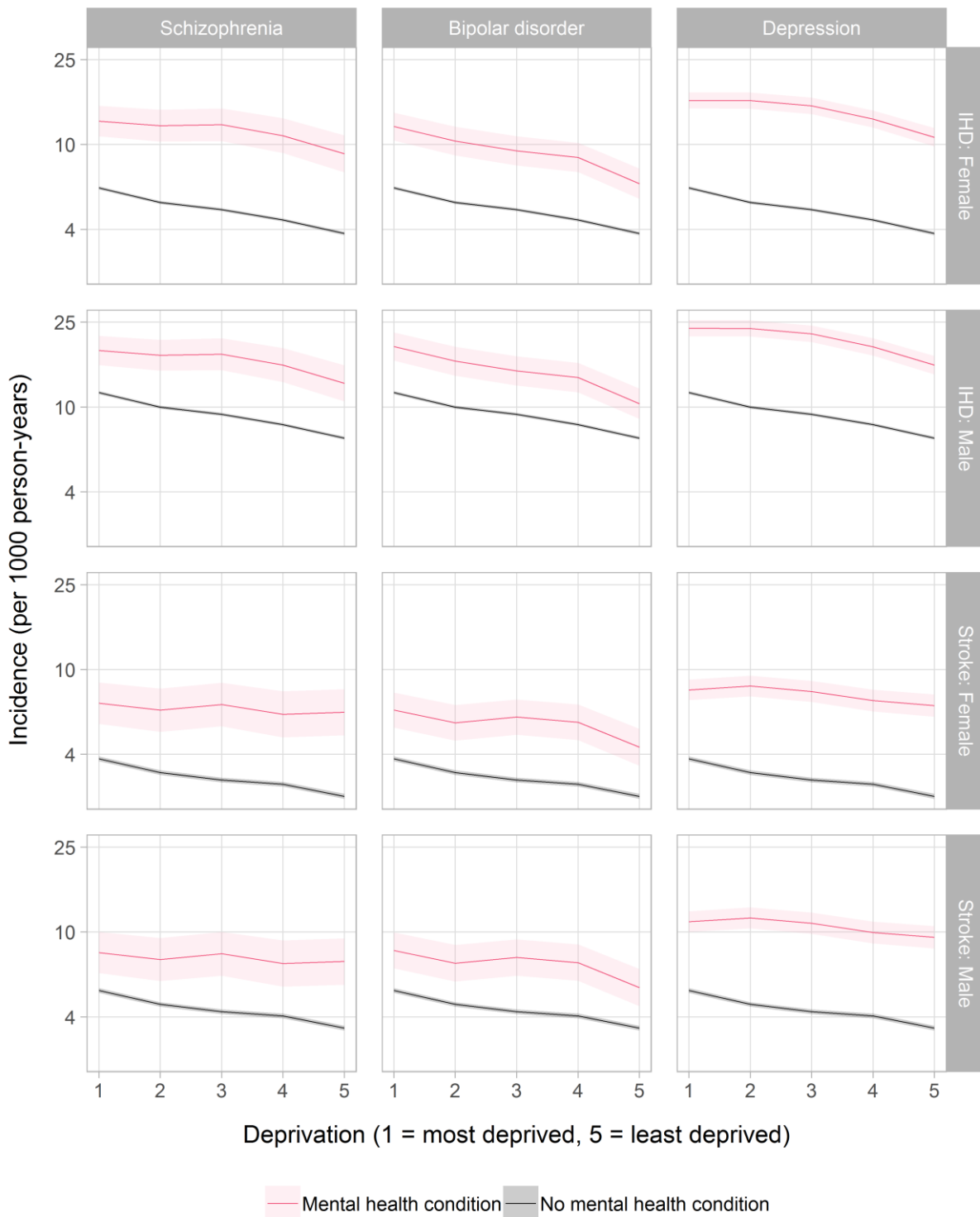
*Predicted incidence rates obtained from quasi-Poisson regression models including mental health status, age, sex, deprivation and time period, plus all mental health status and age interactions

IHD = ischaemic heart disease

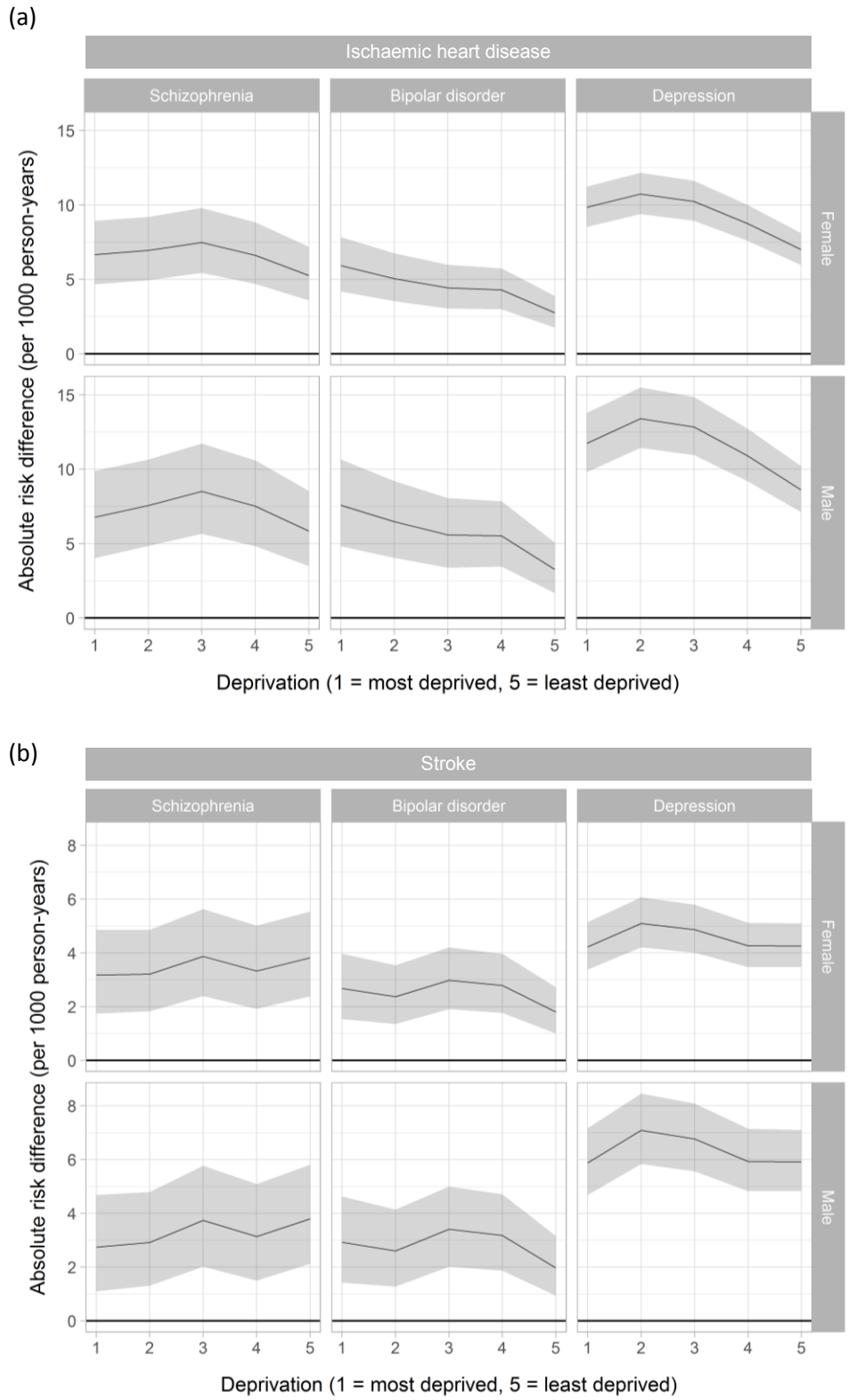


Supplementary Figure 2 Incidence (per 1000 person-years)* of ischaemic heart disease (IHD) and stroke by area-based deprivation level, for each mental health condition and by sex, among people aged 65 (IHD) and 70 (stroke) years, in Scotland in 2015

*Predicted incidence rates obtained from quasi-Poisson regression models including mental health status, age, sex, deprivation and time period, plus all mental health status and age interactions



Supplementary Figure 3 Difference in absolute risk of (a) ischaemic heart disease (in people aged 65) and (b) stroke (in people aged 70), comparing each mental health disorder against the no mental illness group, for men and women, by deprivation in Scotland, 2015



Supplementary Figure 4 Relative rates (with 95% confidence intervals)* of ischaemic heart disease (IHD) and stroke, comparing people with a history of hospitalisation for each mental disorder versus no mental illness by year, among those aged 65 (IHD) and 70 (stroke) years and in the middle deprivation quintile, in Scotland, from 1991-2015

*Predicted relative rates obtained from quasi-Poisson regression models including mental health status, age, sex, deprivation and time period, plus all mental health status and age interactions

