

## Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Mental disorder diagnostic categories (ICD-10 and ICD-8 codes)

| <b>Diagnostic category</b>   | <b>ICD-10 codes</b> | <b>Equivalent ICD-8 codes</b>   |
|--|---------------------|---|
| <i>1. Organic disorders</i><br>Organic, including symptomatic, mental disorders  | F00-F09             | 290.09, 290.10, 290.11, 290.18, 290.19, 292.x9, 293.x9, 294.x9, 309.x9      |
| <i>2. Substance use disorders</i><br>Mental and behavioral disorders due psychoactive substance use  | F10-F19             | 291.x9, 294.39, 303.x9, 303.20, 303.28, 303.90, 304.x9                      |
| <i>3. Schizophrenia</i><br>Schizophrenia and related disorders   | F20-F29             | 295.x9, 296.89, 297.x9, 298.29-298.99, 299.04, 299.05, 299.09, 301.83       |
| <i>4. Mood disorder</i><br>Mood disorders  | F30-F39             | 296.x9 (excl 296.89), 298.09, 298.19, 300.49, 301.19                        |
| <i>5. Neurotic disorders</i><br>Neurotic, stress-related, and somatoform disorders, and eating disorders   | F40-F48, F50        | 300.x9 (excl 300.49), 305.x9 305.68, 307.99, 305.60, 306.50, 306.58, 306.59 |
| <i>6. Personality disorders</i><br>Personality disorders   | F60                 | 301.x9 (excl 301.19), 301.80, 301.81, 301.82, 301.84                        |
| <i>7. Intellectual disability</i><br>Intellectual disability   | F70-F79             | 311.xx, 312.xx, 313.xx, 314.xx, 315.xx                                      |
| <i>8. Developmental disorders</i><br>Pervasive developmental disorders and behavioural/emotional disorders with onset usually occurring in childhood and adolescence | F84, F90-F98        | 299.00, 299.01, 299.02, 299.03, 306.x9, 308.0x                              |
| <i>9. Any mental disorder</i>  | F00-F99             | 290-315   |

Table 2. Incidence of first subsection to crime (violent offense) by covariates, among those with and without mental disorder

|                    |                          | No mental disorder |  | Any mental disorder |  |
|--------------------|--------------------------|--------------------|--|---------------------|--|
|                    |                          | Cases/person-years | Incidence rate (per 1000 person years) | Cases/person-years  | Incidence rate (per 1000 person years) |
| Total sample       |                          | 98,250/19,656,536  | 5.00                                   | 17982/1551182       | 11.59                                  |
| Sex                | Female                   | 33,059/9,618,531   | 3.44                                   | 8414/856666         | 9.82                                   |
|                    | Male                     | 65,191/10,038,005  | 6.49                                   | 9568/694516         | 13.78                                  |
| Father             | Unknown                  | 981/134,314        | 7.30                                   | 307/19262           | 15.94                                  |
|                    | Known                    | 97,269/19,522,222  | 4.98                                   | 17675/1531920       | 11.54                                  |
| Perpetrator        | Yes                      | 12,503/971,045     | 12.88                                  | 5355/235531         | 22.74                                  |
|                    | No                       | 85,747/18,685,491  | 4.59                                   | 12627/1315651       | 9.60                                   |
| Paternal income    | 1 <sup>st</sup> quartile | 24,619/5,181,046   | 4.75                                   | 6370/501390         | 12.70                                  |
|                    | 2 <sup>nd</sup> quartile | 23,289/5,350,391   | 4.35                                   | 4376/405389         | 10.79                                  |
|                    | 3 <sup>rd</sup> quartile | 25,565/4,659,771   | 5.49                                   | 3726/329928         | 11.29                                  |
|                    | 4 <sup>th</sup> quartile | 20,602/3,837,905   | 5.37                                   | 2297/232410         | 9.88                                   |
|                    | Unknown                  | 4,175/627,423      | 6.65                                   | 1213/82064          | 14.78                                  |
| Maternal education | Primary                  | 38,560/708,696     | 5.44                                   | 8756/642104         | 13.64                                  |
|                    | Secondary                | 34,056/6,837,349   | 4.98                                   | 5351/488604         | 10.95                                  |
|                    | Tertiary                 | 20,168/4,362,468   | 4.62                                   | 2494/2977917        | 8.37                                   |
|                    | Unknown                  | 5,466/1,370,623    | 3.99                                   | 1381/122557         | 11.27                                  |

eTable 3. Incidence rate ratio of first subsection to crime (any crime and violent offense) with adjustment by covariate combinations, among those with mental disorder compared to those without mental disorder

|  |       | <b>Any crime</b>                    | <b>Violent crime</b>                |
|--|-------|-------------------------------------|-------------------------------------|
| Covariates included in each model*   |       | <b>Incident rate ratio (95% CI)</b> | <b>Incident rate ratio (95% CI)</b> |
| Basic model  | Men   | 1.69 (1.66-1.72)                    | 2.25 (2.20-2.30)                    |
|  | Women | 1.72 (1.69-1.74)                    | 3.14 (3.06-3.21)                    |
| Adjusted for own criminality   | Men   | 1.49 (1.46-1.52)                    | 1.83 (1.79-1.87)                    |
|  | Women | 1.64 (1.61-1.66)                    | 2.81 (2.74-2.88)                    |
| Adjusted for own criminality, father's income                              | Men   | 1.48 (1.46-1.51)                    | 1.77 (1.74-1.81)                    |
|  | Women | 1.63 (1.61-1.66)                    | 2.74 (2.67-2.81)                    |
| Adjusted for own criminality, mother's education                           | Men   | 1.49 (1.47-1.52)                    | 1.80 (1.76-1.84)                    |
|  | Women | 1.64 (1.62-1.67)                    | 2.77 (2.70-2.84)                    |
| Adjust for own criminality and both father's income and mother's education | Men   | 1.49 (1.46-1.51)                    | 1.76 (1.72-1.80)                    |
|  | Women | 1.64 (1.61-1.66)                    | 2.72 (2.65-2.79)                    |

\*Each model (including the basic model) is adjusted for age, calendar period and having an unknown father

eTable 4. Incidence rate ratios (IRR) for first subsection to crime, by type of crime, for those with and without any mental disorder (men)

| Crime category <sup>a</sup> | Cases/person-years | Incidence rate (per 1000 person years) <sup>b</sup> | Adjusted IRR (95% CI) <sup>c</sup> |
|-----------------------------|--------------------|---|------------------------------------|
| <u>Thefts</u>               |                    |   |                                    |
| No mental disorder          | 55,027/10,210,663  | 5.39  | 1.00 Reference                     |
| Any mental disorder         | 5,305/751,210      | 7.06  | 1.20 (1.17,1.23)                   |
| <u>Simple violence</u>      |                    |   |                                    |
| No mental disorder          | 40,001/10,210,952  | 3.92  | 1.00 Reference                     |
| Any mental disorder         | 5,640/731,987      | 7.71  | 1.68 (1.63 – 1.73)                 |
| <u>Threats</u>              |                    |   |                                    |
| No mental disorder          | 9,490/1,0430,934   | 0.91  | 1.00 Reference                     |
| Any mental disorder         | 2,154/768,884      | 2.80  | 2.13 (2.03, 2.24)                  |
| <u>Robberies</u>            |                    |   |                                    |
| No mental disorder          | 10,903/10,418,126  | 1.05  | 1.00 Reference                     |
| Any mental disorder         | 1,957/770,263      | 2.54  | 2.12 (2.02, 2.23)                  |
| <u>Severe violence</u>      |                    |   |                                    |
| No mental disorder          | 7,719/10,445,975   | 0.74  | 1.00 Reference                     |
| Any mental disorder         | 1,881/772,849      | 2.43  | 2.06 (1.96, 2.18)                  |

a: Five most frequent types of crime reported

b: Unadjusted rate per 1000 person-years

c: Adjusted for age, calendar year, maternal education, paternal income, paternal identity unknown, and cohort member's own criminal offending

eTable 5. Incidence rate ratios (IRR) for first subsection to crime, by type of crime, for those with and without any mental disorder (women)

| Crime category <sup>a</sup> | Cases/person-years | Incidence rate (per 1000 person years) <sup>b</sup> | Adjusted IRR (95% CI) <sup>c</sup> |
|-----------------------------|--------------------|---|------------------------------------|
| <u>Thefts</u>               |                    |   |                                    |
| No mental disorder          | 94,465/9,357,337   | 10.10   | 1.00 Reference                     |
| Any mental disorder         | 12,037/860,395     | 13.99   | 1.27 (1.25,1.30)                   |
| <u>Simple violence</u>      |                    |   |                                    |
| No mental disorder          | 14,836/9,763,905   | 1.52  | 1 .00 Reference                    |
| Any mental disorder         | 4,981/900,014      | 5.53  | 3.30 (3.19, 3.41)                  |
| <u>Threats</u>              |                    |   |                                    |
| No mental disorder          | 6,903/9,814,889    | 0.70  | 1.00 Reference                     |
| Any mental disorder         | 2,381/923,610      | 2.58  | 3.04 (2.89, 3.19)                  |
| <u>Robberies</u>            |                    |   |                                    |
| No mental disorder          | 2,267/9,843,217    | 0.23  | 1.00 Reference                     |
| Any mental disorder         | 565/937,347        | 0.60  | 2.47 (2.24, 2.72)                  |
| <u>Severe violence</u>      |                    |   |                                    |
| No mental disorder          | 1,450/9,848,236    | 0.14  | 1 .00 Reference                    |
| Any mental disorder         | 703/936,818        | 0.75  | 3.61 (3.28, 3.97)                  |

a: Five most frequent types of crime reported

b: Unadjusted rate per 1000 person-years

c: Adjusted for age, calendar year, maternal education, paternal income, paternal identity unknown, and cohort member's own criminal offending