

Supplemental material.

Databases

The French national health data system covers 99% of the French population. From birth to death, it collects a set of information on individuals in different administrative databases. The *Système National des Données de Santé* (SNDS) was created in 2016 with the aim of making these data available to promote research and evaluation. All data are anonymized. Hospital diagnoses, disability allowances and causes of death are recorded according to the International Classification of Diseases 10th edition (ICD-10) codes. Outpatient consultations and hospital presentations without admission were not retained here as they do not yield an ICD-10 code.

Managed by the National Health Insurance Fund for Salaried Workers (CNAMTS), the SNDS insures the linkage of different databases at the individual level in a pseudo-anonymised manner: health insurance data (SNIIRAM database); hospital data (PMSI database); the medical causes of death (CépiDC); disability-related data (MDPH - CNSA database).

The authors had access to all data from SNDS regarding the eligible population.

Missing data were limited. Age was an inclusion criteria. There was no data missing regarding sex.

Missing data concerned causes of death: Cases: 162 data missing (28.3%); Non-affected controls: 8 data missing (8%); Affected controls: 0 data missing (0%).

ICD-10 codes used

Self-harm: *associated* codes X60 to X84 including poisoning (X60-69), hanging (X70), drowning (X71), firearm (X72-75), fire (X76-77), sharp/blunt objects (X78-79), jumping (X80), vehicle (X81-X82), other or unspecified (X83-84).

Mental disorders: *primary or associated* codes for mental and behavioural disorders due to psychoactive substance use (F10-F19), schizophrenia (F20-F29), mood disorders (F30-F39) (including bipolar disorders (F30-F31) and depressive disorders (F32-F39)), neurotic, stress-related disorders (F40-F48) (including obsessive-compulsive disorder (F42)); behavioural syndromes associated with physiological disturbances and physical factors (F50-F59) (including anorexia nervosa (F50.0-F50.1) and bulimia nervosa (F50.2-F50.3)), disorders of adult personality (F60-F69) (including emotionally unstable personality disorder (F60.3)), mental retardation (F70-F79), disorders of psychological development (F80-F89), behavioural and emotional disorders occurring in childhood and adolescence (F90-F98) (including attention-deficit hyperactivity disorders (F90)), unspecified mental disorder (F99).

Chronic disease benefits related to mental disorders: same *primary* codes as above.

Somatic disorders: all other codes as *primary or associated* codes.

Prescribed psychotropic drugs: codes N05A, N06A/B/C, N07B. Of note, they are only available during outpatient but not inpatient care.

Access to data

This administrative data is only available through request from the French National System of Health Data (“*Système National des Données de Santé*”, SNDS), which manages this sensitive information (<https://www.snds.gouv.fr/SNDS/Accueil>) and cannot be shared. Analysis outcomes can be obtained upon request immediately following publication for investigators whose proposed use of the data has been approved by an independent review committee (“learned intermediary”) identified for this purpose. Purpose notably includes individual participant data meta-analysis. Proposals should be directed to the corresponding author.

Supplemental Table 1. Rates of hospitalization for self-harm, hospitalization with a somatic disorder diagnosis, and mortality during the three-year follow-up in adolescents and young adults hospitalized for mental disorder according to the diagnostic category at the time of index hospitalization in 2013-2014.

| Diagnostic category at index hospitalization: | Follow-up: | Hospitalization for self-harm (n=7,266) | | Hospitalization with a somatic disorder diagnosis (n=21,082) | | Death (all causes) (n=573) | | Suicide (n=176) | |
|---|------------|---|-------|--|-----|----------------------------|----|-----------------|---|
| | | N | % | N | % | N | % | N | % |
| Mental and behavioural disorders due to psychoactive substance use | 509 | 7.0 | 1,499 | 7.1 | 78 | 13.6 | 11 | 6.3 | |
| Schizophrenia | 738 | 10.2 | 2,673 | 12.7 | 187 | 32.6 | 67 | 38.1 | |
| Mood disorders | 1,911 | 26.3 | 4,467 | 21.2 | 102 | 17.8 | 42 | 23.9 | |
| Neurotic, stress-related disorders | 1,574 | 21.7 | 4,395 | 20.9 | 59 | 10.3 | 21 | 11.9 | |
| Behavioural syndromes associated with physiological disturbances and physical factors | 297 | 4.1 | 1,207 | 5.7 | 18 | 3.1 | 6 | 3.4 | |
| Disorders of adult personality | 1,124 | 15.5 | 2,631 | 12.5 | 67 | 11.7 | 16 | 9.1 | |
| Mental retardation | 116 | 1.6 | 545 | 2.6 | 11 | 1.9 | 0 | 0 | |
| Disorders of psychological development | 150 | 2.1 | 982 | 4.7 | 13 | 2.3 | 3 | 1.7 | |
| Behavioural and emotional disorders occurring in childhood and adolescence | 743 | 10.2 | 2,226 | 10.6 | 27 | 4.7 | 8 | 4.6 | |
| Unspecified mental disorder | 104 | 1.4 | 457 | 2.2 | 11 | 1.9 | 2 | 1.1 | |

Footnotes: % are % of the diagnostic category among the column variable

Supplemental Table 2. Rates of hospitalization per somatic disorder categories (plus pregnancy) during the background period and during the follow-up period in adolescents and young adults hospitalized for mental disorder in 2013-2014, and in the non-affected control group without a mental disorder and matched for age and gender.

| | Background period | | | | | Follow-up period | | | | |
|---|--------------------------------------|------|--------------------------------------|------|---------|--------------------------------------|------|--------------------------------------|-----|---------|
| | Hospitalized patients (n= 73,300) | | Non-affected controls (n=219,900) | | p-value | Hospitalized patients (n= 73,300) | | Non-affected controls (n=219,900) | | p-value |
| | n | % | n | % | | n | % | n | % | |
| Diabetes | 309 | 0.4 | 186 | 0.1 | <0.0001 | 354 | 0.5 | 141 | 0.1 | <0.0001 |
| Certain infectious and parasitic diseases | 2,026 | 2.8 | 1,198 | 0.5 | <0.0001 | 2,012 | 2.7 | 1,213 | 0.6 | <0.0001 |
| Neoplasms | 662 | 0.9 | 827 | 0.4 | <0.0001 | 371 | 0.5 | 392 | 0.2 | <0.0001 |
| Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism | 848 | 1.2 | 416 | 0.2 | <0.0001 | 855 | 1.2 | 441 | 0.2 | <0.0001 |
| Endocrine, nutritional and metabolic diseases | 3,405 | 4.7 | 948 | 0.4 | <0.0001 | 3,411 | 4.7 | 1,029 | 0.5 | <0.0001 |
| Diseases of the nervous system | 2,525 | 3.4 | 523 | 0.2 | <0.0001 | 2,296 | 3.1 | 485 | 0.2 | <0.0001 |
| Diseases of the eye and adnexa | 543 | 0.7 | 308 | 0.1 | <0.0001 | 365 | 0.5 | 229 | 0.1 | <0.0001 |
| Diseases of the ear and mastoid process | 581 | 0.8 | 360 | 0.2 | <0.0001 | 303 | 0.4 | 163 | 0.1 | <0.0001 |
| Diseases of the circulatory system | 1,292 | 1.8 | 590 | 0.3 | <0.0001 | 1,276 | 1.7 | 465 | 0.2 | <0.0001 |
| Diseases of the respiratory system | 2,989 | 4.1 | 1,740 | 0.8 | <0.0001 | 2,121 | 2.9 | 912 | 0.4 | <0.0001 |
| Diseases of the digestive system | 7,706 | 10.5 | 9,305 | 4.2 | <0.0001 | 5,542 | 7.6 | 5,025 | 2.3 | <0.0001 |
| Diseases of the skin and subcutaneous tissue | 1,698 | 2.3 | 1,410 | 0.6 | <0.0001 | 1,523 | 2.1 | 953 | 0.4 | <0.0001 |
| Diseases of the musculoskeletal system and connective tissue | 2,275 | 3.1 | 2,140 | 1.0 | <0.0001 | 1,881 | 2.6 | 1,538 | 0.7 | <0.0001 |
| Diseases of the genitourinary system | 2,566 | 3.5 | 1,893 | 0.9 | <0.0001 | 2,258 | 3.1 | 1,446 | 0.7 | <0.0001 |
| Certain conditions originating in the perinatal period | 27 | 0.04 | 14 | 0.01 | <0.0001 | 4 | 0.01 | 1 | 0.0 | 0.02 |
| Congenital malformations, deformations and chromosomal abnormalities | 984 | 1.3 | 814 | 0.4 | <0.0001 | 470 | 0.6 | 299 | 0.1 | <0.0001 |

| | | | | | | | | | | |
|---|--------|------|-------|-----|---------|--------|------|-------|-----|---------|
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | 13,097 | 17.9 | 2,945 | 1.3 | <0.0001 | 10,144 | 13.8 | 2,295 | 1.0 | <0.0001 |
| Injury, poisoning and certain other consequences of external causes* | 15,673 | 21.4 | 4,862 | 2.2 | <0.0001 | 11,320 | 15.4 | 2,939 | 1.3 | <0.0001 |
| External causes of morbidity* | 2,819 | 3.9 | 716 | 0.3 | <0.0001 | 2,796 | 3.8 | 691 | 0.3 | <0.0001 |
| Factors influencing health status and contact with health services | 14,348 | 19.6 | 6,588 | 3.0 | <0.0001 | 12,462 | 17.0 | 7,422 | 3.4 | <0.0001 |
| Pregnancy | 2,525 | 3.4 | 3,576 | 1.6 | <0.0001 | 3,334 | 4.5 | 5,233 | 2.4 | <0.0001 |

Footnotes: *: not including self-harm

Supplemental Table 3. Rates of hospitalization per somatic disorder categories (plus pregnancy) during the background period and during the follow-up period in adolescents and young adults hospitalized for mental disorder, and in the affected control group composed of patients with a mental disorder and not hospitalized in 2013-2014.

| | Background period | | | | | Follow-up period | | | | |
|---|--------------------------------------|------|--------------------------------|------|---------|--------------------------------------|------|--------------------------------|-----|---------|
| | Hospitalized patients (n= 73,300) | | Affected controls (n=9,683) | | p-value | Hospitalized patients (n= 73,318) | | Affected controls (n=9,683) | | p-value |
| | n | % | n | % | | n | % | n | % | |
| Diabetes | 309 | 0.4 | 46 | 0.5 | 0.45 | 354 | 0.5 | 29 | 0.3 | 0.01 |
| Certain infectious and parasitic diseases | 2,026 | 2.8 | 258 | 2.7 | 0.58 | 2,012 | 2.7 | 178 | 1.8 | <0.0001 |
| Neoplasms | 662 | 0.9 | 115 | 1.2 | 0.01 | 371 | 0.5 | 40 | 0.4 | 0.25 |
| Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism | 848 | 1.2 | 103 | 1.1 | 0.42 | 855 | 1.2 | 72 | 0.7 | 0.0002 |
| Endocrine, nutritional and metabolic diseases | 3,405 | 4.7 | 356 | 3.7 | <0.0001 | 3,411 | 4.7 | 289 | 3.0 | <0.0001 |
| Diseases of the nervous system | 2,525 | 3.4 | 337 | 3.5 | 0.86 | 2,296 | 3.1 | 211 | 2.2 | <0.0001 |
| Diseases of the eye and adnexa | 543 | 0.7 | 80 | 0.8 | 0.36 | 365 | 0.5 | 25 | 0.3 | 0.001 |
| Diseases of the ear and mastoid process | 581 | 0.8 | 83 | 0.9 | 0.50 | 303 | 0.4 | 32 | 0.3 | 0.23 |
| Diseases of the circulatory system | 1,292 | 1.8 | 168 | 1.7 | 0.85 | 1,276 | 1.7 | 102 | 1.1 | <0.0001 |
| Diseases of the respiratory system | 2,989 | 4.1 | 438 | 4.5 | 0.04 | 2,121 | 2.9 | 179 | 1.9 | <0.0001 |
| Diseases of the digestive system | 7,706 | 10.5 | 1,091 | 11.3 | 0.02 | 5,542 | 7.6 | 478 | 4.9 | <0.0001 |
| Diseases of the skin and subcutaneous tissue | 1,698 | 2.3 | 190 | 2.0 | 0.03 | 1,523 | 2.1 | 122 | 1.3 | <0.0001 |
| Diseases of the musculoskeletal system and connective tissue | 2,275 | 3.1 | 296 | 3.1 | 0.81 | 1,881 | 2.6 | 192 | 2.0 | 0.001 |
| Diseases of the genitourinary system | 2,566 | 3.5 | 344 | 3.6 | 0.79 | 2,258 | 3.1 | 195 | 2.0 | <0.0001 |
| Certain conditions originating in the perinatal period | 27 | 0.04 | 5 | 0.05 | 0.49 | 4 | 0.01 | 0 | 0 | - |
| Congenital malformations, deformations and chromosomal abnormalities | 984 | 1.3 | 139 | 1.4 | 0.45 | 470 | 0.6 | 61 | 0.6 | 0.95 |

| | | | | | | | | | | |
|---|--------|------|-------|------|---------|--------|------|-------|------|---------|
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | 13,097 | 17.9 | 1,315 | 13.6 | <0.0001 | 10,144 | 13.8 | 897 | 9.3 | <0.0001 |
| Injury, poisoning and certain other consequences of external causes* | 15,673 | 21.4 | 1,671 | 17.3 | <0.0001 | 11,320 | 15.4 | 978 | 10.1 | <0.0001 |
| External causes of morbidity* | 2,819 | 3.9 | 299 | 3.1 | 0.0002 | 2,796 | 3.8 | 224 | 2.3 | <0.0001 |
| Factors influencing health status and contact with health services | 14,348 | 19.6 | 1,711 | 17.7 | <0.0001 | 12,462 | 17.0 | 1,141 | 11.8 | <0.0001 |
| Pregnancy | 2,525 | 3.4 | 438 | 4.5 | <0.0001 | 3,334 | 4.5 | 319 | 3.3 | <0.0001 |

Footnotes: *: not including self-harm