



Association between mental disorders and COVID-19 outcomes among inpatients in France: A retrospective nationwide population-based study

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BACKGROUND

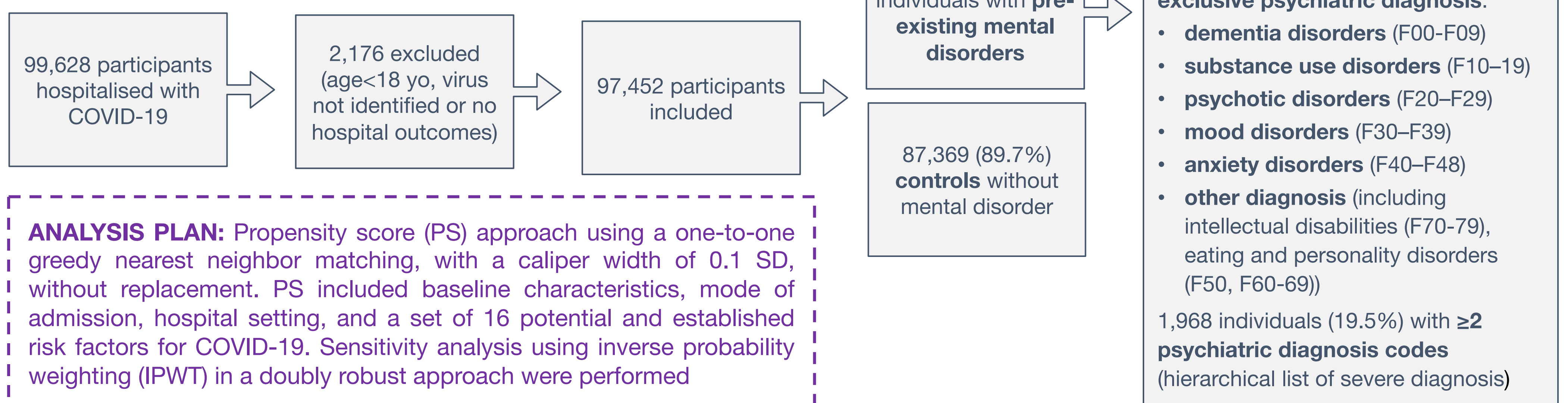
- Early studies reported that patients with **pre-existing mental disorders** were at **increased risk of poor COVID-19 outcomes**
- Reports largely focused on individual risk of SARS-CoV-2 infection and **limited data on the care pathway** with the hospital and the hospital outcomes is available.
- The extent to which pre-existing mental disorders are associated with poorer COVID-19 outcomes independently of somatic comorbidities has remained unclear
- Furthermore, **additional evidence to estimate the risks and particular COVID-19 outcomes for each mental disorder** is needed

OBJECTIVES & METHODS

- To investigate the association of severe psychiatric diagnoses with **in-hospital mortality at 30 days (primary endpoint)** and **ICU admission, ICU length of stay, and length of stay in hospital (secondary endpoints)**

DATABASE: Retrospective cohort study using the French national hospital discharge database. All adults hospitalised for COVID-19 (ICD-10 codes: U07.10, U07.11, U07.12, U07.14, or U07.15) from March to September 2020 in all public and private hospitals

Figure 1: Study flowchart



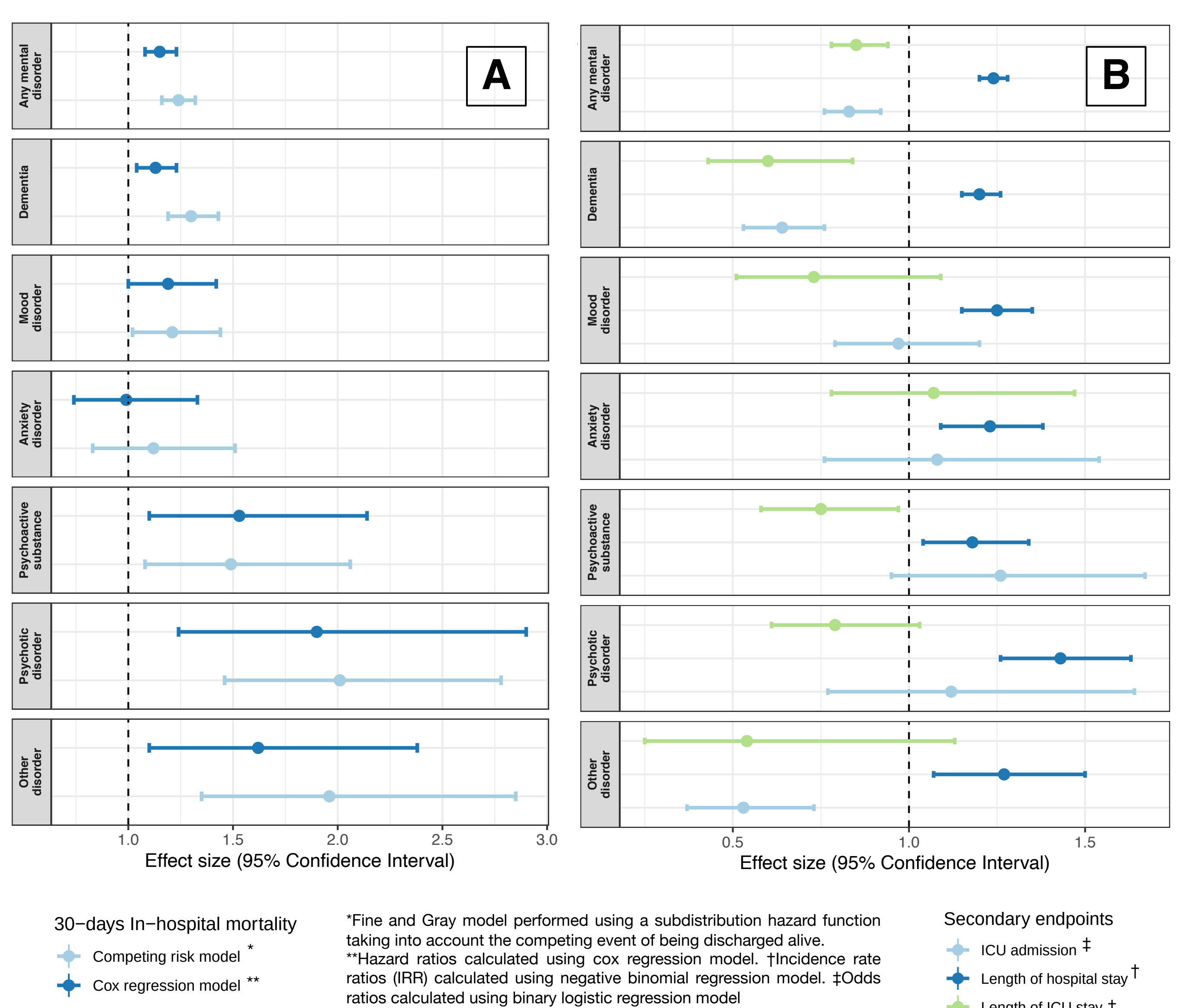
RESULTS

Table 1. Summary of baseline characteristics and in-hospital outcomes of unmatched adults hospitalised for COVID-19 stratified by psychiatric diagnosis

	Dementia	Mood disorders	Anxiety disorders	Psychoactive substance use	Psychotic disorders	Other Disorders*
Subcohort	3581	1298	995	960	866	415
Baseline characteristics						
Age, median years (IQR)	85 (80–89)	68 (52–82)	64 (43–85)	55 (44–67)	60 (46–71)	55 (46–66)
Sex						
Female	1983 (44.6%)	793 (61.1%)	623 (62.6%)	232 (24.2%)	440 (50.8%)	67 (41.6%)
Mode of admission						
From home	2906 (81.2%)	1159 (89.3%)	891 (89.5%)	864 (90.0%)	775 (89.5%)	136 (84.5%)
Other (hospital setting)	675 (18.8%)	139 (10.7%)	104 (10.5%)	96 (10.0%)	91 (10.5%)	25 (15.5%)
Hospital setting						
University hospital	1116 (31.2%)	557 (33.1%)	304 (30.6%)	326 (34.0%)	345 (39.8%)	57 (35.4%)
Other public or private hospital	2465 (68.8%)	1236 (66.9%)	691 (69.4%)	634 (66.0%)	521 (60.2%)	104 (64.6%)
Comorbidities						
At least one comorbidity	1808 (50.5%)	547 (42.1%)	409 (41.1%)	378 (39.4%)	344 (39.7%)	70 (43.5%)
Charlson Comorbidity Index						
0	1849 (51.6%)	887 (68.3%)	701 (71%)	670 (69.8%)	623 (71.9%)	122 (75.8%)
1–2	1216 (34.0%)	311 (24.0%)	217 (21.8%)	197 (20.5%)	199 (23.0%)	33 (20.5%)
≥3	516 (14.4%)	100 (7.7%)	77 (7.7%)	93 (9.7%)	44 (5.0%)	6 (3.8%)
Elixhauser Comorbidity Index						
0	1678 (46.9%)	708 (54.5%)	549 (55.2%)	565 (58.9%)	472 (54.5%)	84 (52.2%)
1–4	1313 (36.7%)	413 (31.8%)	307 (30.9%)	253 (26.4%)	296 (34.2%)	59 (36.6%)
≥5	590 (16.5%)	177 (13.6%)	139 (14.0%)	142 (14.8%)	98 (11.3%)	18 (11.2%)
In-hospital outcomes						
Length of hospital stay, days						
Median (IQR)	11 (6–17)	9 (4–15)	9 (4–15)	7 (4–13)	10 (5–17)	8 (3–14)
Mean (SD)	13 (10)	12 (11)	11 (11)	10 (11)	12 (11)	10 (10)
Length of ICU stay, days						
Median (IQR)	7 (3–13.5)	7 (4–13)	7 (2–15.5)	6 (3–12)	9 (4–15)	5 (4–8)
Mean (SD)	10 (11)	11 (13)	13 (16)	10 (12)	12 (11)	9 (10)
ICU admission	213 (5.9%)	129 (10.0%)	87 (8.7%)	125 (13%)	107 (12.4%)	39 (8.9%)
In-hospital deaths	1133 (31.6%)	204 (15.7%)	106 (10.7%)	98 (10.2%)	119 (13.7%)	81 (20.2%)

Data are n (%), unless otherwise indicated. ICU=intensive care unit. * Including eating disorders, personality disorders and intellectual disabilities.

Figure 2. Primary (A) and secondary (B) COVID-19 endpoints among patients with pre-existing mental disorders compared with a matched cohort of patients with no psychiatric disorder



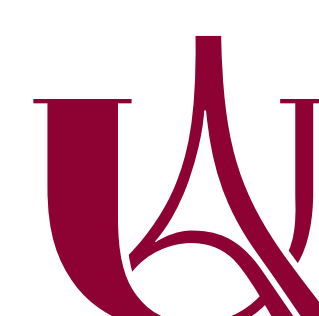
- Overall, **97,452 adults hospitalised** for COVID-19 (median age 67 IQR (51–81)) were included, 27,786 (28.5%) were older than 80 years and **10,083 (10.3%) had a pre-existing mental disorder**. In-hospital death occurred in 2,036 (20.2%) patients with mental disorders compared to 13,311 (15.2%) without
- The **most prevalent pre-existing mental disorder** was dementia (3,581 [35.5%]) followed by mood disorders (1,298 [12.9%]), anxiety disorders (995 [9.9%]), psychoactive substance use disorders (960 [9.5%]), and psychotic disorders (866 [8.6%], Table 1)
- Compared with adults without any mental disorder, **30-days in-hospital mortality was increased** among those with at least one pre-existing mental disorder (hazard ratio (HR) 1.15, 95% CI 1.08–1.23). When stratifying by psychiatric disorder diagnosis, the **most robust associations** were found for psychotic (1.90, 1.24–2.90), psychoactive substance disorders (1.53, 1.10–2.14) and patients with other disorders (1.62, 1.10–2.38).
- For the secondary endpoints, **length of hospital stay was consistently higher** in people with at least one mental disorder or by psychiatric diagnosis. Compared with adults without any mental illness, the **odds of ICU admission were significantly lower** among those with at least one pre-existing mental disorder (odds ratio (OR) 0.83, 95% CI 0.76–0.92) with **decreased ICU length of stay**
- In sensitivity analysis, results for the primary and secondary endpoints were mostly consistent with those from the main analysis (data not shown) or when using a **different case definition** considering 1968 patients identified **with two or more psychiatric diagnoses** (19.5% of patients with mental disorder)

CONCLUSION

We reported possible evidence of an association between severe pre-existing mental disorders and poor in-hospital outcomes, independently of patient-level confounders that could be risk factors for COVID-19. These results indicate the important need for adequate care and targeted interventions, including prioritizing vaccination, for at-risk patients with severe mental disorders

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