

BMJ Open Use of mental health services in the aftermath of COVID-19 waves: a retrospective study conducted in a French Psychiatric and Neurosciences University Hospital

Anne Perozziello ¹, Daniel Sousa,² Béatrice Aubriot,³ Valérie Dauriac-Le Masson²

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¹Cellule épidémiologie, Groupe Hospitalier Universitaire Paris psychiatrie & neurosciences, Paris, France

²Département d'Information Médicale, Groupe Hospitalier Universitaire Paris psychiatrie & neurosciences, Paris, France

³DOMUS MEDICA, Groupe Hospitalier Universitaire Paris psychiatrie & neurosciences, Paris, France

Correspondence to

Dr Anne Perozziello;
a.perozziello@ghu-paris.fr

ABSTRACT

Objective The COVID-19 pandemic and the restrictive measures taken to prevent its propagation had profound effects on mental health and well-being, especially in children and young adults (<25 years old). This study aimed to analyse the medium and long-term impact of the COVID-19 pandemic on the use of the mental health services, by age groups and gender.

Design We conducted a retrospective study using the medical and administrative information system databases of patients, between 2019 and 2021.

Setting This study was conducted in the Groupe Hospitalier Universitaire Paris Psychiatry and Neurosciences.

Outcome measures We reported three indicators: the number of new patients attending outpatient clinics, the number of emergency department (ED) visits and the number of hospital admissions.

Methods We considered the weekly number of each indicator, by age groups and by gender. We also collected the reasons of ED visits and hospital admissions. The 2020 and 2021 data were compared with the same period in 2019. The evolution of the indicators over the 3 years was analysed with interrupted time-series analysis.

Results All three indicators showed a dramatic decrease during the first lockdown period (March 2020) especially for the youngest. In 2021, the activity resumed but without reaching its prepandemic level. Moreover, mental healthcare seeking was significantly lower since the beginning of the pandemic compared with the prepandemic period for all age groups, except for young women (<25 years old). Among them, there was a higher level of mental health services use in 2021, compared with 2019: +20% of new patients at the outpatient clinics, +39% of ED visits and +17% of hospital admissions.

Conclusions The COVID-19 pandemic has had severe consequences on populations' mental health, especially among young women, which seem to persist months after the end of restrictive measures.

CONTEXT

The COVID-19 pandemic and the restrictive measures taken to prevent its propagation (lockdown, curfews, quarantines,

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Our study was based on a large dataset of systematically collected medical care data over a 3-year period, allowing us to describe tendencies on time before, during and after the COVID-19 pandemic.
- ⇒ The Groupe Hospitalier Universitaire (GHU) Psychiatry and Neurosciences facilities cover a large area (13 of the 20 Parisian arrondissements are linked to the GHU), so our study sample represents the use of mental healthcare services by the Parisian population.
- ⇒ The main limitation is the absence of information on care outside the hospital, such as private practitioners, including psychiatrists, psychologists and general practitioners, or other support services, such as helplines.
- ⇒ From our data, we were not able to distinguish remote medical consultations (telemedicine) from face-to-face outpatient appointments and so could not analyse the proportion of remote consultations in the activity.

movement restrictions, etc) were associated with increased prevalence of major depressive symptoms and anxiety disorders.¹⁻³ Fear of infection, social media and news exposure, and the consequences of the lockdown (boredom, social isolation, stress, sleeping disorders, pandemic-related uncertainty, loneliness, etc) have had detrimental effects on the mental health and well-being among the population. These effects were more pronounced in some groups, especially children and young adults (<25 years old).⁴⁻⁸ Several studies reported a higher prevalence of mental health problems in young people than older adults.^{1 9-13} School and university closures, lack of social interactions and activities, and for students, being confined in small or uncomfortable spaces, away from their

families, have worsened the negative effect of COVID-19 on mental health.^{18 14}

In the meantime, the pandemic and the unprecedented measures decided in many countries have led to a drastic decrease in contacts with mental healthcare systems.^{15–20} In France, two studies showed a sharp reduction in emergency department (ED) visits. The first study, conducted in three psychiatric ED in Paris and its suburbs, estimated that during the first weeks of the first lockdown in France (17 March 2020 to 11 May 2020), the number of visits decreased by 54.8% as compared with the same period in 2019.²¹ This decrease was statistically significant for the 16–24 years old (–64.4%). The study by Pham-Scottet *et al* analysed the activity of one of the largest Parisian psychiatric ED, reporting a significant reduction in visits during the first lockdown as compared with the same period in 2019 (10.8 consultations a day vs 26.4 in 2019).²² The authors suggested that patients might have avoided hospitals because of fear of being infected or being sanctioned for not complying with movement restrictions. Moreover, the entire healthcare system was disrupted during the first months of the pandemic, with reduced access to medical facilities and prioritised admissions for severe cases.²³

Therefore, patients faced difficulties accessing appropriate care during this period, which raised fears of a possible psychiatric outbreak postlockdown and a strong increase in care needs.^{14 24} However, despite the lifting of containment measures, the use of healthcare services has returned to prepandemic levels, with no substantial increase.²⁵ Several studies demonstrated an improvement in mental health among the general population after the lifting of the lockdown and a decrease in anxiety and depressive disorders.^{10 26} Yet, these findings do not apply evenly across age groups. After intensely experiencing the adverse effects of the lockdown, young people showed persistent depressive and anxiety symptoms, and suicidal ideation, months after the easing of most restrictions related to COVID-19.^{26–29}

At the Groupe Hospitalier Universitaire (GHU) Psychiatry and Neurosciences in Paris, a drastic reduction in mental health services use was reported during the first lockdown period, in spring 2020. However, a few studies analysed the medium-term and long-term impact of the COVID-19 pandemic on mental healthcare use. This study analysed the use of the GHU mental healthcare services between 2019 and 2021, comparing the period before and the period after the ‘first wave’ of COVID-19 (March 2020) for all patients, by age groups and by gender. We also described reasons of ED visits and hospital admissions over the period.

MATERIAL AND METHODS

We conducted a retrospective study of data collected from the GHU medical and administrative information system, which includes inpatients’ discharge summaries and outpatients’ visits for all patients presenting at one of the GHU medical facilities. The GHU Psychiatry and

Neurosciences in Paris is the main provider of mental healthcare in the Paris area, with 170 medical services. The GHU represents a catchment area of 1.6 million Parisians.

Patient data are systematically collected in electronic medical records. The physician in charge of the information system extracted weekly data from 1 January 2019 to 31 December 2021 for all patients without exclusion. We analysed data on the number of new patients at the outpatient clinic, number of visits to the ED, and number of hospital admissions, summarised by age groups, by gender and by diagnosis categories from the International Classification of Diseases 10th Revision for psychiatric disorders. Suicidal ideation and suicide attempts were identified separately, by year, as the number of events per week was low. Non-psychiatric diagnoses (symptoms, health hazards, etc.) were grouped under a different category.

The first wave of the COVID-19 pandemic in France started in March 2020. During the first lockdown, from 17 March 2020 to 11 May 2020, the government imposed a mandatory home lockdown, with strict restrictions on movement outside the household. Schools and universities as well as non-essential public places, including restaurants, cafés and cinemas, were closed. On 11 May, the lockdown ended, but some measures remained to control the spread of the virus. Social distancing, compulsory mask-wearing (indoor and outdoor), limitations on gatherings, overnight curfew and teleworking were supported when possible. Primary and middle schools reopened, but high schools and universities remained closed until September 2020, when a ‘blended model’ took place, mixing on-line courses and in-presence classes. The critical increase in the number of cases since the end of the summer led to a second wave and a reinstatement of restrictions: closure of non-essential businesses (including bars and restaurants) and overnight curfew, and a second lockdown, from 30 October 2020 to 15 December 2020. After that, public policies promoted measures to reduce the transmission of COVID-19, including a curfew (until January 2021), teleworking and remote courses in higher education institutions, until mid-2021, when vaccination was made available to the whole population.

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Statistical analyses

We considered the weekly number of new patients presenting at the GHU outpatient clinics, ED visits and hospital admissions for all patients, by age groups, by gender and diagnoses for ED visits and hospital admissions. The 2020 and 2021 data were compared with the same period in 2019. The evolution of the aforementioned indicators was analysed with interrupted time-series analysis based on negative binomial regression.

The first period, defined as ‘prepandemic’, was from 1 January 2019 to 15 March 2020 (T1), and the second, ‘since the pandemic’, started the week of the first lockdown, 17 March 2020, and lasted to 31 December 2021 (T2). Seasonality was examined by introducing the week number in the regression models and was kept in the final model analysing the number of new patients at outpatient clinics and hospital admissions but did not improve

model estimators for the analysis of ED visits. Percentages of evolution were obtained by exponentiating the regression model coefficients. We also described weekly evolution of reasons of ED visits and hospital admissions by disease categories. All statistical analyses were performed with Stata V.17 (StataCorp).

RESULTS

New patients attending outpatient clinics

The number of new patients attending outpatient clinics markedly decreased during 2020 as compared with 2019 (−17%) because of the pandemic and the restrictive measures taken to prevent its transmission (figure 1, table 1). Therefore, during the first lockdown (March–May 2020), the number of new patients decreased by 71% as compared with the same period in 2019 (table 1). However, the number of new patients was not reduced (+8%) during the second lockdown (October–December 2020). The activity resumed in 2021 but without achieving the prepandemic level (−6% as compared with 2019). The number of new patients remained significantly reduced, by 9.6% ($p=0.003$), in T2 versus T1.

However, we observed disparities between age groups. The strongest decrease in number of new outpatients in 2020 was for the youngest patients, under 15 years of age (−25%), and the oldest, >65 years old (−25%) (table 1). The first lockdown had a substantial impact on the number of young people attending outpatient clinics, with an 84% decrease in number of patients aged under 15 years and a 72% decrease in those aged 15–24 years old as compared with the same period in 2019. During the second lockdown, children <15 years showed a strong increase (+38%) as well as young women aged 15–24 years old (+9%). After this period, outpatient consultations resumed but without reaching the 2019 level, except for the number of girls under 15 (+6% in 2021 as compared with 2019) and patients from age 15–24 years, with +20% of young women presenting for the first time at the clinics and +4% of young men (figure 2). In addition, among young people (<25 years old), the number of new outpatients did not significantly decrease over the two periods, before (T1) and since the first pandemic wave (T2), with even an increase of new outpatients among young women (aged 15–24 years), but not statistically significant (+8.1%, $p=0.082$) (table 1). For those >25 years old, the number of new patients was significantly lower at T2 than T1.

ED visits

Psychiatric ED visits decreased by 20% in 2020 compared with 2019, especially during the first lockdown (−56%) (table 1) when the number of visits decreased with increasing age, from a 58% decrease among people 15–24 years old to a 48% decrease among those >65 years old. Conversely, during the second lockdown, the reduction was greater for the oldest people (−26% as compared with the same period in 2019) than for the youngest (−8%).

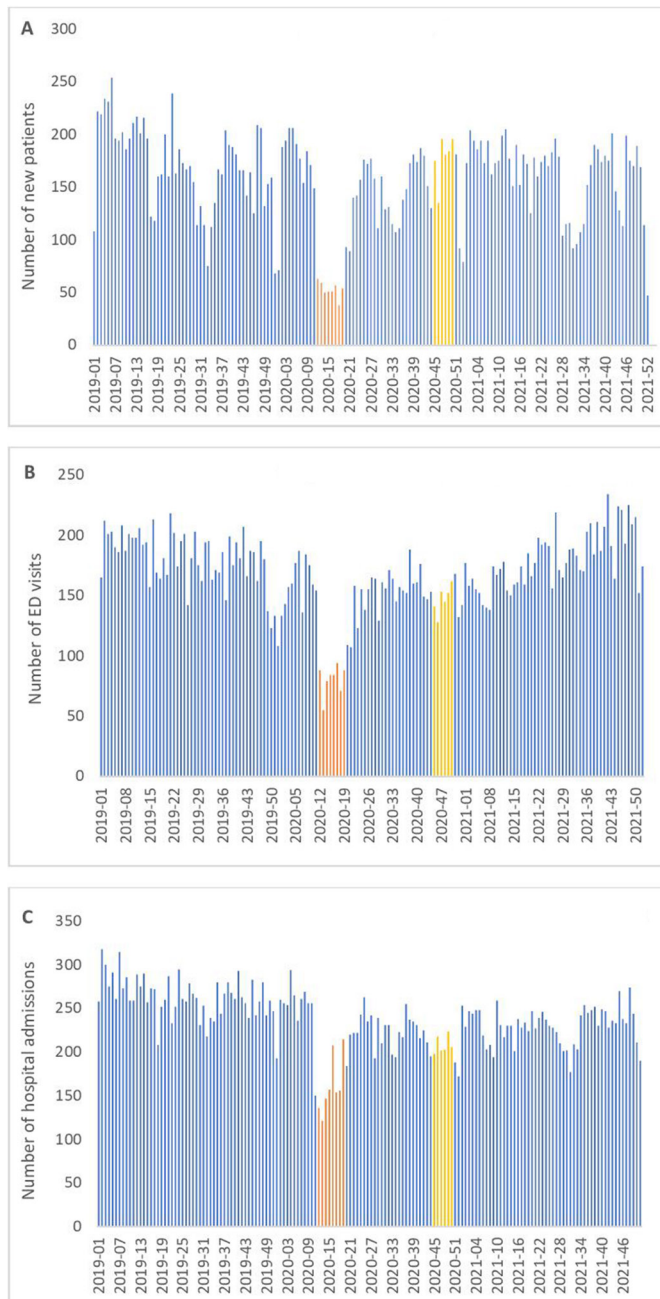


Figure 1 Number of healthcare contacts per week, between 2019 and 2021, for all patients. A. Number of new patients per week attending the GHU outpatient clinics; B. number of emergency department visit per week; C. Number of hospital admissions per week. The weeks of the first (March 17 to May 11, 2020) and second (Oct. 30 to Dec. 15, 2020) lockdowns are presented on the graph in orange yellow, respectively.

Table 1 Evolution of the number of contacts with mental healthcare services provided by the GHU psychiatry and neuroscience in 2020 and 2021, as compared with the same period in 2019, by age groups and gender

No of new patients attending the GHU outpatient clinics									
Age group, years	2019	2020	Evolution 2019–2020	2021	Evolution 2019–2021	First lockdown (17 March 2020–11 May 2020)	Second lockdown (30 October 2020–15 December 2020)	Comparison of T1 and T2**	P value
0–14	1412	1054	–25%	1362	–4%	–84%	38%	–9.70%	0.069
0–14 women	463 (33%)	356 (34%)	–23%	490 (36%)	6%	–72%	19%	–0.70%	0.908
0–14 men	949 (67%)	698 (66%)	–26%	872 (64%)	–8%	–89%	52%	–14.30%	0.014
15–24	1735	1549	–11%	1949	12%	–72%	–3%	2.90%	0.48
15–24 women	928 (53%)	883 (57%)	–5%	1109 (57%)	20%	–72%	9%	8.10%	0.082
15–24 men	807 (47%)	666 (43%)	–17%	840 (43%)	4%	–72%	–15%	–2.80%	0.526
25–44	3058	2549	–17%	2813	–8%	–69%	3%	–10.40%	0.001
25–44 women	1600 (52%)	1276 (50%)	–20%	1378 (49%)	–14%	–70%	–11%	–15.00%	<0.001
25–44 men	1458 (48%)	1273 (50%)	–13%	1435 (51%)	–2%	–67%	21%	–5.50%	0.133
45–64	1954	1641	–16%	1645	–16%	–65%	12%	–15.60%	<0.001
45–64 women	1062 (54%)	885 (54%)	–17%	842 (51%)	–21%	–67%	9%	–19.20%	<0.001
45–64 men	892 (46%)	756 (46%)	–15%	803 (49%)	–10%	–63%	15%	–11.10%	0.006
65 et +	701	529	–25%	612	–13%	–62%	–11%	–17.20%	<0.001
65 et+ women	1062 (64%)	885 (67%)	–17%	842 (61%)	–21%	–64%	–7%	–17.20%	0.004
65 et+ men	447 (36%)	352 (33%)	–21%	371 (39%)	–17%	–59%	–17%	–17.50%	0.011
All patients	8922	7363	–17%	8424	–6%	–71%	8%	–9.60%	0.003
All patients women	4540 (51%)	3774 (51%)	–17%	4215 (50%)	–7%	–69%	2%	–10.30%	<0.001
All patients men	4382 (49%)	3589 (49%)	–18%	4209 (50%)	–4%	–72%	15%	–8.80%	0.013
No of emergency department visits									
Age group, years*	2019	2020	Evolution 2019–2020	2021	Evolution 2019–2021	First lockdown (17 March 2020–11 May 2020)	Second lockdown (30 October 2020–15 December 2020)	Comparison of T1 and T2†	P value
15–24	2681	2184	–19%	3137	17%	–58%	–8%	–0.80%	0.846
15–24 women	1313 (49%)	1086 (50%)	–17%	1825 (58%)	39%	–64%	–9%	12.70%	0.032
15–24 men	1368 (51%)	1098 (50%)	–20%	1312 (42%)	–4%	–52%	–7%	–13.70%	<0.001
25–44	4180	3268	–22%	3946	–6%	–57%	–7%	–11.80%	<0.001
25–44 women	1683 (40%)	1320 (40%)	–22%	1633 (41%)	–3%	–52%	–10%	–10.60%	0.004
25–44 men	2497 (60%)	1948 (60%)	–22%	2313 (59%)	–7%	–60%	–4%	–12.60%	<0.001

Continued

Table 1 Continued

No of emergency department visits													
Age group, years*	2019		2020		Evolution 2019–2020		2021		Evolution 2019–2021	First lockdown (17 March 2020–11 May 2020)	Second lockdown (30 October 2020–15 December 2020)	Comparison of T1 and T2†	P value
	2019	2020	2020	2021	2019–2020	2021							
45–64	2007	1644	1644	1811	–18%	1811	–10%	–56%	–18%	–13.70%	<0.001		
45–64 women	928 (46%)	714 (43%)	714 (43%)	869 (48%)	–23%	869 (48%)	–6%	–58%	–16%	–13.90%	0.001		
45–64 men	1079 (54%)	930 (57%)	930 (57%)	942 (48%)	–14%	942 (48%)	–13%	–55%	–19%	–13.60%	0.001		
65 et+	460	377	377	403	–18%	403	–12%	–48%	–26%	–15.10%	0.006		
65 et+ women	279 (61%)	233 (62%)	233 (62%)	245 (61%)	–16%	245 (61%)	–12%	–51%	–17%	–16.00%	0.02		
65 et+ men	181 (39%)	144 (38%)	144 (38%)	158 (39%)	–20%	158 (39%)	–13%	–42%	–41%	–13.60%	0.118		
All patients	9402	7528	7528	9370	–20%	9370	0%	–56%	–10%	–9.20%	0.001		
All patients women	4245 (45%)	3382 (45%)	3382 (45%)	4611 (49%)	–20%	4611 (49%)	9%	–57%	–12%	–4.40%	0.195		
All patients men	5157 (55%)	4146 (55%)	4146 (55%)	4759 (51%)	–20%	4759 (51%)	–8%	–56%	–9%	–13.10%	<0.001		
No of hospital admissions													
Age group, years*	2019		2020		Evolution 2019–2020		2021		Evolution 2019–2021	First lockdown (17 March 2020–11 May 2020)	Second lockdown (30 October 2020–15 December 2020)	Comparison of T1 and T2 **	P value
	2019	2020	2020	2021	2019–2020	2021							
15–24	2355	1987	1987	2409	–16%	2409	2%	–49%	–21%	–7.80%	0.004		
15–24 women	1104 (47%)	850 (43%)	850 (43%)	1289 (54%)	–23%	1289 (54%)	17%	–58%	–25%	–1.00%	0.807		
15–25 men	1251 (53%)	1137 (57%)	1137 (57%)	1120 (46%)	–9%	1120 (46%)	–10%	–40%	–18%	–13.60%	<0.001		
25–44	5404	4345	4345	4480	–20%	4480	–17%	–37%	–26%	–17.90%	<0.001		
25–44 women	2127 (39%)	1710 (39%)	1710 (39%)	1830 (41%)	–20%	1830 (41%)	–14%	–42%	–18%	–16.50%	<0.001		
25–44 men	3277 (61%)	2635 (61%)	2635 (61%)	2650 (59%)	–20%	2650 (59%)	–19%	–34%	–31%	–18.70%	<0.001		
45–64	4068	3373	3373	3553	–17%	3553	–13%	–40%	–11%	–14.20%	<0.001		
45–64 women	1984 (49%)	1584 (47%)	1584 (47%)	1732 (49%)	–20%	1732 (49%)	–13%	–42%	–8%	–16.10%	<0.001		
45–64 men	2084 (51%)	1789 (53%)	1789 (53%)	1821 (51%)	–14%	1821 (51%)	–13%	–37%	–13%	–12.50%	<0.001		
65 et +	1592	1321	1321	1296	–17%	1296	–19%	–51%	–30%	–21.90%	<0.001		
65 et+ women	969 (61%)	834 (63%)	834 (63%)	824 (64%)	–14%	824 (64%)	–15%	–47%	–30%	–19.00%	<0.001		
65 et+ men	623 (39%)	487 (37%)	487 (37%)	472 (36%)	–22%	472 (36%)	–24%	–58%	–29%	–26.50%	<0.001		
All patients	13696	11233	11233	11988	–18%	11988	–12%	–42%	–21%	–15.50%	<0.001		
All patients women	6319 (46%)	5079 (45%)	5079 (45%)	5806 (48%)	–20%	5806 (48%)	–8%	–46%	–19%	–14.10%	<0.001		

Continued



Table 1 Continued		No of hospital admissions		Evolution		First lockdown (17 March 2020–11 May 2020)		Second lockdown 30 October 2020–15 December 2020)		Comparison of T1 and T2 **		P value	
Age group, years*	2019	2020	2019–2020	2021	2019–2021	Evolution 2019–2021	Evolution 2019–2021	Evolution 2019–2021	Evolution 2019–2021	Evolution 2019–2021	Evolution 2019–2021	Evolution 2019–2021	Evolution 2019–2021
All patients	7377 (54%)	6154 (55%)	-17%	6182 (52%)	-16%	-38%	-23%	-16.60%	-23%	-16.60%	-23%	-16.60%	<0.001
men													

T1: 1 January 2019 to 15 March 2020. T2: 16 March 2020 to 31 December 2021.
 *Because of the small number of patients aged 0–15 years, they were not included in the analysis.
 †Exponentiated coefficient (p value) from the negative binomial regression analysis.
 GHU, Groupe Hospitalier Universitaire.

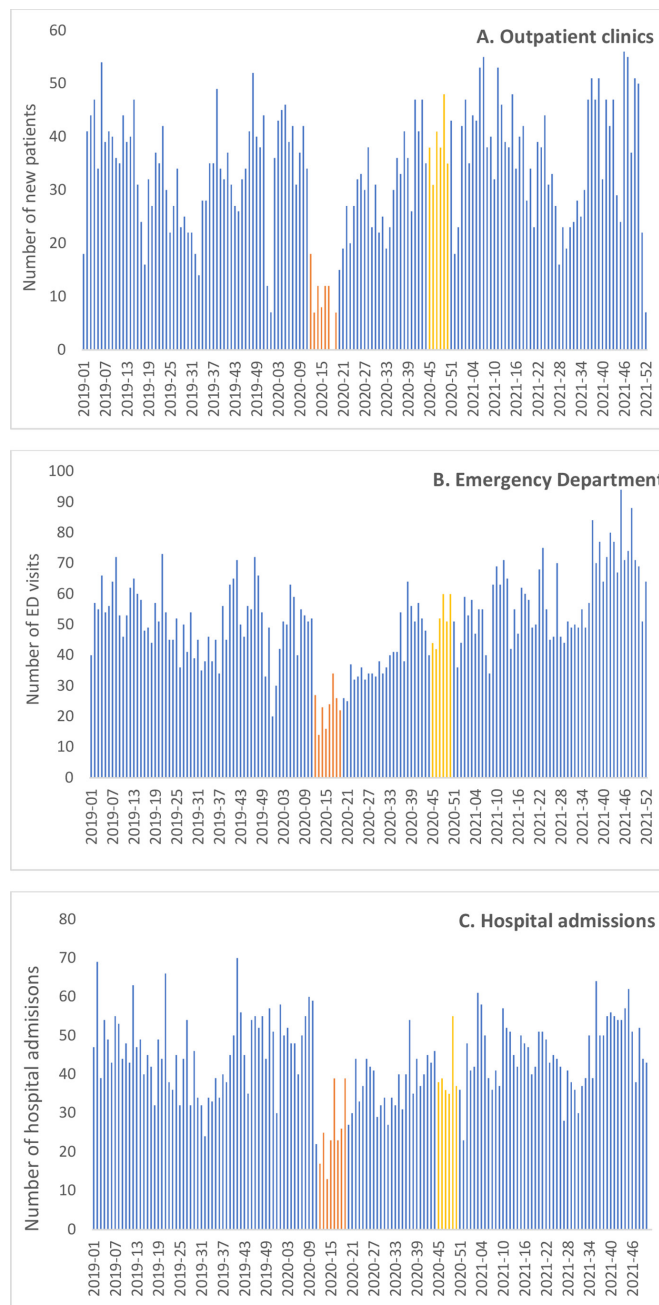


Figure 2 Number of healthcare contacts per week, between 2019 and 2021, for patients aged 15–24 years old. GHU, Groupe Hospitalier Universitaire.

The number of ED visits was lower in 2021 than in 2019, except for women aged 15–24 years, with an increase of 39%. As shown on [figure 2](#), there was an increasing trend in number of ED visits by young adults (15–24 years old) since the beginning of 2021, which was steeper during the second semester. Relative to the prepandemic period (T1), emergency visits significantly decreased after the first COVID-19 wave (T2) (–9.2%, p=0.001) for all age groups except among young women (15–24 years old), with a significant increase between the two periods (+12.7%, p=0.032) ([table 1](#)). ED visits for neurotic disorders increased in all age groups between 2019 and 2021 (online supplemental material 1) and among young

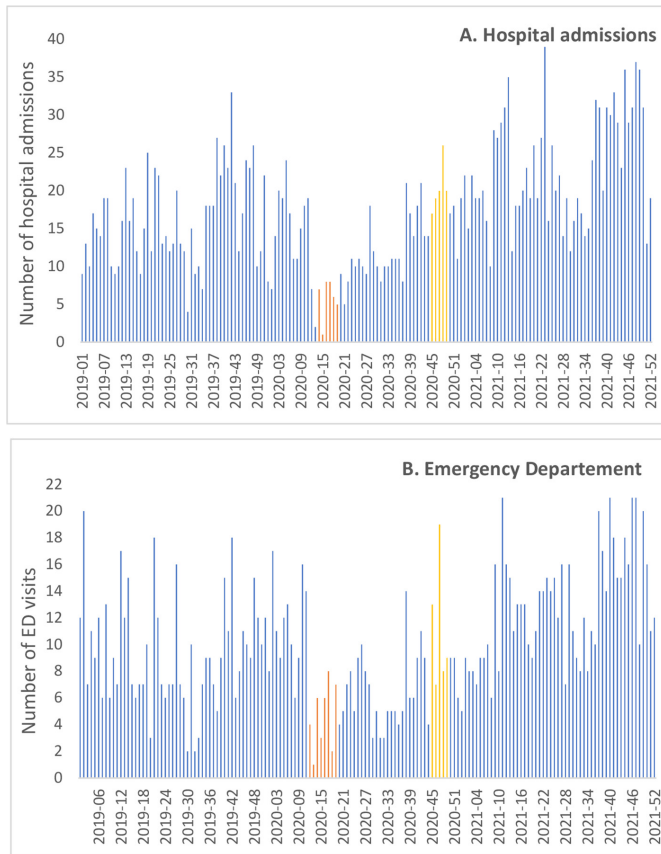


Figure 3 Number of healthcare contacts per week, between 2019 and 2021, for mood disorders among patients aged 15–24 years old.

adults (15–24 years old), visits related to mood disorders strongly increased between 2019 and 2021 (+44%) (figure 3). Disorders due to psychoactive substances use only increased among patients under 45 years old (+10% among 15–24 years old and +4% among 25–44 years old). In reverse, ED visits for schizophrenic and personality disorders were lower in 2021 compared with 2019 in all age groups. Visits due to suicidal ideations or suicide attempts made by young adults slightly increased in 2021 compared with 2019 (+18%, data not shown) but this figure must be interpreted cautiously as the frequency of events was very low.

Number of hospital admissions

The number of hospital admissions decreased by 18% in 2020 as compared with 2019 (table 1). The first lockdown was associated with more of a reduction (–42%) than the second lockdown (–21%). The number of admissions was lower in 2021 than 2019, except for young women (15–24 years old), with a 17% increase. Between the two periods (T1 and T2), the number of hospital admissions decreased by 15.5% ($p < 0.001$), and this reduction was significant across all age groups, but not for young women (15–24 years old) with almost no difference in the number of hospital admissions between T1 and T2 (–1.0%, $p = 0.807$). Hospital admissions decreased steeply for the oldest (+65 years old) with more than a quarter

less admissions in T2 compared with T1 among men in this age group (–26.5%). Figure 1 confirms that the level of hospital admissions was lower during 2021 than in the prepandemic period. Regarding reasons of hospital admissions, there was an increase between 2019 and 2021 of mood disorders in all age groups except among the oldest (65 years old and over) (online supplemental material 2) (figure 3) while the number of hospital admissions related to schizophrenia was lower in 2021 compared with 2019 in all age groups. There was also a strong increase (+20%) of young adults (15–24 years old) admitted for disorders related to substance use disorders. In reverse, admissions for suicidal ideation or attempted suicides of young aged 15–24 were lower in 2020 and 2021, compared with 2019 (–25% and –8%, data not shown).

DISCUSSION

The use of mental healthcare services at the GHU Psychiatry and Neurosciences decreased significantly in 2020 and has not yet reached its prepandemic level despite resuming in 2021. However, the trend was different for young women aged 15–24 years, with a strong increase in mental health services use : +20% of new outpatients, +39% of visits to the ED and +17% of hospital admissions in 2021 as compared with 2019. There was also an increase in the number of young men presenting at the clinic for the first time in 2021 (+4% compared with 2019). For all other age groups, the frequency of care seeking was still lower in 2021 than 2019, especially among the oldest patients (>65 years old). Our results also showed a strong increase in 2021, compared with 2019, of care seeking related to mood and neurotic disorders among 15–24 years old.

Several French studies reported similar findings: diminished healthcare use in 2021 than in the prepandemic period, except for the youngest patients and an increase of depressive and anxiety symptoms in this age group. The French national public health agency (Santé Publique France) reported an increase in 2021 in number of ED visits for suicidal ideation and behaviour and mood disorders among children (0–17 years old) and young adults (18–24 years old) as compared with the previous 3 years.³⁰ In addition, the emergency general practitioner service (SOS Médecins) reported more medical consultations for anxiety or depressive disorders among young adults in 2021 than in the previous 3 years. Another survey (EpiCov), conducted by the French Institute of Medical Research and the French direction of Research, Studies, Evaluations and Statistics, reported an improvement in mental health among the general population from March 2020 to November 2020, except for young people (<25 years old).³¹ Among them, the prevalence of depressive symptoms was still higher in November 2020 than in 2019 (+3 points for minor depressive symptoms and +6 points for major depressive disorders) but was lower or stable for all other age groups. The situation seems to be more concerning for young women (15–24 years old), with a

23.7% prevalence of depressive symptoms and a 13.4% prevalence of major depressive disorders in November 2020, but, respectively, 10.7% and 3.7% in 2019. This survey also reported that 5.0% of participants aged 15–24 years old declared having suicidal thoughts over the past 12 months, more frequently reported by young women (6.4%) than young men (3.6%). Several studies from other countries also reported a higher prevalence of depressive symptoms and anxiety disorders among young adults in the aftermath of the pandemic, especially young women, confirming the adverse impact of the pandemic on their mental health.^{5 26 32}

The reduction in mental healthcare use after the COVID-19-related restrictive measures was also observed in other countries. In the UK, despite a progression in the number of new referrals and patients hospitalised after the lifting of lockdown (May 2020), the numbers were still substantially lower than before the pandemic.^{16 33} In contrast, the number of non-face-to-face contacts showed a sizeable increase, which highlights the need to assess the role of telemedicine to manage mental health disorders and monitor patients during and outside of pandemics.^{16 34}

In our study, there was a strong reduction of mental healthcare seeking among the eldest (over 65 years old), which was also described in other studies.^{17 25} Older people may have avoided health services during the COVID-19 pandemic, because of quarantining requirements and fear of infection, and it may have discouraged them to seek care for their mental health, even after the lifting of restrictive measures. Moreover, some older people who lived alone may encounter difficulties to access health services as usual. Eventually, the fact that the pandemic had a less adverse impact on older people cannot be excluded, as several studies reported lower levels of anxiety and depression among seniors.^{5 10 12 26}

Regarding the persistency of psychiatric disorders among young adults, months after the easing of COVID-19 restrictions, it seems crucial to ensure access to appropriate care and continuity of care for youth. The pandemic deeply affected the well-being of an age group already known to be vulnerable to mental health problems, as several studies reported before the COVID-19 crisis.^{35–38} Adolescents and young adults have undergone many pandemic-related difficulties, with prolonged home-schooling and the need to study remotely for an entire academic year and with the closure of usual recreation areas (bars, cinemas, nightclubs, etc), not being able to have their normal social routine with friends.¹³ Moreover, restrictions led to officious festive gatherings, during which there was a higher risk of excess (substance use, risky behaviours) and potential abuse.³⁹ Some studies found home lockdown associated with an increase in domestic violence and ill treatment, with children more at risk in the absence of protective factors, such as access to trusted adults outside the household, school professionals and friends.^{40 41}

Furthermore, disruption of care or difficulty in accessing medical care could lead to more severe presentations of psychiatric disorders or worsen pre-existing conditions. Previous work showed a resurgence of serious clinical conditions postlockdown, including increased suicidal ideation and behaviour, and involuntary hospital admissions.^{20 26} In addition, the number of suicide attempts among the youngest, including children ≤ 15 years old, has increased substantially since the end of the first COVID-19 wave as compared with previous years.^{42 43}

Our study was based on systematically collected medical care data provided by the GHU Psychiatry and Neurosciences facilities, over a 3-year period, covering a time before, during and after the COVID-19 pandemic. This large dataset allowed us to describe robust tendencies regarding the use of mental healthcare. Moreover, the GHU Psychiatry and Neurosciences facilities covers a large area (13 of the 20 Parisian arrondissements are linked to the GHU), so our study represents the use of care by a large sample of the population. The main limitation is the absence of information on care outside the hospital, such as private practitioners, including psychiatrists, psychologists and general practitioners. Individuals with minor mental health problems could also have been referred to other support services, such as helplines. Furthermore, we were not able to distinguish remote medical consultations (telemedicine) from face-to-face outpatient appointments and so could not analyse the proportion of remote consultations in the activity. We need to understand these changes in providing mental healthcare and evaluate the therapeutic value and patient satisfaction regarding remote medical appointments. Eventually, low frequencies of admissions for suicidal attempts or ideation prevented us to perform a weekly evolution analysis.

To conclude, the COVID-19 pandemic and the associated restrictive measures used to control the spread of the virus have had severe consequences on populations' mental health, especially among young women. More worrying is the persistence of psychiatric disorders among the youngest, months after the end of restrictions. Further studies are needed to assess the psychological complications associated with the COVID-19 pandemic among young people and to capture the use of mental healthcare to ensure that this age group benefits from appropriate care.

Acknowledgements This study used the GHU activity data, systematically recorded for any contact with a GHU medical facility. All data were completely anonymised and did not mention patients' information, except for their age.

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Ethics approval French national regulation authorities allow hospitals to use medical and administrative information collected through the Programme de médicalisation des systèmes d'information (PMSI), for the purposes of research, studies, or evaluation in the health field, as long as the reference methodologies for health research are respected (MR005). The PMSI database gather retrospective data from administrative and medical files. All data extracted from the PMSI database were completely anonymous. According the French and European laws, there is no requirement for informed consent for this category of study, informing the patient of their right to oppose to the use of their data is sufficient.

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ORCID iD

Anne Perozziello <http://orcid.org/0000-0001-7051-1285>

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