

The Early Impact of the COVID-19 Pandemic on Acute Care Mental Health Services

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Objective: This study aimed to explore the effects of COVID-19 and the lockdown measures adopted in England on patients with acute mental illness.

Methods: The authors analyzed referrals to the crisis resolution and home treatment (CRHT) team and inpatient admissions to acute adult wards, at Leicestershire Partnership National Health Service Trust, an integrated community and mental health trust in the United Kingdom. Number of CRHT referrals and inpatient admissions during a 4-week period starting March 16, 2020 ("COVID-19 period"), was studied and compared with the same period in 2018 and 2019 ("control periods"). Demographic and clinical characteristics of patients admitted during the COVID-19 period were compared with those admitted during the 2019 control period.

Results: The number of CRHT referrals and inpatient admissions were lower during the COVID-19 period, compared with

the control periods, by approximately 12% and 20%, respectively. Patients admitted during the COVID-19 period were significantly more often detained under the Mental Health Act and were considered to pose a risk of aggression. The pattern of diagnoses differed significantly between 2020 and 2019. A higher percentage of patients admitted during the COVID-19 period were diagnosed as having non-affective psychotic disorders (52% versus 35%) or bipolar disorder (25% versus 15%), and fewer received a diagnosis of depression (8% versus 16%), anxiety disorder (0% versus 3%), adjustment disorder (0% versus 8%), emotionally unstable personality disorder (6% versus 15%), or any other personality disorder (0% versus 5%) ($p=0.01$).

Conclusions: These findings suggest that the pandemic has profoundly affected care by acute mental health services.

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The ongoing global spread of the COVID-19 pandemic poses unprecedented challenges for societies, economies, and health care systems. The Midlands region quickly became a hot spot of the disease in England, with the number of confirmed cases approaching 100 by mid-March 2020 (1), not including the presumably huge number of cases that could not be confirmed because of a lack of testing in the community. On March 16, 2020, Prime Minister Boris Johnson gave a televised address asking citizens to self-quarantine for 14 days if they or someone in their household had either a high temperature or a new and continuous cough (2). In addition, Johnson announced stringent new measures, including advice to stop all unnecessary travel; to work from home if possible; and to avoid pubs, clubs, and theaters (2). All aspects of English public life were profoundly affected by these developments.

This study examined the impact of the COVID-19 pandemic on acute adult mental health services provided by Leicestershire Partnership National Health Service (NHS) Trust (LPT) during a 4-week period starting on March 16, 2020 ("COVID-19 period"), the day the prime minister

announced the public lockdown. Given the need to protect patients and staff by limiting face-to-face interactions, we

HIGHLIGHTS

- Compared with control periods, the number of referrals to the crisis resolution and home treatment team and inpatient admissions to an acute adult mental health unit in Leicester, UK, decreased in the 4 weeks after March 16, 2020 ("COVID-19 period"), by approximately 12% and 20%, respectively.
- Compared with patients examined during the same 4 weeks in 2019, patients admitted during the COVID-19 period were significantly more often detained under the Mental Health Act and were considered to pose a risk of aggression.
- Compared with 2019 patients, a higher percentage of patients admitted during the COVID-19 period had nonaffective psychotic disorders or bipolar disorder.
- The pandemic may have exerted profound effects on the care provided by acute mental health services.

started from the premise that, in line with guidance from the Royal College of Psychiatrists, service use would reflect efforts to prioritize patients on the basis of risk and mental health acuity (3). Specifically, we set out to test the hypotheses that the number of referrals to the crisis resolution and home treatment (CRHT) team and number of admissions into acute adult wards had decreased during the pandemic. We also hypothesized that patients still gaining inpatient admission during the COVID-19 period had more severe psychiatric disorders and that diagnoses had shifted toward nonaffective psychotic disorders and mania/bipolar disorder, resulting in a higher percentage of formal admissions under the Mental Health Act. The Mental Health Act is the main piece of legislation that covers the assessment, treatment, and rights of people with a psychiatric disorder in England and Wales. Under the Mental Health Act, a psychiatric assessment requires, in almost all cases, two doctors and another approved mental health professional, usually a social worker. For a patient to be detained, he or she must be diagnosed as having a mental disorder and be considered a risk to his or her own health and safety or the health and safety of others. The most used sections of the Mental Health Act are Section Two, which primarily applies to assessment and asserts that patients can be detained for up to 28 days, and Section Three, which applies to treatment with a detention period of up to 6 months.

We also hypothesized that among patients who were admitted because of suicidality, the reason for suicidality would mostly be related to psychotic symptoms and severe depression, with interpersonal and social triggers playing less of a role.

METHODS

LPT provides community health, mental health, and learning disability services for Leicester, Leicestershire, and Rutland, serving a racially and ethnically diverse population of 1 million people. Adult patients who need acute input from adult mental health services are referred to the CRHT team. Those who need inpatient care are admitted to the Bradgate Mental Health Unit (BMHU), which has beds for 92 male and 64 female patients. The retrospective analysis presented here was approved by the Research and Development Department of LPT.

Sources of Information

Two sources of information were used to collect data: the LPT Reporting Tool, an electronic database of clinical activities and performance indicators, and the RiO electronic patient record (EPR) system. To assess the impact of the COVID-19 pandemic on the total number of patients who needed acute adult mental health services in LPT, numbers of CRHT referrals and inpatient admissions to BMHU were extracted from the LPT Reporting Tool. To control for possible seasonal differences, numbers for the period from March 16 to April 16, 2020 (i.e., the COVID-19 period), were compared with those obtained for the same periods in 2019 and 2018 (i.e., the control periods). March 16, 2020, was chosen as the start of

the COVID-19 period because of the U.K. prime minister's announcement on that date (2). This date marked the beginning of the early phase of the lockdown in the United Kingdom, which included significant restrictions on public life.

To further study the impact of the pandemic on the characteristics of admitted patients, we obtained lists of patients who were admitted during the COVID-19 period and the 2019 control period from the LPT Reporting Tool. Demographic and clinical information was extracted from these patients' EPRs by three psychiatric trainees (M.M., D.C., F.A.) under the supervision of an inpatient consultant (M.A.) by using a data collection form. The EPR sections examined included admission notes, progress notes prior to admission, risk assessment forms completed for all patients, diagnosis forms, and the Mental Health Clustering Tool. This tool is used by mental health services in the United Kingdom to allocate each patient to a "cluster," defined as a "global description of a group of people with similar characteristics" that "allows for a degree of variation in the combination and severity of rated needs" (4).

Data Collection Form

We developed the data collection form, which inquired about demographic and clinical variables pertinent to the research (Table 1). In addition to the coding (by M.M., D.C., F.A.), information about COVID-19-related symptoms and reason for self-harm or suicide was copied from the EPRs. The information on the data collection form was collated (by M.A.) with additional information from the EPRs and available discharge letters as appropriate to ensure accurate recording of the categorical variables. Reason for self-harm or suicide was considered to be social or interpersonal factors if the patient, a family member, or caregiver mentioned a clear link between these factors and the suicidal behavior. Suicidal behavior was considered to be due to psychiatric symptoms if a clear link existed between these symptoms and the suicidal behavior, in the absence of obvious social or interpersonal triggers. These psychiatric symptoms included severe depressive symptoms with clear negative thoughts of worthlessness or hopelessness; psychotic symptoms, such as command hallucinations and wanting to kill oneself to save the world; and other severe psychiatric symptoms that encumbered the patient to the extent that that he or she viewed suicide or self-harm as a way to escape from suffering.

Statistical Analysis

All statistical analyses were performed with SPSS, version 22 for Windows. Categorical variables were compared by using chi-square tests, and continuous variables were compared by using independent sample t tests; $p \leq 0.05$ was deemed statistically significant.

RESULTS

Figure 1 summarizes the total number of CRHT referrals and inpatient admissions during the COVID-19 period and the

TABLE 1. Sociodemographic and clinical characteristics of patients admitted during the 2019 control period and COVID-19 period^a

Characteristic	2019 control period (N=80)		COVID-19 period (N=63)		p ^b
	N	%	N	%	
Age (M±SD)	44.3±14.8		43.2±12.2		.73
Gender					.09
Male	37	46	38	60	
Female	43	54	25	40	
Race-ethnicity					.94
White British	48	60	38	60	
Other White	3	4	3	5	
BAME	29	36	22	35	
Relationship status					.77
Single	44	56	32	51	
Married/in relationship	22	28	21	33	
Divorced/widowed	12	15	10	16	
Accommodation					.09
Private accommodation with others/family	38	48	36	57	
Private accommodation, lives alone	29	36	13	21	
Lives alone with package of care	4	5	2	3	
Supported/residential accommodation	2	3	7	11	
Homeless	7	9	5	8	
Legal status					<.001
Informal	46	58	11	18	
Detained	34	43	52	83	
Diagnosis (ICD-10 codes)					.01
Schizophrenia/delusional disorders (F20–F29)	28	35	33	52	
Manic episode/bipolar affective disorder (F30–F31)	12	15	16	25	
Depressive disorder (F32–F33)	13	16	5	8	
Anxiety disorders (F40–F42)	2	3	0	—	
Adjustment disorder (F43.2)	6	8	0	—	
Emotionally unstable personality disorder (F60.3)	12	15	4	6	
Other personality disorder (F60, excluding F60.3)	4	5	0	—	
Other	3	4	5	8	
Cluster					<.001
Clusters 1–3: nonpsychotic (mild–moderate)	1	2	3	7	
Clusters 4–8: nonpsychotic (severe)	25	43	3	7	
Clusters 10–17: psychotic	32	55	35	85	
First presentation (yes)	13	16	18	29	.07
Previous admission (yes)	44	55	36	57	.86
Medication before admission					.09
Unknown	13	16	6	10	
Oral	58	73	35	56	
Depot	7	9	7	11	
No medication	15	19	21	33	
Risk of neglect (yes)	51	64	32	51	.11
Risk of vulnerability (yes)	31	39	30	48	.28
Risk of aggression (yes)	28	35	37	59	.005
Risk of self-harm or suicide					.12
No risk	35	44	35	56	
Suicidal idea	22	28	16	25	
Self-harm with no intent	3	4	5	8	
Suicide attempt	20	25	7	11	
Reason for self-harm/suicide					<.001
Clear social/interpersonal issues	14	31	5	18	
Due to depressive symptoms	19	42	3	11	
Due to psychotic symptoms	4	9	14	50	
Due to other symptoms	0	—	1	3.6	
Unclear/unknown	8	18	5	18	

^a BAME, Black, Asian, and minority ethnic. The COVID-19 period spanned March 16 to April 16, 2020. The control period spanned March 16 to April 16, 2019.

^b All categorical variables were compared by using chi-square tests. Continuous variables were compared by using independent sample t tests.

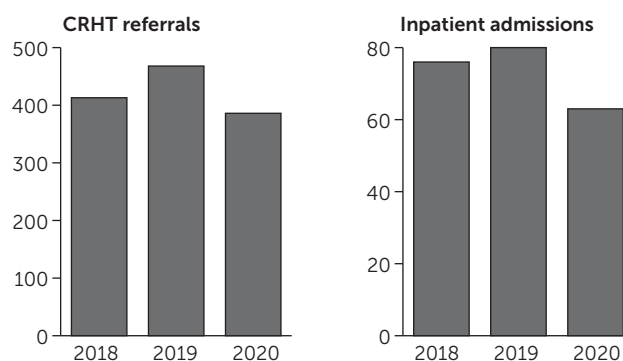
two control periods. CRHT referrals and inpatient admissions to the BMHU were both lower during the COVID-19 period than during the control periods by approximately 12% and 20%, respectively.

Sociodemographic and clinical characteristics of patients admitted during the COVID-19 period and the corresponding control period in 2019 are summarized in Table 1. Age, gender, race-ethnicity, and relationship and accommodation status did not differ between the two groups, nor did the percentage of patients with a previous inpatient admission. Duration since previous admission varied widely within groups but did not differ significantly between patients admitted during the COVID-19 period and those admitted during the 2019 control period.

There were statistically significant differences between the two groups in several key clinical characteristics (Table 1). Diagnoses on admission ($\chi^2=20.8$, $p=0.01$) differed between patients admitted during the COVID-19 period and those admitted during the 2019 control period; more patients admitted during the COVID-19 period received a diagnosis of schizophrenia, schizotypal, delusional, or other non-affective psychotic disorder (*ICD-10*, F20–F29) (52% versus 35%) or mania/bipolar affective disorder (F30–31) (25% versus 15%). Furthermore, a lower percentage of patients admitted during the COVID-19 period received a diagnosis of depression (F32–33) (8% versus 16%), anxiety disorder (F40–42) (0% versus 3%), or adjustment disorder (F43.2) (0% versus 8%). In addition, fewer patients during the COVID-19 period received a diagnosis of emotionally unstable personality disorder (F60.3) (6% versus 15%) or any other personality disorder (0% versus 5%). During the COVID-19 period, psychotic clusters were significantly more common (Table 1). Moreover, during the COVID-19 period, most admissions were compulsory, and the percentage of patients who were considered to pose a risk of aggression was higher. There were no statistically significant differences in the presence of risk to self between the two groups. However, in line with our predictions, the reasons for suicidal thoughts or behaviors during the COVID-19 period were more often related to psychotic symptoms (50% versus 9%) than to social or interpersonal stressors (Table 1).

The ongoing outbreak may have played a role in more than half of the admissions during the COVID-19 period. Clinically significant fear or anxiety related to COVID-19 ($N=22$, 35%) and the effects of the lockdown measures, such as social isolation and disruption of work or studies ($N=8$, 13%), were recorded as precipitating factors for these admissions. Interestingly, about one-third ($N=16$, 31%) of patients admitted during the COVID-19 period showed psychiatric symptoms related to COVID and the lockdown. The most common symptoms related to COVID-19 were psychotic ($N=12$, 23%). For example, patients reported, “Staff are poisoning me with COVID-19,” “Corona spiders with lots of power are watching and are a risk to humanity,” and “COVID-19 was planned and they put the world under

FIGURE 1. CRHT referrals and inpatient admissions during the COVID-19 period and control periods^a



^a CRHT, crisis resolution and home treatment. The COVID-19 period spanned March 16 to April 16, 2020. The control periods spanned March 16 to April 16, 2018, and March 16 to April 16, 2019.

lockdown so they can sort out other things, like, for example, shortage of papers, to start the New World Order, etc.” One patient believed he found the cure for COVID-19 and asked for a job as a professor to help the NHS.

DISCUSSION

This retrospective analysis examined the provision of acute psychiatric care at the beginning of the COVID-19 outbreak in England. Our exploratory study took the form of a clinical audit of service provision at LPT, an integrated community and mental health trust located in the East Midlands. To our knowledge, this is the first empirical report investigating the effects of the pandemic and the attendant stringent public health measures on adult mental health services in the United Kingdom. One limitation of this study was that the findings reflect data from one service setting only. However, without such empirical data, the effects of the pandemic on mental health cannot be fully understood.

Our investigation confirmed our core hypotheses: CRHT referrals and inpatient admissions were lower during the COVID-19 period than during the same period in the two previous years. Earlier research has shown that inpatient admission rates in the NHS can be decreased in the short term to adapt to pressures—especially urgent pressures (5). We speculate that, with the COVID-19 outbreak at the forefront of individuals’ concerns, psychiatric patients were more reluctant to seek treatment, following a pattern of behavior seen in other medical fields (6). In the absence of data, it is unclear whether this reduction in CRHT referrals and inpatient admissions represented a shift in the locus of care, whereby more patients sought help from primary care for fear of contracting COVID-19 in hospitals. The potential impact on patient outcomes, including suicide rates, might need to be monitored. The challenges of delivering services during the pandemic extended to attempts to treat mental health conditions within primary care, possibly with interventions used in secondary services (7). However, the reductions in CRHT referrals and inpatient admissions seen during the COVID-19 period were overall

modest (~10% to 20% of the average of the preceding 2 years). Various factors might be adduced to explain the relatively small reductions observed, including historically high thresholds for referrals and long-standing pressures on adult mental health services operating at high levels of capacity.

Next, we found that patients who were admitted to the BMHU during the COVID-19 period had more severe psychiatric presentations, resulting in a higher percentage of service users detained under the Mental Health Act and a shift in diagnoses toward nonaffective psychotic disorders and mania/bipolar disorder. Additionally, patients admitted during the COVID-19 period were more often considered to present a risk of aggression. These findings militate against the proposition that the higher percentage of detained patients was simply due to a much different application of the Mental Health Act as a result of emergency changes introduced by the Coronavirus Act 2020 (8).

CONCLUSIONS

This study captures a snapshot of adult mental health services at the beginning of the COVID-19 outbreak in the United Kingdom. It appears likely that, as the economic and societal costs of the public health measures begin to be felt more keenly, the pressure on adult mental health services will begin to creep up again. Importantly, during acute national crises, people tend to pull together, increasing a sense of belongingness (9). The weekly clapping for the NHS staff during the pandemic has been one example of this effect, which is usually temporary. Because the findings reflect data from one service setting only, it is important that similar analyses be performed elsewhere to create a firmer base of evidence on which future decisions can be made.

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