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ORIGINAL RESEARCH

General Medicine

Evaluation of emergency department visits for mental health complaints during the COVID-19 pandemic

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Abstract

Background: The COVID-19 pandemic has resulted in over 6 million deaths worldwide as of March 2022. Adverse psychological effects on patients and the general public linked to the pandemic have been well documented.

Methods: We conducted a retrospective analysis of adult emergency department (ED) encounters with diagnoses of anxiety, depression, and suicidal ideation using *International Classification of Diseases, Tenth Revision* (ICD-10) codes at a tertiary care hospital in New York City from March 15 through July 31, 2020 and compared it with ED encounters during the same time period in the previous 3 years (2017–2019). The relative risk (RR) of these diagnoses was calculated comparing a prepandemic sample to a pandemic sample, accounting for total volume of ED visits.

Results: A total of 2816 patient encounters met the inclusion criteria. The study period in 2020 had 31.5% lower overall ED volume seen during the same time period in the previous 3 years (27,874 vs average 40,716 ED encounters). The risk of presenting with anxiety during the study period in 2020 compared to prior 3 years was 1.40 (95% confidence interval [CI] 1.21–1.63), for depression was 1.47 (95% CI 1.28–1.69), and for suicidal ideation was 1.05 (95% CI 0.90–1.23). There was an increase in admissions for depression during the pandemic period (15.2% increase, 95% CI 4.6%–25.7%).

Conclusion: There was a relative increase in patients presenting to the ED with complaints of anxiety and depression during the height of the COVID-19 pandemic, while absolute numbers remained stable. Our results highlight the importance of acute care-based mental health resources and interventions to support patients during this pandemic.

KEYWORDS
anxiety, COVID-19 pandemic, depression, emergency department visits, mental health complaints, suicidal ideation

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1 | INTRODUCTION

1.1 | Background

The COVID-19 pandemic has resulted in significant morbidity and mortality, with over 6 million deaths worldwide as of March 2022.[1] Besides the well-documented physical sequelae after COVID-19,[2] adverse effects on the psychological well-being of patients and the general population linked to the pandemic were hypothesized early during the pandemic[3] and have subsequently been studied and confirmed.[4,5] Multiple survey studies have indicated that many people experienced greater levels of self-reported anxiety and depression during the height of the pandemic,[6–10] likely due to increased social isolation, disruption of daily routines (such as work and exercise), and fear of becoming infected.[11] Two recent studies of adolescents found increased positive screens of depression and suicidal ideation during the pandemic as compared to the same time period in 2019,[12,13] including a prevalence ratio (PR) for depression that was 24% greater during the pandemic than the same period in 2019 (PR: 1.24, 95% confidence interval [CI] 1.15–1.34).[13]

Overall emergency department (ED) volumes in many countries fell during the pandemic[14,15] likely related to restrictions in movement and guidelines enforced during the pandemic, as well as patient fear of contracting COVID-19 when seeking in-person ED care.[11] It is less well understood whether these factors had the same effect on patients seeking ED care for acute symptoms of psychological distress, specifically anxiety, depression, and suicidal ideation.

1.2 | Importance

Data on the impact of the COVID-19 pandemic on mental health-related ED visits have been mixed, and most studies were conducted in Europe.[14,15] Few studies have examined the pandemic's impact on ED visits for psychiatric complaints in the United States,[16,17] and, in particular the New York metropolitan area, one of the areas that experienced sustained and high volumes of COVID-19 cases early in the pandemic.[18]

1.3 | Goals of this investigation

The objective of this study was to measure the volume of patients presenting to the ED with psychiatric conditions, specifically anxiety, depression, and suicidal ideation, during the height of the COVID-19 pandemic in New York City in early 2020 and compare those presentations to the same time period in the 3 prior years (2017, 2018, and 2019).

2 | METHODS

2.1 | Study design and setting

We performed a retrospective, cohort study of adult patients presenting to the ED (annual prepandemic ED volume of 109,000 patients)

The Bottom Line

A retrospective analysis of over 2800 adult emergency department (ED) encounters with diagnoses of anxiety, depression, and suicidal ideation at a tertiary care hospital in New York City from March 15 through July 31, 2020, compared with ED encounters during the same time period in the previous 3 years showed a relative increase in patients presenting to the ED with complaints of anxiety and depression early in the COVID-19 pandemic, while absolute numbers remained stable. These results highlight the importance of acute care-based mental health resources and interventions to support patients with these diagnosis during a public health emergency.

of New York-Presbyterian Hospital/Columbia University Irving Medical Center, an urban, tertiary care, academic medical center in New York City with final ED diagnoses of anxiety, depression, and suicidal ideation using *International Classification of Diseases, Tenth Revision* (ICD-10) coding during the height of the COVID-19 pandemic in early 2020 (March 15–July 31, 2020) and compared these visits to similar ED presentations during the same 20-week time period in the preceding 3 years (2017, 2018, and 2019). The beginning of this time period was selected to coincide with first peak in COVID-19 infections in New York. We also collected information on total volume of patients older than 18 years who presented to the ED to construct the denominator for the analysis.

2.2 | Selection of participants

All patients over 18 years of age presenting to our ED between March 15 and July 31 (2017–2020) and receiving a final ED diagnosis of anxiety, depression, and suicidal ideation as conferred by ED physicians, according to ICD-10 code classification, were included in the study.

2.3 | Measurements

The primary outcome was the number of patients being conferred a final ED diagnosis of interest as documented in the electronic health record (EHR). We classified individuals as having been diagnosed in the ED with one of the psychiatric conditions of interest if their health record for the ED visit included an ICD-10 code consistent with an ED diagnosis of anxiety (F41.0, F41.1, F41.3, F41.8, and F41.9), depression (F32.0-32.5, F32.8, F 32.9, F33.0-33.3, F33.8, and F33.9), or suicidal ideation (R45.851) (See Appendix). The majority of patients presenting to our ED with symptoms of psychological distress are first seen by emergency physicians, including all patients in this sample. In some cases, the emergency physicians caring for the patients consulted psychiatry for further patient evaluation. This was nearly always true in cases of suicidal ideation and sometimes true in cases of anxiety and

depression. However, the final ED diagnoses were conferred by the treating emergency medicine physician.

For individuals presenting to the ED who were diagnosed with these psychiatric conditions, we also obtained from the EHR patient demographic information, including age, sex, spoken language, and insurance status. Means of arrival to ED and patient disposition (hospital admission, ED discharge, or walk out) were also obtained from the EHR for patients receiving one of these psychiatric diagnoses. Patients being admitted for any reason were analyzed broadly as admissions. However, encounters where patients were admitted were reviewed to determine whether the reason for admission was psychiatric or strictly medical. This information is presented in the Results section. Of note, our medical center does not have an observation unit. Race and ethnicity were not included owing to limitations in availability from administrative data.

2.4 | Data analysis

Data were divided into 2 samples: (1) "pandemic" sample, comprising the study period of March 15–July 31, 2020, corresponding with the first peak of the pandemic locally in New York City; and (2) "prepandemic" sample, comprising the same time period (March 15–July 31) in 2017, 2018, and 2019. To reduce variability, these 3 years were combined in the prepandemic sample and were analyzed together. The relative risks (RR) of these psychiatric diagnoses were also examined by individual years using 2017 as a reference to determine whether there were trends in the prepandemic sample years, and these analyses are included in Appendix B. Absolute numbers of visits for each of these psychiatric diagnoses (anxiety, depression, and suicidal ideation) were compared over the 4 years. The "prepandemic and pandemic samples were compared according to several demographic and clinical variables, including age, sex, language preference, arrival means, insurance status", and disposition from the ED. For each diagnosis, we calculated the differences in percent of demographic and clinical variables (and associated 95% CIs) between the prepandemic and pandemic samples. We used the Bonferroni correction to adjust the critical value for multiple comparisons (18 tests; ie, 6 tests × 3 diagnoses) and used the formula for calculating the 95% CI of a difference in proportions, or difference in means, as appropriate. We calculated the RR and 95% CI comparing the risk of receiving a final ED diagnosis for anxiety, depression, or suicidal ideation during the pandemic relative to the prepandemic period. Analyses were performed using SAS Studio (Version 3.8, Cary, NC). The protocol underwent expedited reviewed and was approved by our local institutional review board. All identifying patient information has been removed.

3 | RESULTS

3.1 | Characteristics of study subjects

All patients who presented to the ED during the study period (March 15–July 31) of the years 2017–2020 were eligible for participation in the study if they were assigned an ED diagnosis of interest upon discharge. We observed a decline in the volume of total ED visits between March 15 and July 31 during the pandemic (27,874 ED visits) as compared to the same calendar period prepandemic (average of 40,716 ED visits per year, with total volume 122,148 ED visits for 2017–2019. See Appendix C). The pandemic sample included 615 patient encounters with diagnoses of anxiety, depression, and suicidal ideation from March 15–July 31, 2020. The prepandemic sample consisted of 2201 patient encounters with these ED diagnoses during the same 20-week time period in 2017, 2018, and 2019 combined (696, 777, and 728 ED visits, respectively; See Table 1).

3.2 | Main results

Table 2 demonstrates the difference in the demographic and clinical variables among the prepandemic and pandemic samples according to ED diagnosis: depression, anxiety, and suicidal ideation, adjusted with the Bonferroni correction for multiple comparisons. For patients receiving a diagnosis of depression, the prepandemic sample was 40.2% female, whereas the pandemic sample was 51.2% female (difference 10.9%, 95% CI 0.3%–21.6%). Among patients with depression, there was a significant difference in admission rates from the ED between the 2 samples: in the prepandemic sample 44.5% of patients were admitted, whereas in the pandemic sample, 59.6% of patients were admitted (difference 15.2%, 95% CI 8.2%–22.1%). Of note, all patients who were admitted were reviewed to determine if their reason for admission was psychiatric or strictly medical. Among those with anxiety, 15.9% in the prepandemic sample and 4.8% in the pandemic sample had only a medical reason for admission. Among those with depression and suicidal ideation these numbers were much lower (for anxiety, 0.6% prepandemic and 0% pandemic; for suicidal ideation, 2.0% prepandemic and 1.0% pandemic).

Table 3 demonstrates a relatively stable number of patients per year receiving psychiatric diagnoses in the ED, especially depression and anxiety, during the pandemic period as compared to prepandemic years. However, because of the decreased total volume of ED visits during the pandemic, this reflected an elevated rate of depression and anxiety diagnoses among ED patients relative to the prepandemic years (Figure 1). The RR of receiving an ED diagnosis of anxiety was higher during the pandemic as compared with the prepandemic period (RR = 1.40, 95% CI 1.21–1.63). Similarly, the RR of being diagnosed with depression in the ED was higher during the pandemic as compared with previous years (RR = 1.47, 95% CI 1.28–1.69). The RR of receiving an ED diagnosis of suicidal ideation were not significantly different during the pandemic as compared to prepandemic years (RR = 1.05, 95% CI 0.90–1.23). The hypothesis that there may have been an increasing trend in the risk of presenting with any of these psychiatric diagnoses during the prepandemic years was tested and is included in Appendix B. The analysis was performed using 2017 as a reference year and reveals that for anxiety and depression, the RRs of these diagnoses in 2018 and 2019 were not significantly different than in 2017. There is also no consistent trend for suicidal ideation.
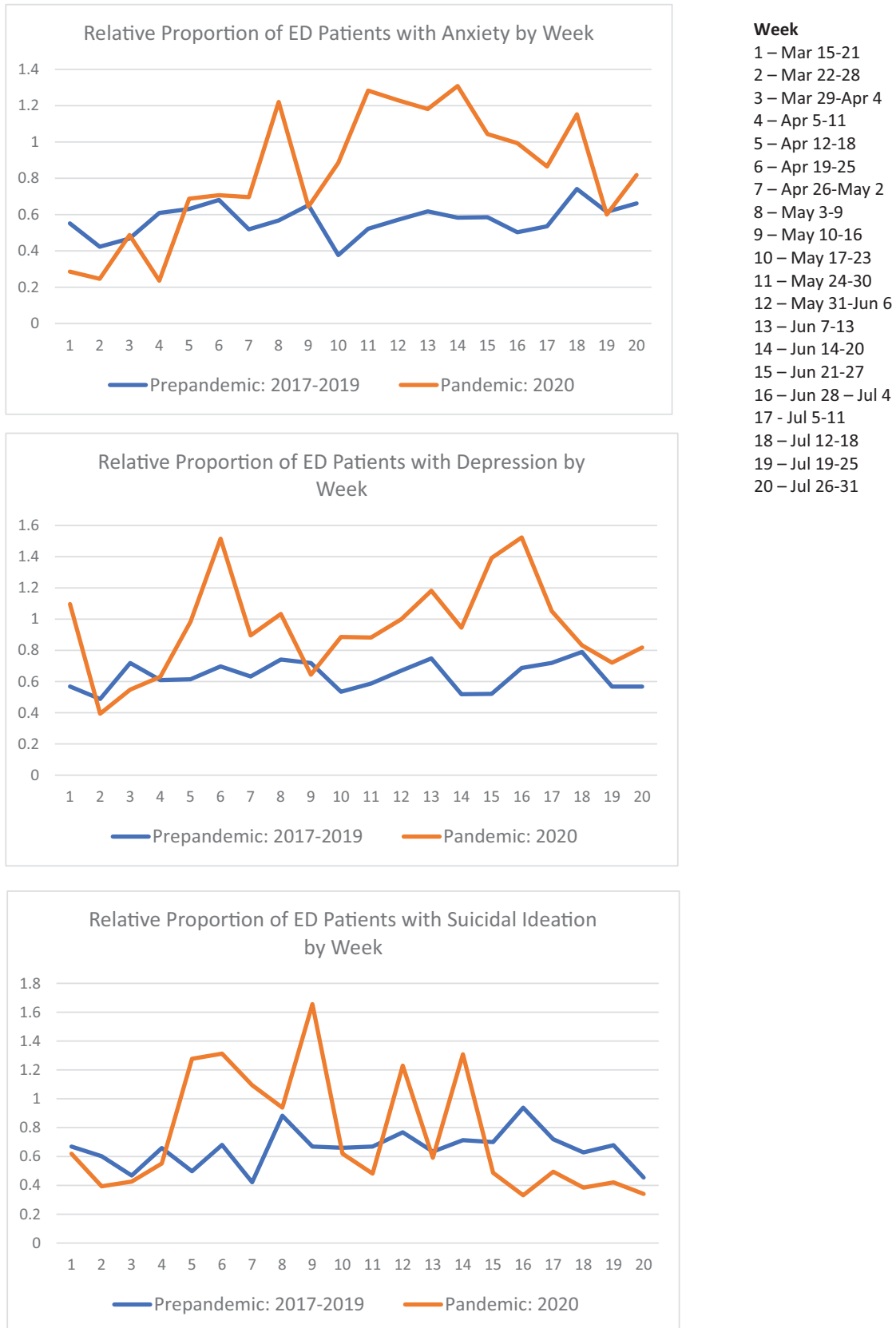
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Week
1 – Mar 15-21
2 – Mar 22-28
3 – Mar 29-Apr 4
4 – Apr 5-11
5 – Apr 12-18
6 – Apr 19-25
7 – Apr 26-May 2
8 – May 3-9
9 – May 10-16
10 – May 17-23
11 – May 24-30
12 – May 31-Jun 6
13 – Jun 7-13
14 – Jun 14-20
15 – Jun 21-27
16 – Jun 28 – Jul 4
17 - Jul 5-11
18 – Jul 12-18
19 – Jul 19-25
20 – Jul 26-31

FIGURE 1 The relative proportion of emergency department patients receiving a diagnosis of depression, anxiety, and suicidal ideation, week-to-week, during the pandemic period in 2020 (including March 15–July 31), and during the same time period in the 3 preceding years (2017, 2018, and 2019). Proportions are expressed percentages

TABLE 1 Characteristics of the populations who presented to our emergency department for anxiety, depression, and suicidal ideation in the pandemic period in 2020 (including March 15–July 31), and during the same time period in the 3 preceding prepandemic years (2017, 2018, and 2019)

Characteristic	Prepandemic sample (n = 2201)	Pandemic sample (n = 615)	% Diff (95% CI)
Age, mean (SD)	43.5 (15.7)	43.3 (15.5)	−0.2 (−1.6 to 1.2)
Sex			
Female	987 (44.8)	284 (46.2)	1.3 (−3.1 to 5.8)
Male	1214 (55.2)	331 (53.8)	−1.3 (−5.8 to 3.1)
Language			
English	1570 (71.3)	474 (77.1)	5.7 (1.9 to 9.6)
Spanish	402 (18.3)	94 (15.3)	−3 (−6.3 to 0.3)
Other	187 (8.5)	42 (6.8)	−1.7 (−4 to 0.6)
Unknown	42 (1.9)	5 (0.8)	−1.1 (−2 to −0.2)
Arrival means			
Walk-in	1432 (65.1)	356 (57.9)	−7.2 (−11.6 to−2.8)
Ambulance	685 (31.1)	245 (39.8)	8.7 (4.4 to 13)
Other transport	6 (0.3)	6 (1)	0.7 (−0.1 to 1.5)
Unknown	78 (3.5)	8 (1.3)	−2.2 (−3.4 to −1.1)
Insurance			
Private	303 (13.8)	104 (16.9)	3.1 (−0.1 to 6.4)
Public	1650 (75)	419 (68.1)	−6.8 (−10.9 to −2.7)
None	248 (11.3)	92 (15)	3.7 (0.6 to 6.8)
Disposition			
Discharged	1393 (63.3)	373 (60.7)	−2.6 (−7 to 1.7)
Admitted	777 (35.3)	235 (38.2)	2.9 (−1.4 to 7.2)
Walked out	31 (1.4)	1 (0.2)	−1.2 (−1.8 to −0.7)
Unknown	0 (0)	6 (1)	1 (0.2 to 1.8)

Data are reported as frequencies (number) and column percentages (%) to unless otherwise stated. Percent differences for the pandemic and prepandemic samples have been calculated with 95% confidence intervals (CIs).

3.3 | LIMITATIONS

These psychiatric diagnoses were conferred in an acute care setting by ED physicians and are influenced by the limited time spent with an individual during an ED visit. The patient population was classified using ICD-10 codes consistent with the diagnoses of interest, which is a limiting factor, as ICD-10 codes are a primarily administrative measure. ICD-10 codes are known to have less than perfect accuracy, creating the possibility of diagnostic misclassification.[20] However, we do not expect coding accuracy to have changed meaningfully from one year to another at our institution over the study period. Results were analyzed on the level of the patient encounter and did not account for repeat visits for the same patient. Visits were analyzed for a total of 20 weeks during the first wave of the pandemic and our analysis therefore does not investigate the rates of ED visits for these psychiatric diagnoses after that. This chart review was the result of an electronic data pull from our EHR and is therefore limited to variables that could be accessed electronically and does not include whether psychiatric diag-

noses are new versus exacerbations of chronic conditions, the severity of a patient's symptoms, or further details about a patient's suicidal ideation. Additionally, this study contains data from a single tertiary care hospital in northern Manhattan that serves a distinct patient population and may not be generalizable to other populations and health care systems. Furthermore, the current analyses reflect unadjusted associations between calendar time (prepandemic vs pandemic) and ED diagnoses, which may be affected by unmeasured confounding variables.

4 | DISCUSSION

Our study found that although overall ED volume fell to a nadir of about half the typical volume in mid-April 2020 compared to the same time period in previous years (see Appendix C), the absolute numbers of patients diagnosed with anxiety and depression did not appreciably change, and there was an increase in the RR of receiving a

TABLE 2 Characteristics of patients with emergency department diagnoses of anxiety, depression, and suicidal ideation in the pandemic period in 2020 (including March 15–July 31), and during the same time period in the 3 preceding "pre-pandemic" years (2017, 2018, and 2019)

Characteristic	Anxiety			Depression			Suicidal ideation		
	Prepandemic sample	Pandemic sample	% Diff (95%CI)	Prepandemic sample	Pandemic sample	% Diff (95% CI)	Prepandemic sample	Pandemic sample	% Diff (95% CI)
	(n = 696)	(n = 223)		(n = 776)	(n = 260)		(n = 803)	(n = 193)	
Age, mean (SD)	42.8 (17.4)	41.5 (16.6)	−1.3 (−5.3 to 2.7)	44.2 (15.2)	43.7 (15.6)	−0.5 (−3.8 to 2.8)	43.5 (14.3)	44.1 (14.2)	0.6 (−2.8 to 4.0)
Sex									
Female	430 (61.8)	123 (55.2)	−6.6 (−18.0 to 4.8)	312 (40.2)	133 (51.2)	10.9 (0.3 to 21.6)*	271 (33.7)	64 (33.2)	−0.6 (−13.0 to 11.8)
Male	266 (38.2)	100 (44.8)	6.6 (−4.8 to 18)	464 (59.8)	127 (48.8)	−10.9 (−21.6 to −0.3)*	532 (66.3)	129 (66.8)	0.6 (−11.8 to 13.0)
Language									
English	438 (62.9)	147 (65.9)	3 (−8.0 to 13.9)	578 (74.5)	212 (81.5)	7.1 (−1.5 to 15.6)	611 (76.1)	168 (87)	11.0 (0.9 to 21.0)*
Spanish	188 (27.0)	51 (22.9)	−4.1 (−13.9 to 5.7)	133 (17.1)	33 (12.7)	−4.4 (−11.8 to 2.9)	92 (11.5)	14 (7.3)	−4.2 (−11.8 to 3.4)
Other	54 (7.8)	23 (10.3)	2.6 (−4.3 to 9.4)	52 (6.7)	12 (4.6)	−2.1 (−6.8 to 2.6)	85 (10.6)	10 (5.2)	−5.4 (−12.4 to 1.6)
Unknown	16 (2.3)	2 (0.9)	−1.4 (−3.9 to 1.1)	13 (1.7)	3 (1.2)	−0.5 (−2.9 to 1.9)	15 (1.9)	1 (0.5)	−1.3 (−4.2 to 1.5)
Arrival means									
Walk-in	459 (65.9)	128 (57.4)	−8.5 (−19.8 to 2.7)	509 (65.6)	153 (58.8)	−6.7 (−17.2 to 3.7)	515 (64.1)	111 (57.5)	−6.6 (−19.4 to 6.2)
Ambulance	211 (30.3)	94 (42.2)	11.8 (0.7 to 23.0)*	235 (30.3)	99 (38.1)	7.8 (−2.5 to 18.1)	260 (32.4)	75 (38.9)	6.5 (−6.1 to 19)
Other transport	1 (0.1)	0 (0)	−0.1 (−0.6 to 0.3)	4 (0.5)	4 (1.5)	1 (−1.4 to 3.4)	1 (0.1)	3 (1.6)	1.4 (−1.0 to 3.8)
Unknown	25 (3.6)	1 (0.4)	−3.1 (−5.6 to −0.6)*	28 (3.6)	4 (1.5)	−2.1 (−5.1 to 1.0)	27 (3.4)	4 (2.1)	−1.3 (−5.6 to 3.0)
Insurance									
Private	133 (19.1)	45 (20.2)	1.1 (−8.1 to 10.3)	108 (13.9)	47 (18.1)	4.2 (−3.9 to 12.2)	71 (8.8)	24 (12.4)	3.6 (−4.5 to 11.7)
Public	494 (71.0)	144 (64.6)	−6.4 (−17.3 to 4.5)	584 (75.3)	168 (64.6)	−10.6 (−20.7 to −0.6)*	628 (78.2)	144 (74.6)	−3.6 (−14.7 to 7.5)
None	69 (9.9)	34 (15.2)	5.3 (−2.6 to 13.3)	84 (10.8)	45 (17.3)	6.5 (−1.3 to 14.3)	104 (13.0)	25 (13.0)	0 (−8.8 to 8.8)
Disposition									
Discharged	605 (86.9)	201 (90.1)	3.2 (−3.9 to 10.3)	425 (54.8)	102 (39.2)	−15.5 (−26.1 to −5.0)*	396 (49.3)	93 (48.2)	−1.1 (−14.2 to 12.0)
Admitted	69 (9.9)	21 (9.4)	−0.5 (−7.3 to 6.3)	345 (44.5)	155 (59.6)	15.2 (4.6 to 25.7)*	404 (50.3)	97 (50.3)	−0.1 (−13.2 to 13.1)
Walked out	22 (3.2)	1 (0.4)	−2.7 (−5.1 to −0.3)*	6 (0.8)	0 (0)	−0.8 (−1.7 to 0.2)	3 (0.4)	0 (0)	−0.4 (−1.5 to 0.8)
Unknown	0 (0)	0 (0)	0 (0 to 0)	0 (0)	3 (1.2)	1.2 (−0.8 to 3.1)	0 (0)	3 (1.6)	1.6 (−0.7 to 3.8)

Data are reported as frequencies (number) and column percentages (%), and differences in percentages with corresponding 95% confidence intervals (CIs), which have been adjusted for multiple comparisons using the Bonferroni correction (18 tests). *Statistically significant differences.

TABLE 3 Frequency and relative risk (RR) of ICD-10 diagnoses of anxiety, depression, and suicidal ideation during the first peak of the pandemic (March 15 – July 31), compared to the same time period in the preceding 3 years

	2017	2018	2019	2020	RR (95% CI) REF = 2017–2019
Anxiety, n (%)	241 (0.62)	216 (0.53)	239 (0.57)	223 (0.80)	1.404 (1.208–1.632)
Depression, n (%)	257 (0.66)	280 (0.68)	239 (0.57)	260 (0.93)	1.468 (1.277–1.689)
Suicidal ideation, n (%)	218 (0.56)	311 (0.76)	274 (0.65)	193 (0.69)	1.053 (0.901–1.232)
Total ED visits, n	39,001	41,019	42,128	27,874	

Data are reported as frequencies (number) and relative risk (RR), unless otherwise stated. Abbreviations: CI, confidence interval; ICD-10, *International Classification of Diseases, Tenth Revision.*

diagnosis of these complaints as compared with earlier years that was statistically significant (Table 3). Figure 1 shows a graphical depiction of the week-to-week volume of each psychiatric diagnosis as a function of total ED volume and reveals a trend of mostly diverging lines for anxiety and depression. There is more week-to-week variation in the pandemic era because of natural fluctuations in patients presenting to the ED, whereas the prepandemic era takes 3 years into account, which minimizes the week-to-week variation. Our findings suggest that even during the local peak of the pandemic, patients with mental health complaints continued to present in similar absolute volume and greater overall rate compared to prepandemic numbers. These findings are similar to survey research noting the prevalence of anxiety and depression in the general public[5] as well as recent work finding a relative increase in ED visits for psychiatric complaints increasing in 2020 compared to a similar time period in 2019.[16]

The reasons why absolute numbers of patients presenting with anxiety and depression, though not suicidal ideation, held relatively constant during the pandemic as compared with prior years may be multifactorial. ED visits for psychiatric complaints may be more resistant to volume fluctuations than other types of ED complaints. For example, although patients with abdominal pain or musculoskeletal complaints may have been deterred from presenting to the ED during the height of the pandemic, patients suffering from significant psychological distress may have been less likely to be deterred. Alternatively, patients with anxiety and depression were similarly deterred from presenting to the ED because of COVID-19, yet the nearly steady number of visits for anxiety and depression during the pandemic reflects an increased prevalence of acute psychiatric problems in the general population. Indeed, this is consistent with broader community survey data, finding significant increases in depressive and anxiety symptoms among the general public during the pandemic.[5] It would be useful to know whether these diagnoses represented more severe disease, though our administrative data do not provide that level of insight. It is likely that the need for admission may reflect a greater severity of the current psychiatric diagnosis.

Our results also indicate certain populations may be at particular risk for psychological sequelae during the pandemic. We found that a greater proportion of those being diagnosed with depression during the pandemic were women compared to the prepandemic period (10.9% increase, 95% CI 0.3%–21.6%). Additionally, a significantly higher proportion of these patients diagnosed with depression

were admitted during the pandemic (44.5% prepandemic vs 59.6% pandemic; difference 15.2%, 95% CI 4.6%–25.7%), suggesting a more severe state of clinical depressive symptoms. There was no difference in admission rates for patients diagnosed with anxiety or suicidal ideation among the 2 samples.

These findings stand in contrast to other studies finding that outpatient and psychiatric ED visits during the pandemic dropped precipitously.[14,15,17,19] For example, another study at a midwestern academic center in the United States[17] and several European studies conducted in Portugal,[14] Switzerland,[15] and Germany[19] found that visits to psychiatric EDs declined during a similar time period. Similar to our study, these were retrospective chart analyses and were unable to determine severity of disease presentation; however, the Swiss study revealed a trend toward increased need for hospitalization[15] and the study in the midwestern United States showed a significant increase in admissions as well.[17] From a more local interpretation, perhaps our ED did not see the decline in psychiatric visits that was experienced by other EDs because as cases rose sharply in March and April of 2020 in New York City, the first peak in the United States, much of the level of individual risk as a result of COVID-19 was unknown, which may have provoked a greater degree of anxiety than during later peaks, when the level of individual risk regarding COVID-19 was better understood. Or perhaps unique environmental features of urban regions such as New York City (eg, increased population density, less personal space, etc) contributed to the persistence of patients presenting with anxiety and depression even while overall ED volume decreased. The differences observed in our study versus in other contexts may also have been influenced by urbanicity (affecting factors such as degree of social isolation), local news sources, and whether seeking health care for other needs during this time period was encouraged. Many of these factors are difficult to measure, but it may be true that increased social isolation and a heightened sense of crisis as reported in the news potentially caused or exacerbated anxiety and depression in the general population.

This result highlights the unique durability and possible exacerbation (if the numbers of all ED visits were similarly depressed, and the stable number of visits for anxiety and depression represents a greater prevalence than baseline) of psychiatric complaints, even during the peak of the pandemic. This finding has implications beyond the pandemic and raises the question of whether the ED should focus more resources on meeting the needs of these patients in the acute setting

and possibly offer more screening for psychiatric and behavioral health needs. Future studies could evaluate interventions, including risk stratification and offering outpatient or telehealth services to the those with the highest levels of risk. Future studies could also be done over a longer period of time to determine how long these levels of increased risk remain elevated. Although we included only patients at least 18 years old, it would also be valuable to extend this investigation to adolescents as well. Our data revealed that even after adjusting for multiple comparisons, there was a statistically significant increase in women being diagnosed with depression during the pandemic as compared with the prepandemic era (51.2% vs 40.2% female). This finding should be studied in other contexts to determine whether it is generalizable. It could also be valuable to review individual patient records to determine whether these were new psychiatric diagnoses versus exacerbations of known mental health conditions, as well as the extent to which patients reported their symptoms were a result of effects of the pandemic. Additionally, if future studies find that overall depression during the acute phase of a pandemic is more severe (as evidenced by higher rates of admission), interventions could be targeted to those at highest risk, and close follow-up prioritized for patients with depression to help prevent the need for admission.

In summary, although overall ED volume decreased dramatically during the height of the pandemic in New York City, the RR of ED diagnosis of anxiety and depression during the pandemic was approximately 40% higher than prepandemic levels for the same time period, though absolute numbers did not appreciably change. This finding supports hypotheses and survey-based data showing that people were suffering from higher levels of anxiety and depression during the COVID-19 pandemic. We also believe that these findings could be due to increased levels of stress in the population in general. The increased rate of admission for patients with depression in the pandemic era may relate to an increase in severity in symptoms and argues for a greater focus in resources for patients with these behavioral health complaints. The implication of our results is that mental health resources should be seen as essential, and when population-based risk is high, such as during a pandemic, the health care system should attempt to proactively respond to these increased needs.

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CONFLICTS OF INTEREST
None to declare.

AUTHOR CONTRIBUTIONS
Dana L. Sacco conceived the study and analyzed the data. Dana L. Sacco, Bernard P. Chang, and Katharina Schultebraucks designed the research strategy. Dana L. Sacco obtained funding for this study. Katharina Schultebraucks, Marc A. Probst, and Claire Greene provided statistical advice on data analysis and interpretation. Dana L. Sacco drafted the manuscript, and all authors contributed substantially to its revision. Dana L. Sacco takes responsibility for the paper as a whole.

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