

American emergency room wait times for psychiatric conditions from 2019 to 2021

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Key words: wait times; emergency department; emergency psychiatry; mental health wait times; mental health access.

Contributions: MH had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: MH, ZM; Acquisition, analysis, or interpretation of data: MH, ZM; Drafting of the manuscript: ZM, AM, AnP; Critical revision of the manuscript for important intellectual content: AaP; Statistical analysis: MH; Study supervision: MH.

Conflicts of interest: MH receives research funding from the National Institute of Child Health and Human Development (U54HD113173; Shreffler), Human Resources Services Administration (U4AMC44250-01-02, PI: Audra Haney; R41MC45951 PI: Hartwell), and previously from the National Institute of Justice (2020-R2-CX-0014 PI: Beaman)—all unrelated to this manuscript.

Ethics approval: this study does not meet the requirements of human subjects research and thus was not submitted to ethics review. This study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Funding: no funding was received to support this research.

Availability of data and materials: Data is publicly available through the Centers for Disease Control and Prevention's website: https://www.cdc.gov/nchs/nhamcs/about/index.html?CDC_AAref_Val=https://www.cdc.gov/nchs/ahcd/nhamcs_participant.htm

Received: 12 June 2024.

Accepted: 7 October 2024.

Early view: 14 October 2024.

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Emergency Care Journal 2024; 20:12719

doi:10.4081/ecj.2024.12719

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Abstract

Use of Emergency Departments (EDs) for psychiatric complaints has increased significantly in past decades. The onset of the COVID-19 pandemic saw large shifts in ED usage, with a relative increase in mental health complaints in EDs. This paper will investigate the difference in ED wait times for psychiatric and non-psychiatric complaints over this period. Utilized National Hospital Ambulatory Medical Care Survey (NHAMCS), from 2019 to 2021, for average wait times for psychiatric versus non-psychiatric complaints. Compared the average wait times for psychiatric complaints by region, triage status, and ICD-10 F code. There was no significant difference in the average wait times overall between these conditions ($P = 0.57$). People with schizophrenia or psychosis had a significantly higher wait time ($P = 0.03$) compared to mental health symptoms secondary to physiologic conditions. Northeastern American EDs also had prolonged wait times for psychiatric conditions ($P < 0.01$) Research into factors of prolonged wait times can advise quality improvements such as the implementation of evidence-based triage and workup tools, and directed psychiatric education.

Introduction

The use of Emergency Departments (EDs) for psychiatric care has increased significantly in recent decades, as the treatment of mental health conditions transitioned from primarily hospital-based care to community-based care—a process called deinstitutionalization.¹ One in 8 ED visits from 2006-2014 were for a mental or substance-related complaint.² EDs offer essential, acute care for people with psychiatric conditions.³ This care often involves reducing patient agitation, as needed, and providing comfort until they can be evaluated by a psychiatrist and moved to an inpatient facility or discharged.⁴

A study evaluating Ontario hospital visits from 2007 to 2009 found that ED wait times for patients with psychiatric complaints found that, in non-crowded conditions, these patients waited 10 minutes longer to see a physician, compared to non-mental health complaints.⁵ In crowded conditions, patients with mental health complaints saw a physician 14 minutes faster in mild crowding, 38 minutes faster in moderate crowding, and 48 minutes faster in severe crowding.⁵ Another study, from 2009-2015, found that patients with mental health conditions had the highest wait time to admission or transfer at a median of 6.23 hours, as well as an increased median discharge time of 3.7 hours compared to 2.6 hours for all other visits.⁶ This is to say, that past research has shown a difference in wait times between psychiatric and non-psychiatric complaints, particularly regarding the time-to-transfer, however, time-to-provider for psychiatric conditions is understud-

ied in the US. The outbreak of the COVID-19 pandemic had a significant impact on ED operations; however, studies evaluating wait times for psychiatric conditions during and after the COVID-19 pandemic are absent. Still, several studies *have* shown significant shifts in the types of ER complaints. When comparing the number of hospital visits before and during the pandemic, a study found a significant decrease of 39% of all-cause ED visits from 2019 to 2021.⁷ Mental health-related visits decreased only 23%.⁷ Another study similarly found a 24% decrease in mental-health-related visits in EDs, however, found that people who were disabled or who lived in psychiatric facilities increased visits for mental-health-related reasons.⁸ Further, there was a 93% increase in the number of Americans who sought help for anxiety or depression from 2019 to June 2020.³

Given the impact of the COVID-19 pandemic on ED utilization overall, as well as on mental health in general, this investigation sought to evaluate wait times during and after the pandemic, compared to previous years. Our primary objective was to compare the average wait times to see a primary provider, for patients with psychiatric complaints (ICD-10 F category) compared to all other ER complaints. Our secondary objectives were to determine whether the specific psychiatric complaints (groups of 10 in the F category), triage status, or region of the ER had significantly different wait times.

Materials and Methods

Data source

We conducted a cross-sectional analysis of data from the 2019 through 2021 National Hospital Ambulatory Medical Care Survey (NHAMCS). This data is collected by the CDC annually from a sampling of national visits to EDs, outpatient departments, and ambulatory surgery locations. It is part of the National Health Care Surveys (NHCS) which works with Centers for Medicare and Medicaid Services Electronic Health Record (EHR) Incentive Programs.⁹

Inclusion criteria

The inclusion of ED visits for this study required that there was a recorded wait time for the visit and that an ICD-10 code diagnosis was assigned to the patient.¹⁰

Wait times and psychiatric ICD-10 codes in the NHAMCS

For the NHAMCS, wait times are reported by ED administra-

tors in total minutes before contact with the first provider. Next, for the ICD-10 code, we assigned those within the subgroup F01-99 to indicate patients with a mental health complaint during the ER visit and bucketed all other subgroups into patients without a treatment involving mental health. For visits that had multiple ICD-10 codes assigned, visits were counted in the psychiatric-complaint category if any of the codes were of the ICD-10 F group. Average wait times were plotted by month, and compared to the average wait times per month for all non-mental health ICD-10 codes. We further analyzed the subgroups of ICD-10 group F codes by psychiatric complaint (Table 1), to understand if certain classifications of mental health experienced different wait times according to ICD groupings.¹⁰

Region and urgency

Further, we analyzed the average wait times for psychiatric complaints based on geographic regions (Northeast, Midwest, South, and West). The ER visits were analyzed by their triage status—immediate, emergent, urgent, semi-urgent, and non-urgent—and compared between psychiatric and non-psychiatric complaints per year.

Statistical analysis

First, we analyzed the average wait time to see a physician for all ED psychiatric complaints (ICD F01-99) and compared this to the average wait time for all other complaints. Next, we plotted monthly aggregate wait times from 2019 through 2021 for all non-psychiatric visits with the corresponding 95% confidence interval and plotted the wait times for psychiatric visits to assess if and when the difference in codes and to analyze changes associated with the COVID-19 pandemic. We also tested if any linear trends existed by either ED visit grouping. Further, we compared the average wait times within geographical regions for psychiatric conditions. Wait times were also compared according to the triage status assigned to the visit. The same analysis was then performed for categories within the F-group ICD10 codes, by groups of 10, to see the variance in wait times by type of mental health complaint. Individuals with diagnoses of several F-subgroups were analyzed separately. Due to small sample sizes, some F-subgroups were combined: the F50s were combined with the F00s, due to both being psychiatric complaints related to non-psychiatric conditions; and the F60s, F70s, and F80s were combined, as all related to developmental and intellectual disabilities. Alpha was set at 0.05 for all analyses and was conducted in Stata 16.1 (Statcorp, LLC., College Station, TX). This study does not meet the requirement for human subjects research and therefore was not submitted for ethics review. Reporting of results adhered to the Strengthening the

Table 1. ICD-10 F category subgroups.¹⁰

F01-F09	Mental disorders due to known physiological conditions
F10-F19	Mental and behavioral disorders due to psychoactive substance use
F20-F29	Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders
F30-F39	Mood [affective] disorders
F40-F48	Anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders
F50-F59	Behavioral syndromes associated with physiological disturbances and physical factors
F60-F69	Disorders of adult personality and behavior
F70-F79	Intellectual disabilities
F80-F89	Pervasive and specific developmental disorders
F90-F98	Behavioral and emotional disorders with onset usually occurring in childhood and adolescence

Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Results

Wait times between psychiatric and non-psychiatric visits and trends

Using data from 2019 through 2021 NHAMCS, we found that the mean wait time among all psychiatric-related ED visits was 35.04 minutes (SE = 2.74) and 33.76 minutes (SE = 1.53) for non-psychiatric visits—a non-statistically significant difference ($t = 0.57$, $P = 0.57$). Further, no linear trends were found using the monthly aggregate wait times for psych wait times (Coef: -0.09 SE: 0.25 , $t = -0.35$ $P = 0.73$), nor for other ED visits (Coef: -0.003 SE: 0.14 , $t = -0.02$ $P = 0.98$); however, we found 7 months where the wait times for psychiatric visits were outside of the 95%CI wait times of non-psychiatric related ED visits (Figure 1). The months in which the psych wait times were longer than the 95% CI limit were October 2019, January 2020, February 2020, and January 2021. The months in which the psychiatric wait times were below the 95% CI limit were March 2019, April 2021, and November 2021.

Wait times of psychiatric visits by region and triage status

Analysis of the wait times of psychiatric visits by region indi-

cated that the Northwest had the highest wait time, averaging 57.9 minutes (Table 2). All other regions were found to have significantly shorter wait times for these conditions: the Midwest at 31.6 minutes (SE: -2.65 , $P = 0.008$), the West at 30.3 minutes (SE: -3.5 , $P = 0.001$), and the South at 29.2 minutes (SE: -3.76 , $P < 0.001$). Analysis of wait times by triage group were compared to the “Emergent” status. This was chosen as the reference group, because it was the most common assigned triage status. Compared to the “emergent” group, the only significantly longer wait times were the “Urgent” triage group (34.9 minutes, SE 3.41, $P = 0.005$), and the “ESA cannot assign triage” group (46.02 minutes, SE 8.58, $P = 0.017$; Table 2). All other triage groups were non-significantly different from the “emergent” triage status.

Wait times of psychiatric visits by ICD10 F-subgroup

The data on psychiatric wait time was also analyzed by ICD10 F-subgroup. The reference group was F01-09/F50-59 (mental disorder due to known physiological conditions) which had a wait time of 26.96 (SE: 4.38) minutes. F20-29 (Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders) was the only subgroup with a significantly higher wait time at an average of 52.54 minutes (SE: 10.29, $P = 0.024$; Table 3). The rest of the subgroups were not found to be statistically different from the reference group.

Table 2. Average wait times (in minutes) for ED visits assigned an ICD-10 F code (mental health) diagnosis, by region and triage status.

	M (SE)	Coef (SE)	t, P
Region			
Northeast	57.88 (6.79)	1 (Ref)	-
Midwest	31.6 (7.23)	-26.28 (9.91)	-2.65, 0.008
South	29.2 (3.48)	-28.68 (7.63)	-3.76, <.001
West	30.33 (3.97)	-27.54 (7.86)	-3.5, 0.001
Triage Status			
Emergent	24.01 (2.81)	1 (Ref)	-
Immediate	25.94 (8.46)	1.94 (8.88)	0.22, 0.828
Urgent	34.9 (3.41)	10.9 (3.83)	2.84, 0.005
Semi-urgent	28.02 (2.96)	4.01 (3.68)	1.09, 0.276
Nonurgent	29.92 (5.28)	5.91 (5.91)	1, 0.318
No triage assigned	23.62 (4.95)	-0.39 (5.59)	-0.07, 0.944
ESA cannot assign triage	46.02 (8.58)	22.01 (9.16)	2.4, 0.017

Table 3. Average ED wait times (in minutes) by ICD-10 F code subgroup. Sample size per category is listed in the second column.

F subgroup	No. (%)	M (SE)	Coef (SE)	t, P
*F01-09/F50-59	222 (4.46)	26.96 (4.38)	1 (Ref)	-
F10-19	2321 (40.18)	31.23 (2.55)	4.27 (4.76)	0.9, 0.37
F20-29	407 (4.78)	52.54 (10.29)	25.58 (11.27)	2.27, 0.024
F30-39	696 (12.12)	30.17 (3.04)	3.21 (5.27)	0.61, 0.543
F40-49	976 (16.25)	34.63 (4.41)	7.67 (5.87)	1.31, 0.192
*F60-89	85 (1.47)	34.63 (6.37)	7.67 (7.29)	1.05, 0.293
F90-99	157 (2.39)	37.52 (14.47)	10.56 (15.02)	0.7, 0.482
Multiple F Dx's	1119 (18.36)	44.07 (8.54)	17.11 (9.14)	1.87, 0.062

Discussion

Our analysis of the overall wait times for psychiatric and non-psychiatric diagnoses in EDs across the US found no significant difference from 2019-2021. The 7 months in this period in which the average wait times for psychiatric conditions were outside of the normal range for all ED wait times and were not related to COVID lockdowns which occurred from April through June of 2020.¹¹ There was also not a significant increase or decrease in wait times trends, for either psychiatric or non-psychiatric conditions, through the 3 years. Some studies have reported a decrease in wait times during the COVID-19 pandemic due to the reduced number of ED visitors with minor complaints.¹² Our data on wait times by month did appear to minimize in the summer of 2020, then return to 2019 levels thereafter. Although we found no significant difference in wait times across the country overall, wait times can vary significantly from facility to facility, as well as by day, or even by hour depending on the influx of patients.¹³

The Northeast region had the longest wait times for psychiatric conditions, nearly twice that of the Midwest, West, and Southern regions. This difference in wait times by region could be explained by the variability in available healthcare services, population density, and insurance.¹⁴ This difference was also noted in a study that analyzed wait times for psychiatric complaints from 2009-2015 conducted by Simko et al.⁶ Although this paper focused more on the time to transfer or discharge, we find the regional differences in mental healthcare wait times in the ED to be similar for time-to-provider. This regional variability did not seem to correlate with the prevalence of “any” or “severe” mental illnesses.^{15,16} Simko et al did however find that the Northeast region had the highest rate of mental health-related ED visits, the highest rate of visits insured by Medicaid, and among the highest rate of mental health-related hospital admissions.⁶ The colder weather in the Northeast could contribute to higher rates of people who are unhoused seeking care in the ED,¹⁷ who may have comorbid mental health conditions.¹⁸ Repeat visits from these individuals may lead to prolonged wait times to see a provider.

Compared to the “emergent” triage status, wait times for people with psychiatric complaints were significantly longer if they were triaged as “urgent,” or if the facility did not conduct triage. Interestingly, these semi-urgent and nonurgent visits did not have

a significantly higher wait time in our sample. The only ICD10 F-subgroup that had a statistically significant increase in emergency room wait times was F20-29 (schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders). A paper by Smith, et. al. demonstrated that the overall length of stay (LOS) in a Florida emergency department from 2010-2013 for psychiatric patients was the longest for those with suicidality or schizophrenia.¹⁹ While a more specific study is needed, it is possible that admitting a person with a complaint fitting within the F20-29 subgroup will take more time and resources than those in other ICD10 F subgroup categories. Especially during times of overcrowding, emergency departments may fast-track patients with shorter lengths of stay, causing patients with longer perceived lengths of stay (such as patients with psychosis) to experience longer wait times.²⁰ Further, a systematic review by Gutwinski, et. al. found that roughly 76% of people who are unhoused had mental health disorders, with the most prevalent disorders being substance use disorder and schizophrenia spectrum disorders.¹⁸ The unhoused population is also more likely to have a high number of repeat visits.²¹ Consequently, it is possible that in emergency department waiting rooms, patients who fit into the F20-29 subgroup might also represent a higher number of people who are unhoused compared with other ICD10 subgroups.

Implications and Recommendations

Prolonged ED wait time has been associated with increased patient dissatisfaction.²² In patients with acute mental health concerns, there is an additional risk of their condition worsening during the time to see a provider,¹ which may in turn increase the length of their hospital stay.¹⁷ As mentioned, our data revealed that people with psychosis (ICD10 codes F20-29) had significantly prolonged wait times to see a provider. This does not include psychosis secondary to drug use, which would have been categorized in the F10-19 ICD10 codes.¹⁰ Although our research serves to identify factors associated with increased wait times, further research is needed to identify why these patients experience increased time to see a provider. These investigations may allow for quality improvement tailored to individual departments, though general programs should still be implemented. Previous surveys of emergency room providers have identified the need for evidence-based best practices in the treatment of psychosis in the ED, such as triage tools, outcome measures for effective interventions, and the

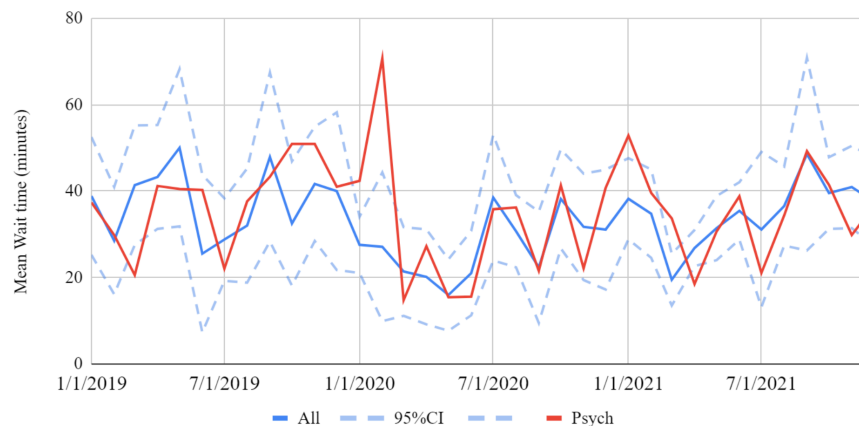


Figure 1. Mean wait times in minutes in US emergency departments from January 2019 to December 2021. Blue represents overall wait times (dashed line represents 95% confidence interval), red line represents wait times for psychiatric complaints

best early interventions.²³ After the publication of these survey results, an evidence-based approach to psychosis workup in the ED was published by physicians from Indiana University, including an emphasis on history, indications for physical or laboratory workup, management, and considerations for admission.²⁴ The continued development and implementation of these practices may improve wait times for people presenting with psychosis in the ED.

Previous research has demonstrated that emergency department providers may feel uncomfortable treating patients with psychiatric complaints.²⁵ The study by Lewis showed that 23% of ED physicians reported having a “poor” or “extremely poor” comfort level and 51% having a “fair” comfort level treating patients with psychiatric symptoms—largely being hesitant on how to choose an appropriate disposition level of care.²⁵ Although there is no past research directly associating physician comfort to wait times, research has shown that physicians look up information to prepare for patient encounters—at an average of 1.35 searches per patient.²⁶ This may be more time-consuming during situations where the provider is more unfamiliar with the condition leading to longer wait times. Further education on best practices for approaching and treating patients with acute psychiatric symptoms may reduce provider discomfort. Another study that surveyed physicians’ comfort for patients with psychiatric complaints showed that education on common psychiatric care practices in the ED improved comfort in treating those conditions.²⁷ Furthermore, emergency room physicians reported that they felt less comfortable treating patients with psychiatric complaints when there were no inpatient beds available,²⁸ suggesting that further investment in inpatient psychiatric facilities may improve provider comfort. Improving provider comfort may hasten the time for them to make first contact with the patient. The high rates of variability in what causes prolonged ED wait times indicate that ED managers should evaluate their efficiency and initiate personalized improvement strategies.²⁹

Patients with mental health disorders have a longer overall LOS with increased ED boarding time.^{19,30} One study showed that the increased LOS for mental health visits prevented 2.2-bed turnovers and were 2.5 times more likely to require admittance to a hospital or psychiatric facility.³⁰ Despite the increased rate of patients with psychiatric concerns in the ED, a 2018 review showed that more than 50% of EDs in the US did not have psychiatric services (including a psychiatrist on staff or use of telehealth psychiatric services).³¹ Increasing dedicated resources for ED patients with mental health diagnoses could help improve patient satisfaction while saving the hospital money.

Limitations and future research

The NHAMCS database surveyed 500 emergency departments across the US, for each year of data collection.⁹ However, the rarity of certain diagnoses presented in the ED led to some ICD10 F code categories having low sample sizes, an issue which we ameliorated by combining some categories. Small sample sizes may also have caused outlier effects for the analysis of discrete months in Figure 1, causing infrequent spikes in reported wait times with no clear pattern. Future research into the reasons for delayed care will better identify the best points of intervention and ED improvement, which may involve qualitative interviews with emergency room providers.

Conclusions

Our data did not reveal any significant difference in emergency department wait time throughout the COVID-19 pandemic, regardless of whether the patient presented with a psychiatric or non-psychiatric complaint. However, there were significant differences in wait times for psychiatric patients based on region, as well as a significantly longer wait time for patients presenting with a disorder of psychosis. Past research demonstrates that prolonged wait times are associated with worsened prognosis, which in turn can increase their utilization of emergency or in-patient facilities. This data may advise emergency departments on key areas of intervention to improve ED efficiency for people with mental health concerns, which may be remedied through implementing evidence-based triage or workup tools or further psychiatric education for providers.

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