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Brief Report

Racial and Ethnic Differences in Emergency Department Wait Times for Patients with Substance Use Disorder

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□ **Abstract—Background: Substance use-related morbidity and mortality rates are at an all-time high in the United States, yet there remains significant stigma and discrimination in emergency medicine about patients with this condition. Objectives: The purpose of this study was to determine whether there are racial and ethnic differences in emergency department (ED) wait times among patients with substance use disorder. Methods: The study uses pooled data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) from 2016 to 2018. The dependent variable is length of time the patient with a diagnosis of substance use disorder waited in the ED before being admitted for care. The independent variable is patient race and ethnicity. Adjusted analyses were conducted using a generalized linear model. Results: There were a total of 3995 reported ED events among patients reporting a substance use disorder in the NHAMCS sample between 2016 and 2018. After adjusting for covariates, Black patients with substance use disorder were significantly more likely to wait longer in the ED (35% longer) than White patients with substance use disorder ($p < 0.01$). Conclusions: The findings showed that Black patients with substance use disorder are waiting 35% longer, on average, than White patients with the same condition. This is concerning, given that emergency medicine is a critical frontline of care, and often the only source of care, for these patients. Furthermore, longer wait times can increase the likelihood of leaving the ED without being seen. Programs and policies should address potential stigma and discrimination among providers, and EDs should consider adding people with lived experiences to the staff to serve as peer recovery specialists and bridge the gap for care.**

□ **Keywords—Substance use disorder; health equity; health disparities; emergency medicine; public health**

Introduction

The United States is facing a crisis pertaining to substance abuse and overdose deaths. Between April 2020 and April 2021, 100,306 Americans died of a drug overdose, an increase of 28.5% from the prior year and currently, one American dies from an overdose every 5 min (1).

Neurobiological advances have determined that substance use disorder in its most severe and chronic form (addiction) is a function of a brain disease (2). Substance use is often a mechanism for coping with stress and trauma, which can lead to significant impairments in one's ability to function with increasing duration and severity (2).

Although it has been established that substance use disorder be treated as a medical condition and not a moral failure, societal stigma, and bias persist. This misperception permeates through the medical field given the significant barriers to care that people with substance use

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disorder experience. Consequences of stigmatization create barriers, such as accessibility of treatment, diminished quality of care, and discontinuation of treatment (3–6). Stigma may manifest as lower engagement and empathy, poor communication, missed diagnoses, disrupted care, or exclusion from services (3,5–7). When the experience of stigma is internalized, it reinforces the belief one is undeserving of care and threatens recovery, as the patient may withdraw from treatment prematurely (5,8). Often, patients may delay seeking treatment or avoid treatment altogether due to the anticipation of stigma (4,5,8).

There is also a large and growing body of evidence that has documented inequitable emergency care for some racial and ethnic populations within the United States (9,10). Structural biases, such as quality of providers, hospital locations, hospital funding, and administrative policies, result in unjust distribution of resources (11). Unequal distribution of resources can overburden providers and lead to inappropriate decision making, driven in part by inherent individual biases (12). For example, research examining emergency care wait times have consistently found inequities in wait times, particularly among patients with lower care acuity scores. Specifically, research has found that Black patients were consistently assigned lower acuity scores compared with White patients (10).

Patients who identify as a member of a racial and ethnic minoritized group and who have a substance use disorder may be particularly at risk of being underserved within emergency departments (EDs). Patients with substance use disorders are often viewed negatively in EDs as "drug seekers" and may have their concerns minimized by health care workers, even when they are experiencing legitimate emergent health care needs. Implicit bias by staff related to race and ethnicity may make it more likely that patients of color are viewed as drug seekers, resulting in less emergent triage assessment and longer wait times. Wait times are likely a critical factor in whether a patients with substance use disorder will pursue care. A recent study found that people who used drugs cited the main reasons they may refuse emergency medical services (EMS) transport after an overdose are that they anticipate inadequate care on arrival at the hospital and stigmatizing treatment by EMS and hospital providers (13). Although less is known about ED care for this specific subpopulation, some literature has indicated racial inequities, particularly for Black patients, are sustained within emergency care services for people with substance use disorders (14). Notably, literature documenting the inequitable emergency substance use care has often been presented alongside inequities in emergency mental health care (14,15). Although mental health conditions and substance use disorders are highly comorbid, their reasons for emergency visits are very heterogeneous and should be examined separately to best understand inequities in emergency care.

Despite stigmatization concerns and suboptimal treatment, people with substance use disorders continue to use EDs, as it guarantees access for this population when other community resources and options are absent (16,17). Previous research has consistently established a very high burden of behavioral health conditions among frequent users of the ED (16–20). Hardy et al. found that of high ED users, > 77% had a mental illness diagnosis, 78% had a substance use disorder, and nearly 90% used opioid pain medications chronically (20).

The purpose of this study was to determine whether there are racial and ethnic differences in ED wait times among patients with substance use disorder. This is particularly important, given that this disorder is often accompanied by acute needs related to overdose, withdrawal, mental health, and pain management.

Methods

Data Source

The study used pooled data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) from 2016 to 2018. NHAMCS is a nationally representative sample of ambulatory care services conducted in hospital EDs by the National Center for Health Statistics. A 3-stage probability sampling design is used to collect a national sample of visits to EDs in noninstitutional general and short-stay hospitals, excluding federal, military, and Veterans Health Administration hospitals. Information was collected about the patient (i.e., age, sex, race, and ethnicity), ED visit (i.e., provider's diagnosis; services ordered and provided; and treatments, including medication), and hospital facility characteristics. This was a de-identified public data set and therefore exempt from Institutional Review Board approval.

Measures

ED wait time

The recorded number of minutes that patients waited in the ED before being seen.

Race and ethnicity.

Patient race and ethnicity recorded as non-Hispanic White, non-Hispanic Black, Hispanic, or "other."

Substance use disorder.

ED visits for this diagnosis were recorded as the provider marking "substance abuse or dependence" in the diagnosis category.

Control variables

Analyses controlled for sex (male or female), age group (18–24 years, 25–44 years, 45–64 years, or 65 years

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and older), insurance status (private, Medicaid, Medicare, uninsured, or other), arrival by ambulance (yes or no), use of computer-assisted triage (yes or no), use of a self-check-in kiosk (yes or no), triage level (high, mid, low, missing, or none), and whether the patient was seen in the past 72 h (yes or no).

Statistical Analyses

Differences in wait time by race and ethnicity were assessed using the survey procedures of STATA SE, version 16.1. Using the survey procedures in conjunction with the weights provided in NHAMCS allowed for results to be nationally representative and for SEs to correctly account for the complex sampling strategy of NHAMCS. First, the unadjusted mean wait times by race and ethnicity were assessed. Because the error terms from a simple linear regression model did not meet the assumptions of a normal distribution, a generalized linear model was fitted that assumed the error terms followed a gamma distribution and the equation had a log link.

Results

Characteristics of the Study Sample

There were 3995 reported ED events among patients reporting a substance use disorder in the NHAMCS sample between 2016 and 2018. Of these visits, 2430 (60.8%) were among White patients, 1031 (25.8%) among Black patients, 426 (10.7%) among Hispanic patients, and 108 (4.3%) among patients whose race was reported as "other." Table 1 reports the demographic characteristics of the sample.

Table 2 presents the mean time (in minutes) that patients with substance use disorder waited in the ED before being seen. After applying the NHAMCS sample weights, the overall mean wait time for patients with substance use disorder was approximately 38 min. When broken out by race, White patients had the lowest mean wait time of approximately 33 min, followed by patients in the "other" race group (approximately 39 min), Hispanic patients (approximately 40 min), and Black patients (approximately 52 min).

Table 3 presents the unadjusted and adjusted analyses. The unadjusted analyses found that Black patients waited 47% longer in the ED than White patients ($p < 0.05$). After adjusting for covariates, Black patients were still significantly more likely to wait longer in the ED (35% longer) than White patients ($p < 0.01$). There were no other statistically significant differences in mean wait time by race and ethnicity.

Table 1. Characteristics of Patients with Substance Use Disorder in the National Hospital Ambulatory Medical Care Survey Sample of Emergency Department Visits, 2016–2018 (n = 3995).

Category	n	%
Race		
White	2430	60.8
Black	1031	25.8
Hispanic	426	10.7
Other	108	2.7
Insurance type		
Private	714	17.9
Medicare	598	15.0
Medicaid	1759	44.0
Uninsured	389	9.7
Other	535	13.4
Ambulance		
Yes	1122	28.1
No	2873	71.9
Triage level		
High	656	16.4
Medium	1518	38.0
Low	867	21.7
Missing	746	18.7
None	208	5.2

Discussion

The purpose of this study was to determine whether racial and ethnic disparities exist in ED wait times among patients with substance use disorder. We found that Black patients are waiting 35% longer, on average, than White patients. This is supported by Nam et al., who reported that Black patients with a mental health or substance use disorder diagnosis had an ED wait time that was 1.26 times longer than White patients with the same diagnosis (17). We found an even greater difference in wait times compared with that study when only substance use visits were examined.

The literature has consistently demonstrated that Black patients are experiencing longer wait times for ED visits than White patients overall (9,21). Our findings among a vulnerable subgroup of individuals with substance use disorder are particularly concerning, given that the ED is often the front line of care (and only source of care) for these patients due to socioeconomic constraints and lack of insurance (22). Longer wait times among these patients may jeopardize their trust in the health care system, thus

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Table 2. Weighted Percentages of Visit Characteristics for Patients with Substance Use Disorder in the Emergency Department, 2016–2018.

Characteristic	White Sample (n = 2430)	Black Sample (n = 1031)	Hispanic Sample (n = 426)	Other Sample (n = 108)	Full Sample (n = 3995)
Wait time, min, mean (95% CI)	32.9 (26.6–39.1)	52.4 (30.2–74.5)	39.7 (25.3–54.1)	39.1 (20.7–57.5)	38.3 (29.8–46.7)
Sex*					
Female	49.2	48.9	31.5	28.7	46.7
Male	50.8	51.1	68.6	71.3	53.3
Age group*					
18–24 y	13.6	11.5	20.5	5.1	13.6
25–44 y	45.5	42.0	48.3	53.4	45.2
45–64 y	31.5	39.4	26.5	26.9	32.7
65 y+	9.4	7.1	4.7	14.7	8.5
Insurance status					
Private	19.4	15.2	20.8	14.2	18.5
Medicaid	39.2	41.2	42.3	24.2	39.6
Medicare	16.6	17.1	6.6	21.7	15.8
Uninsured	8.7	9.6	6.9	20.6	9.0
Other	16.1	16.9	23.5	19.4	17.1
Arrival by ambulance					
Yes	25.5	30.4	26.7	26.0	26.8
No	74.5	69.7	73.3	74.0	73.2
Computer-assisted triage					
Yes	56.8	53.4	71.8	67.4	57.9
No	43.2	46.6	28.2	32.6	42.2
Self-check-in kiosk†					
Yes	4.6	6.7	12.5	6.7	6.0
No	95.4	93.3	87.5	93.3	94.0
Triage level					
None	4.0	4.5	9.1	6.7	4.7
Missing	20.4	23.0	20.8	27.2	21.2
Low	19.8	22.8	19.8	5.1	20.1
Medium	36.9	35.2	32.8	45.7	36.3
High	19.0	14.5	17.5	15.3	17.7
Seen in past 72 h†					
Yes	3.0	6.3	3.8	8.2	4.0
No	97.0	93.8	96.2	91.8	96.0

* $p < 0.01$.
† $p < 0.05$.

impacting their potential recovery and willingness to seek treatment when in crisis.

People with substance use disorder are a clinically complicated population characterized by comorbidities, social vulnerabilities, and high ED utilization. Despite the frequency of encounters, lack of training and stigmatization leaves providers unprepared to adequately treat this patient population (23–25). Providing substandard care leads to poor treatment outcomes. Evidence indicates deficits in the quality of care provided to these patients can be mitigated by providing robust patient-centered support after discharge to addiction consultation services (25). In addition, frequent exposure to patients with substance use disorder is associated with more favorable attitudes, in-

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Table 3. Unadjusted and Adjusted Regression on Mean Emergency Department Wait Times for Patients with Substance Use Disorder by Race and Ethnicity.

Variable	Coefficient (95% CI)	*P* Value
Unadjusted		
White	Ref	—
Black	0.47 (0.06 to 0.87)*	0.024
Hispanic	0.19 (–0.16 to 0.53)	0.286
Other	0.17 (–0.26 to 0.61)	0.432
Adjusted†		
White	Ref	—
Black	0.35 (0.11 to 0.60)‡	0.005
Hispanic	0.20 (–0.13 to 0.54)	0.233
Other	0.15 (–0.29 to 0.60)	0.500

* $p < 0.05$.
† Adjusted for patient age, sex, insurance type, arrival by ambulance, triage level, computer assisted triage, self-check-in kiosk, and whether the patient was seen in the past 72 h.
‡ $p < 0.01$.

creased preparedness, and higher likelihood of providing evidence-based care (23). The availability of appropriate services, coupled with relevant medical school addiction curricula and residency programs with clinical rotations in addiction, can increase a physician's confidence in providing care to this population. These factors can lead to better health outcomes and curb high ED utilization in this patient population.

Limitations

Several limitations are of note to the current study. First, given that the NHAMCS data use retrospective chart reviews, there may be errors in reporting on the medical record or during chart abstraction. Second, our study was also limited by ED visits among patients who the provider gave a diagnosis of "substance use disorder." Therefore, it does not capture patients who may have a substance use disorder, but did not disclose that information (or it was not determined by the provider). Third, some subgroup estimates had small sample sizes and results may not be generalizable to the wider population.

Conclusions

Program Implications

Many of the health care needs related to substance use disorder are urgent and should receive proper care and attention. The ED also represents an opportunity to create a medical home for patients to be referred to resources outside of health care, such as housing, transportation, and career development or job placement. Some EDs are attempting to reduce recidivism by placing peer recovery specialists in their units to specifically serve overdose patients. The peer recovery specialist is a hired position for someone who is in recovery for substance use disorder and can be a resource to link the patient to care and serve as an advocate. Preliminary research supports greater likelihood of substance use treatment engagement, opioid abstinence, and outpatient utilization, and a lower likelihood of hospitalization and ED visits when peer recovery specialists are used (26). Although the goal of the peer recovery specialist is to encourage the patient to seek treatment, it is also a role in which they can provide support and understanding associated with the difficulties in ending one's addiction. Furthermore, peer recovery specialists often interface with hospital staff and clinicians about their personal experiences with addiction and recovery and may serve as role models for how to interact with patients with substance use disorder. This may result in changes in the hospital culture by reducing bias associated with substance use disorder (and its interaction with race) among clinicians and staff, which could potentially lead to reduced wait-time disparities.

Policy Implications

A societal shift in perception of substance use disorder from a moral failure to a medical condition, particularly among Black patients, is imperative. The frustration that health care providers may feel at the reoccurrence of their patients in these units extends beyond the addiction itself and into the environment in which the patient re-enters, meaning that partnerships with community organizations and resource provisions are vital. In addition, the medical community must understand the conscious and unconscious biases they hold that are leading to inequitable treatment. Medical schools should provide training in implicit bias as part of their curriculum so that students learn the skills necessary to treat patients equally and equitably regardless of race, ethnicity, disability, socioeconomic status, gender, or sexual orientation. Moreover, policies surrounding the criminalization of substance use disorder must be considered, as many patients face barriers to overcoming addiction, such as an inability to get a job due to a criminal record, as a result of their condition. It is well documented that criminalization policies disproportionately impact Black patients. For example, Black women are more likely to be criminalized for substance use in pregnancy even as Black and White patients report similar prevalence rates (27–31). Treatment-focused policies that aim to address substance

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use disorder as a medical condition should therefore be prioritized.

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ARTICLE SUMMARY

1. Why is this topic important?

Health care needs related to substance use disorder are urgent and should receive prompt care. Emergency department wait times are a critical factor to whether a patient with substance use disorder will pursue care.

2. What does this study attempt to show?

This study examines if racial and ethnic disparities exist in ED wait times among patients with substance use disorder.

3. What are the key findings?

Racial inequities exist in ED wait times among patients with substance use disorder. Black patients with substance use disorder are waiting 34% longer to be seen in EDs compared to White patients.

4. How is patient care impacted?

Longer wait times increase the likelihood of patients leaving the ED without being seen. Therefore, Black patients with substance use disorder are at an increased risk for being underserved within ED settings. Our findings among a vulnerable subgroup of individuals with substance use disorder are particularly concerning given that the ED is often the front line of care for these patients.

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