Research Square

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Incarceration History and Continuity of Healthcare: Barriers to Care Access and Service Utilization Among Adults with Mental Illness

Aisha Ellis
aellis32@jhu.edu
Johns Hopkins University
Chakra Budhathoki
Johns Hopkins University
Tamar Rodney
Johns Hopkins University
Cecilia Tomori
Johns Hopkins University
Odis Johnson
Johns Hopkins University
Eric Slade
Johns Hopkins University

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Abstract

Background

Individuals with incarceration histories experience multiple barriers to healthcare access and continuity of care. For adults with mental illness, a population facing structural inequities in healthcare, prior incarceration represents an additional risk factor for unmet healthcare needs and fragmented service utilization. Understanding how incarceration history shapes healthcare outcomes independent of traditional social determinants is essential for designing equitable reentry services and bridging care continuity gaps across criminal justice and healthcare systems.

Methods

Using the Andersen Behavioral Model of Health Services Use, we analyzed Wave V Add Health data (N = 3,764 adults with mental illness; 529 (14.1%) with prior incarceration). Using inverse probability weighting regression, we examined associations between incarceration history and two primary outcomes: (1) unmet healthcare need and (2) emergency department use as usual source of care. We tested ten moderators (race, insurance, health status, social status, functional limitations, chronic illness, family support, friend support, acute depression, depression score) to identify subpopulations at highest risk.

Results

Adults with incarceration histories had significantly higher odds of unmet healthcare need (adjusted OR = 1.45, 95% CI: 1.13–1.86) and emergency department as usual source of care (adjusted OR = 1.80, 95% CI: 1.25–2.58). Incarceration's adverse effect persisted across demographic, economic, and clinical strata: nine of ten tested moderators did not significantly modify this association (all interaction $p > 0.05$), indicating a universal structural effect independent of measured risk factors. Notably, friend support paradoxically amplified rather than buffered incarceration's effect on unmet need (interaction OR = 2.33, p=.004).

Conclusions

Incarceration history represents an independent and universal structural determinant of healthcare discontinuity for adults with mental illness that operates independent of poverty, insurance gaps, or illness severity. The paradoxical amplification among those with friend support suggests that emotional support increases awareness of unmet healthcare needs without corresponding access enablement. System-level rather than individual level interventions are needed to bridge justice healthcare continuity gaps.

Background

The United States leads the world in incarcerations (Fair & Walmsley, 2021), with over 7 million people cycling in and out of jail (Zeng, 2023) and over six-hundred thousand individuals released from state and federal prisons annually (Carson, 2021). A disproportionate share of incarcerated individuals are living with mental illness (Berzofsky & Bronson, 2017; Steadman et al., 2009). Twenty one percent of adults residing in the community have ever been told they have a mental illness compared to approximately 41% of state and federal prisoners meeting diagnostic criteria for mental illness (Maruschak et al.). Incarcerated individuals with mental illness serve longer sentences, present a greater financial cost, are more likely to commit suicide and have more behavioral management problems than their counterparts without mental illness.(TAC)

Reentry represents a uniquely vulnerable transition, particularly for people with mental illness (Jang et al., 2025). Mental illness impacts social determinants of health, including education, housing, and socioeconomic position (Kirkbride et al., 2024). Returning citizens face multiple compounded challenges including inadequate preparation for community reintegration, abrupt discontinuity of mental and physical healthcare at release (Binswanger et al., 2011), and high rates of preventable hospitalizations and death after release (Binswanger et al., 2007; Wang et al., 2013). Additionally, approximately 68% of adults with mental illness have comorbid physical medical condition, including diabetes, heart disease, COPD, and cancers, associated with an elevated risk of chronic disease (CMHA, 2008; Druss & Walker, 2011) and premature mortality (Momen et al., 2022). Importantly, adults with mental illness lacking access to primary care service face particularly poor health trajectories and outcomes, yet incarceration may further disrupt these already fragile care relationships (Druss & Walker, 2011).

The intersection of mental illness and substance use disorders (SUDs) further complicates reentry experiences and underscores the urgency of understanding healthcare continuity disruption. Justice-involved individuals experience elevated rates of co-occurring SUD and mental illness, yet treatment systems remain fragmented (Clark et al., 2024). For individuals with co-occurring conditions, discontinuous care is particularly consequential to interrupted medication-assisted treatment, fragmented psychiatric services, and loss of peer support upon reentry leading to accelerate relapse, overdose risk, and mortality (Kuriakose et al., 2026; Osher & Drake, 1996). While the present study focuses on adults with

mental illness, the mechanisms linking incarceration to discontinuous healthcare access identified here are likely to operate similarly, and potentially more severely, among justice involved individuals with co-occurring mental illness and substance use disorders. Documenting incarceration's impact on healthcare continuity for this population provides a foundation for understanding and addressing complex reentry healthcare trajectories.

Continuity of care, defined as uninterrupted service coordination across care settings and providers that maintains ongoing therapeutic relationships, is foundational to effective health outcomes (Haggerty et al., 2003). For individuals with mental illness, discontinuous care increases risk of emergency department utilization, hospitalization, and poor medication adherence (Breslau et al., 2018), potentially accelerating health decline and recidivism. Although disparities in health outcomes among individuals with mental illness are well documented, far less is known about whether incarceration history independently predicts discontinuous healthcare access, even after accounting for social determinants of health and clinical factors. Individuals with an incarceration history face significant barriers to healthcare access (Zhao et al., 2024) and are more likely to rely on emergency departments for care compared to those without incarceration histories (Frank et al., 2013), consistent with justice involvement functioning as a marker of structural vulnerability; however, whether these patterns exist among individuals with diagnosed mental illness after rigorous adjustment for competing explanations remains unexplored.

Incarceration disrupts continuity of care, through multiple interconnected mechanisms: forced separation from establish providers, loss of insurance coverage upon incarceration, fragmented reentry healthcare planning, and stigma-based discrimination upon community reentry (Binswanger et al., 2011; Jennings et al., 2021). These disruptions represent structural barriers and systemic features of the justice and healthcare systems that constrain access independent of individual characteristics. While prior research has examined primary care access among formerly incarcerated populations in isolation and separately among adults living with mental illness (Cooper et al., 2024); few studies have simultaneously examined both populations together. Additionally, US studies have not systematically tested whether incarceration history independently predicts discontinuous healthcare access among adults with mental illness after accounting for social determinants and clinical factors of health. Understanding incarceration as an independent social determinant of health, potentially overlapping with traditional social determinants of health (SDoH), is essential for designing equitable reentry services and identifying which populations and context require targeted intervention versus universal policy reform.

The Andersen Behavioral Model of Health Services Use provides a framework for understanding healthcare access through three domains: predisposing factors, enabling factors, and need factors (Andersen, 1995). In this study, social determinants of health are mapped onto the Andersen framework's three domains, allowing us to examine whether incarceration's effect on healthcare access operates directly or is mediated through predisposing, enabling, and need related SDoH.

This study operationalized healthcare access and continuity of care using two complementary measures. Unmet healthcare need, self-reported inability to obtain needed care, which is a widely used measure of access barriers linked to adverse health outcomes among adults with mental illness (Cole & Nguyen, 2020; Newacheck et al., 2000). Similarly, reliance on emergency departments as a usual source of care signals fragmented primary care access and inadequate continuity of health services(Ma & Sanchez, 2026), often indicating system failure to provide timely preventative or chronic disease management.

The present study test two hypotheses: (1) Incarceration history is independently associated with higher odds of unmet healthcare need and emergency department reliance among adults with mental illness, after adjusting for predisposing, enabling, and need factors; and (2) the magnitude of incarceration's effect varies meaningfully across key subgroups defined by race, insurance status, health status, subjective social status, functional limitations, chronic illness burden, family support, friend support, depression screening, and depression symptom severity, identifying vulnerable populations for who incarceration's disruption of continuity is most severe.

Methods

National Survey Description

This study uses Add Health, which is a longitudinal cohort study of United States adolescents initially recruited in middle school and high school in 1994–1995 (n = 20,745). Wave V (2016–2018) collected data from respondents aged 32–42 years (n = 12,300). This analysis used Wave V data: 3,764 (24%) reported a mental illness diagnosis; 529 (14.1%) reported incarceration history.

To assess healthcare access and social determinants of health, multiple Add Health Wave V data files were merged for this analysis including: Wave V Mixed-Mode Survey, Historical Neighborhood Redlining, ACA Medicaid Expansion Status, County Health Morbidity Data, Contextual Wave V, Race Constructed File, and Wave V Constructed Age (Carolina Population Center; DeAngelis et al., 2023; Gaydosh, Hargrove, & Dennis, 2021; Gaydosh et al., 2020; Gaydosh, Hargrove, Reason, et al., 2021; Harris, 2013; Udry et al., 2003).

Cohort construction proceeded in sequential steps. First, respondents with valid geographic identifiers were retained because structural level variables in the Andersen Model require geographical data. This exclusion yielded 1% (n = 931) missing on Historical Neighborhood Redlining, ACA Medicaid Expansion, or County Health Morbidity measures. Second, respondents with complete data on outcomes (unmet healthcare need,

emergency department use) and exposure (incarceration history) were retained, which excluded an additional 93 respondents. No statistically significant differences in demographic, social, or clinical characteristics were observed between included and excluded respondents.

Third, the sample was restricted to individuals who reported a doctor, nurse, or other healthcare provider had ever diagnosed them with depression, post-traumatic stress disorder (PTSD), anxiety disorder, or panic disorder (Wave V Mixed-Mode Survey), which excluded 7,512 respondents. The final analytic sample comprised 3,764 adults with mental illness diagnosis. Details of cohort construction can be found in Supplemental Appendix.

Inverse Probability Weighting

Inverse Probability Weighting (IPW) was used as a data preprocessing step to balance observed characteristics between respondents with and without incarceration history, minimizing bias from measured confounding (Austin & Stuart, 2015; Hogan & Lancaster, 2004). Inverse probability weighting was created in two steps (Chesnaye et al., 2022). First, logistic regression model estimated the probability of incarceration history given all measured predisposing, enabling, and need factors listed below. For respondents without incarceration history, weights = $1/\pi i$, where πi is the estimated propensity score; respondents with a incarceration history receive weight = 1. Second, the logistic regression parameter estimates were used to form the inverse probability weights, which is the estimated odds of a respondent having a history of incarceration given the observed characteristics in the model. For respondents without having a history of incarceration, the weights represent their predicted odds of being a respondent with a history of incarceration versus not having a history of incarceration given the observed characteristics in the model. Covariate balance before and after weighting was assessed using standardized mean differences (SMDs). SMDs < 0.10 indicates substantial balance (Austin & Stuart, 2015); for these results see Supplemental Appendix.

Measures

In this study primary outcome variables are healthcare access and continuity. To assess healthcare access, one item was used. The item asks “In the past 12 months, was there any time when you thought you should get medical care, but did not?” To assess continuity, Emergency Department Reliance: Indicating the hospital emergency department as the usual source of care when sick.

Exposure was assessed by incarceration history. Participants responded to a self-report of ever serving time in jail, prison, or another correctional facility. Individuals incarcerated at the time of Wave V data collection were excluded from the survey per *Add Health* protocol (Biemer & Liao, 2019).

Social determinants of health were operationalized and mapped onto the Andersen Behavioral Model of Health Services Use (Andersen & Davidson, 2007), which conceptualizes healthcare access through three domains: predisposing factors (demographic and social characteristics affecting healthcare propensity), enabling resources (resources facilitating or constraining access), and need factors (illness burden prompting utilization) (Alkhawaldeh et al., 2023; Andersen & Davidson, 2007; Armoon et al., 2025; Insaf et al., 2010).

Predisposing factors, ethnic/cultural, and social characteristics that influence healthcare seeking propensity, were assessed in this study demographics: age, sex, race/ethnicity (White/Black/Other); socioeconomic conditions: education (≥ high school/< high school), employment (currently working/not working), marital status (ever married/never married); social position: Subjective social status measured using MacArthur Ladder (top50%/bottom 50%, scale 1–10 where 1 = least money/education/respected jobs); health behaviors: ever regular smoking (≥ 1 cigarette daily for 30 days; yes/no).

Enabling Factors, material, social, and structural resources that facilitating or hindering access, include individual level resources: insurance status (private insurance/public insurance/ uninsured), living situation (living in own place/not), social support from spouse/partner, children, family, and friends (each dichotomized yes/no); structural level resources: county arrest rate (continuous; total arrest per 100,000 population in 2016), state Medicaid expansion status (ACA expanded at time of Wave V survey), state uninsured rate (above average/below average, relative to 2017 national average of 8.8%) (Berchick et al.), and historical neighborhood redlining grade (declining/hazardous / still desirable/best, based on HOLC grades)

Need factors, perceived and evaluated illness burden directly influencing healthcare utilization, were assessed in this study as functional limitations: stair climbing limitation (yes/no; self reported difficulty climbing several flights of stairs); chronic disease burden: ≥2 chronic conditions vs. <2 (constructed from provider-diagnosed conditions: lymphoma or leukemia, HLD, HTN, diabetes, cardiovascular disease, pulmonary illness, or neurological conditions); disability: self-reported work-limiting disability (yes/no); general health perception: self-rated health (excellent or good / fair or poor); mental health: depression screening using 5-item Center for Epidemiologic Studies Depression Scale (CESD-5; continuous score), depression classification (elevated depressive symptoms CESD-5 ≥ 11 / below threshold, consistent with validation studies) (Yu et al., 2025).

Statistical Analysis

Logistic regression models examined the associations between incarceration history and each outcome (unmet healthcare need, emergency department reliance). Unadjusted models were estimated first, followed by adjusted models incorporating predisposing, enabling, and need factors using IPW-adjusted sample. Robust variance estimators were used for standard error; 95% confidence intervals and marginal effects were computed using the delta method based on the robust variance-covariance matrix.

To identify mechanisms linking incarceration to healthcare access disparities, we systematically tested 10 candidate moderators: race/ethnicity, insurance status, family support, friend support, subjective social status, functional limitations, chronic illness burden, depression screening, CESD scale, and general health status.

Each moderator was tested individually via interaction terms in separate fully adjusted models to preserve stability and interpretability. Statistical significance was evaluated using Wald test (α = 0/05). For categorical moderators factor-variable notation was used. For continuous moderators, continuous by binary interaction syntax was specified.

Adjusted predicted probabilities at each exposure level (with/without incarceration history) were estimated within levels of each moderator using STATA's "margins" post estimation command. Average marginal effects (AMEs), absolute differences in predicted probability of unmet healthcare need by incarceration status within subgroups, were derived from weighted models and estimated using the delta method (95% CIs). Results were presented graphically to illustrate heterogeneity in incarceration's effects across moderator strata and to identify whether moderators amplified, attenuated, or did not significantly modify the incarceration healthcare access association (Supplementary Appendix).

Table 1
Sample Characteristics by Incarceration History, Unweighted

Characteristics	No History of Incarceration	History of Incarceration	Total	p-value
	n = 3,235	n = 529	n = 3,764	
Age (years)	37.41 (1.86)	37.58 (1.90)	37.43 (1.86)	0.044
Sex				
Female	2,321 (71.7%)	234 (44.2%)	2,555 (67.9%)	< 0.001
Male	914 (28.3%)	295 (55.8%)	1,209 (32.1%)	
Race				
White	2,524 (78.0%)	384 (72.6%)	2,908 (77.3%)	0.010
Black	490 (15.1%)	107 (20.2%)	597 (15.9%)	
Other	221 (6.8%)	38 (7.2%)	259 (6.9%)	
Disabled	140 (4.3%)	52 (9.9%)	192 (5.1%)	< 0.001
Working	2,547 (78.9%)	322 (61.2%)	2,869 (76.4%)	< 0.001
Own Place	2,851 (88.3%)	366 (69.2%)	3,217 (85.6%)	< 0.001
Above HS Education	2,731 (84.5%)	342 (64.9%)	3,073 (81.8%)	< 0.001
Ever Married	2,390 (74.0%)	312 (59.1%)	2,702 (71.9%)	< 0.001
Ever Smoke	1,569 (48.6%)	406 (76.9%)	1,975 (52.6%)	< 0.001
Insurance				
Public	739 (23.1%)	231 (45.4%)	970 (26.1%)	< 0.001
Private	2,241 (70.0%)	180 (35.4%)	2,421 (65.2%)	
Uninsured	223 (7.0%)	98 (19.3%)	321 (8.6%)	
Social Support				
Spouse	2,333 (73.2%)	342 (65.0%)	2,675 (72.1%)	< 0.001
Child	1,388 (43.7%)	265 (50.3%)	1,653 (44.6%)	0.005
Family	2,448 (76.8%)	368 (69.6%)	2,816 (75.7%)	< 0.001
Friend	2,668 (83.7%)	387 (73.2%)	3,055 (82.2%)	< 0.001
Arrests per 100k	553.98 (330.46)	569.43 (339.75)	556.15 (331.78)	0.321
State Uninsured	944 (29.2%)	153 (28.9%)	1,097 (29.1%)	0.904
ACA Extension	2,291 (70.8%)	377 (71.3%)	2,668 (70.9%)	0.834
Region				
West	729 (22.5%)	118 (22.3%)	847 (22.5%)	< 0.001
Midwest	782 (24.2%)	163 (30.8%)	945 (25.1%)	
Northeast	439 (13.6%)	34 (6.4%)	473 (12.6%)	
South	1,285 (39.7%)	214 (40.5%)	1,499 (39.8%)	
Declining/Hazardous Redlining Grade	2,049 (63.3%)	339 (64.1%)	2,388 (63.4%)	0.742
Good Health	2,584 (80.0%)	348 (65.8%)	2,932 (78.0%)	< 0.001
Top 50% McArthur Ladder	1,512 (46.9%)	139 (26.4%)	1,651 (44.1%)	< 0.001
Stair Limitation	1,081 (33.5%)	220 (41.7%)	1,301 (34.6%)	< 0.001
Chronic Illness				
0 or 1	2,593 (80.2%)	383 (72.4%)	2,976 (79.1%)	< 0.001

Characteristics	No History of Incarceration	History of Incarceration	Total	p-value
	n = 3,235	n = 529	n = 3,764	
2+	642 (19.8%)	146 (27.6%)	788 (20.9%)	
Depression Dx	2,375 (74.2%)	412 (79.1%)	2,787 (74.9%)	0.018
PTSD Dx	572 (17.9%)	159 (30.6%)	731 (19.7%)	< 0.001
Panic/Anxiety Disorder Dx	2,153 (67.2%)	344 (66.0%)	2,497 (67.1%)	0.592
Positive Depression Screen	563 (17.5%)	157 (29.8%)	720 (19.2%)	< 0.001
CESD Score Mean (SD)	8.5 (2.99)	9.7 (3.59)	8.6 (3.12)	< 0.001

Note: p-values from chi-square tests for categorical variables and independent sample t-tests for continuous variables.

HS= High School

Dx= Diagnosis

PTSD= Post Traumatic Stress Syndrome

SD=Standard Deviation

Results

The analytic sample comprised 3,764 adults with mental illness (mean age 37.4 years, SD = 1.9); 529 (14%) reported a history of incarceration. Unweighted sample characteristics stratified by incarceration history are presented in Table 1. A substantially higher burden of trauma-related and depressive symptoms are noted among those with incarceration history (PTSD 30.6% vs. 17.9%, p < 0.001; positive depression screening 29.8% vs. 17.5%, p < 0.001).

Prior to weighting, substantial imbalance was observed, with a standard mean differences ranging between 0.01 to 0.73 across predisposing, enabling, and need characteristics. IPW successfully balanced observed characteristics across incarceration exposure groups. Standardized mean differences (SMDs) for all covariates were reduced to near zero and fell below the conventional threshold of 0.10 following weighting, indicating adequate covariate balance.

Incarceration history was significantly associated with both measures of discontinuous healthcare access after adjusting for predisposing, enabling, and need factors (Table 2). Individuals with incarceration histories reported a significantly higher odds of unmet healthcare need (aOR = 1.44, 95% CI: 1.14–1.80; p = 0.002), corresponding to a 7 percentage-point absolute difference (35% vs. 42%) (Supplemental Appendix).. Additionally, those with incarceration histories were more likely to rely on emergency departments as their usual source of care (a OR = 1.80, 95% CI: 1.25–2.58; p = 0.001), corresponding to a 7 percentage-point predicted probability difference (14% vs. 21%) (Supplemental Appendix). Both findings remained robust across sensitivity analyses, indicating that incarceration is a consequential structural determinant of healthcare access.

Of the 10 tested moderators, friend support emerged as the sole significant effect modifier of unmet healthcare need (OR = 2.33, p = 0.004) (Table 3). Notably, no moderators significantly modified the association between incarceration and emergency department use as usual source of care. The remaining nine moderators (race, insurance status, health status, subjective social status, functional limitations, chronic illness burden, family support, depression screening, and depression symptom severity) did not produce statistically significant interactions (all p > 0.05) for either outcome and are reported in Table 3 and Table 4 for transparency.

Graphical examination confirmed these patterns: for unmet healthcare need, across all other subgroups, incarceration history was associated with elevated predicted probabilities, with largely parallel slopes and overlapping confidence intervals (Supplementary Appendix). Incarceration history maintained a consistent positive association with discontinuity of care across race, insurance status, health status, subjective social status, functional limitations, chronic illness burden, family support, depression screening, depression symptom severity, with the notable exception of friend support modifying effect on unmet healthcare need.

Among those without close friend support, incarceration history was associated with lower unmet healthcare need (41% vs 36%, a 5 percentage point reduction; Fig. 1). Conversely, among those with close friend support, incarceration history significantly amplified unmet healthcare need (32% vs. 45%, a 13 percentage point increase; Fig. 1). This crossover interaction was statistically significant (OR = 2.33, 95% CI: 1.54–3.53, p = 0.004), representing the sole significant moderator among the 10 factors tested (Fig. 2). The absolute difference in the incarceration effect across friend support groups was 18 percentage points (-5 pp + 13 pp), indicating substantial effect modification.

Table 2
Association Between Incarceration History and Healthcare Access

Outcome/Analysis Model	OR (95% CI)	p-value
Unmet Healthcare Need		
Unadjusted	1.83 (1.52, 2.21)	< 0.001
Covariate-adjusted	1.44 (1.14, 1.80)	0.002
IPW-weighted	1.45 (1.13,1.86)	0.004
Emergency Department Reliance		
Unadjusted	4.23 (3.27,5.48)	< 0.001
Covariate-adjusted	1.91 (1.38, 2.65)	< 0.001
IPW-weighted	1.80 (1.25, 2.58)	0.001

Note: Covariate-adjusted and IPW-weighted models controlled for the following moderators tested individually for effect modification: age, sex, race, disability status, employment status, home ownership, education level, marital status, smoking history, insurance type, social support (spouse, child, family, friend), county crime arrests per 100,000 population, state percentage uninsured, ACA Medicaid expansion status, region, neighborhood redlining grade, subjective health rating, MacArthur Ladder of Social Standing, stair limitation, and chronic illness burden (≥ 2 conditions). Odds ratios > 1 indicate higher odds of the outcome associated with incarceration history. IPW, inverse probability weighting; OR, odds ratio; CI, confidence interval.

Table 3
Effect Modification of the Association Between Incarceration and Unmet Healthcare Need

Model Component	Race	Insurance	Good Health	MacArthur Scale	Stair Limitation	Chronic Illness	Family Support	Friend Support	Depression Screen	CESD Scale
Incarceration main effect	**1.49** (p=.008)	1.24 (p=.260)	**1.68** (p=.020)	**1.49** (p=.008)	1.37 (p=.074)	1.32 (p=.074)	1.41 (p=.134)	0.78 (p=.339)	**1.60** (p=.002)	2.30 (p=.148)
Moderator main effect – Level 1	Black: 1.02 (p=.922)	Public: 1.25 (p=.200)	**0.54** (p=.002)	**0.72** (p=.045)	**1.56** (p=.015)	1.03 (p=.877)	**0.62** (p=.016)	**0.66** (p=.041)	**2.93** (p=.000)	1.06 (p=.197)
Moderator main effect – Level 2	Other: 0.85 (p=.621)	**Uninsured: 3.16** (p<.001)	—	—	—	—	—	—	—	—
Interaction OR – Level 1	Black: 0.84 (p=.600)	Public: 1.16 (p=.589)	0.79 (p=.379)	0.87 (p=.620)	1.12 (p=.667)	1.37 (p=.272)	1.04 (p=.900)	**2.33** (p=.004)	0.64 (p=.129)	0.98 (p=.645)
Interaction OR – Level 2	Other: 1.04 (p=.943)	Uninsured: 1.48 (p=.278)	—	—	—	—	—	—	—	—
Direction of modification	None	None	None	None	None	None	None	**Amplifies**	None	None
Pseudo R^2	0.112	0.112	0.112	0.112	0.112	0.112	0.111	**0.117**	0.133	0.146

Note: All models were adjusted for a common set of 23 prespecified covariates, including demographic, predisposing, enabling, and need factors.

Full Model OR: 1.45, Pseudo R^2: 0.111

Odds ratios were estimated from inverse probability–weighted logistic regression models. Odds ratios > 1 indicate higher odds of unmet healthcare need.

"Level 1" and "Level 2" correspond to non-reference categories of categorical moderators.

Race reference: White.

Insurance reference: Private.

None indicates p ≥ 0.05.

Table 4
Effect Modification of the Association Between Incarceration and Emergency Department Use

Model Component	Race	Insurance	Good Health	MacArthur Scale	Stair Limitation	Chronic Illness	Family Support	Friend Support	Depression Screen	CESD Scale
Incarceration main effect	**2.20** (p=.001)	**2.94** (p=.003)	**1.95** (p=.028)	**1.72** (p=.008)	1.64 (p=.052)	**1.93** (p=.003)	1.71 (p=.096)	1.46 (p=.245)	**1.85** (p=.008)	2.29 (p=.148)
Moderator main effect – Level 1	**Black: 4.64** (p=.000)	**Public: 2.77** (p=.001)	**1.00** (p = 1.000)	**0.38** (p=.008)	1.02 (p=.948)	1.71 (p=.07)	**0.87** (p=.622)	**0.49** (p=.013)	1.37 (p=.304)	1.06 (p=.197)
Moderator main effect – Level 2	Other: 2.01 (p=.228)	**Uninsured: 7.36** (p<.000)	—	—	—	—	—	—	—	—
Interaction OR – Level 1	Black: 0.57 (p=.187)	Public: 0.70 (p=.427)	0.87 (p=.715)	1.42 (p=.482)	1.20 (p=.632)	0.82 (p=.612)	1.08 (p=.835)	1.40 (p=.393)	0.86 (p=.703)	0.98 (p=.645)
Interaction OR – Level 2	Other: 0.66 (p=.576)	Uninsured: 0.54 (p=.058)	—	—	—	—	—	—	—	—
Direction of modification	None	None	None	None	None	None	None	None	None	None
Pseudo R^2	0.192	0.196	0.193	0.193	0.193	0.193	0.192	0.193	0.195	0.195

All models were adjusted for a common set of 23 prespecified covariates, including demographic, predisposing, enabling, and need factors (see Table 3.1 for full covariate list).

Full Model OR = 1.80 (p = 0.001), Pseudo R^2=0.192

Odds ratios were estimated from inverse probability–weighted logistic regression models. Odds ratios > 1 indicate higher odds of unmet healthcare need.

"Level 1" and "Level 2" correspond to non-reference categories of categorical moderators.

Race reference: White. Insurance reference: Private.

None indicates p ≥ 0.05.

Discussion

This study systematically examined whether incarceration history disrupts healthcare access and continuity for adults with mental illness. Results demonstrate that incarceration history independently associated with dual barriers to care: adults with incarceration history reported 45% higher odds of unmet healthcare need (OR = 1.44, p0 = 0.002) and 80% higher odds of relying on emergency departments as their usual source of care (OR = 1.80, p = 0.001), corresponding to 7 percentage point differences in both predicted probabilities.

These findings advance the field in three important ways. First, by demonstrating that incarceration operates independently from traditional healthcare access barriers, we establish justice involvement as a significant structural determinant that has been previously underemphasized in health services research. Second, by identifying friend support as an amplifier rather than buffer of incarceration's effect on healthcare access, the sole significant moderator among ten factors tested, challenging assumptions about generic peer support interventions and identifying the need for healthcare specific social capital building. Third, by demonstrating consistency of incarceration's effect across all demographic and clinical strata (9 or 10 moderators with p > 0.05 for interactions), we provide evidence for universal rather than targeted system level interventions.

These findings demonstrate that incarceration disrupts healthcare continuity through mechanisms that operate independent of individual socioeconomic status or health burden. Incarceration physically separates individuals from established care relationships (Jennings et al., 2021). Upon incarceration, individuals loose provider continuity and direct engagement with healthcare infrastructure; upon release, they must navigate reestablishment of care without institutional support or coordinated transitions. Consistent with this structural interpretation, incarceration was associated with elevated depression severity (CESD-Score: 8.27 vs 8.43, p = 0.006) and elevated rates of PTSD (30.6 vs. 17.9%) and depression screening positivity (29.8% vs 17.5%) compared to those without incarceration history. This elevated trauma and psychological burden may amplify avoidance of healthcare systems or reinforce distrust of institutions(Ye et al., 2012), barriers that may persist regardless of insurance status, health severity, or social factors, including social support availability.

The persistence of incarceration's association with poor healthcare access across race, insurance status, health severity, and functional limitation (all p > 0.05) suggests that the problem is not rooted in characteristics of individuals with incarceration history, but rather in systemic failures to design healthcare system that anticipate and accommodate justice involvement. These mechanisms operate structurally rather than individually. Previous studies examining post-release health outcomes have documented worse health among justice-involved populations but have not

explicitly tested whether incarceration operates independently from traditional healthcare access barriers such as insurance and socioeconomic status (Binswanger et al., 2009). By applying rigorous causal inference methods (inverse probability weighting) within the Andersen Behavioral Model framework, we provide evidence that incarceration functions as an independent upstream determinant. This framing aligns with social determinants of health theory (World Health Organization, 2022): incarceration functions as a structural determinant because it operates through institutional and policy pathways, not merely through personal behaviors or preferences, to shape health outcomes. Addressing these disparities requires structural interventions, not individual behavior change.

One immediate structural implication emerges from the finding that individuals with incarceration histories rely disproportionately on emergency department as their usual source of care. Emergency Departments should implement universal routine screening for incarceration history at intake, to enable targeted care coordination during vulnerable transition periods and facilitate warm handoffs to primary care. This screening represents concreate institutional intervention point where data on justice involvement can inform resource allocation and follow-up strategies.

The absence of meaningful effect modification across nine tested moderators (race, insurance status, health status, subjective social status, functional limitations, chronic illness, family support, depression screening, depression severity all $p > 0/05$ for interactions) indicates that incarceration's disruption of healthcare access is consistent rather than concentrated in particular vulnerable populations. This widespread effect has important implications: it suggests that interventions need not be subgroup specific but rather should be structured at the healthcare system level to accommodate justice involvement as a standard feature of clinical practice, rather than an exception. Most health disparities research identifies demographic or clinical subgroups with disproportionate burden; however our moderation analyses reveal that incarceration operates as a population level structural determinant requiring system wide rather than targeted interventions.

The unexpected moderation by friend support warrants careful interpretation. While friend support typically functions as a protective factor in health research, our findings reveal a paradoxical pattern among justice-involved individuals. Among those with incarceration history, reported friend support was associated with higher unmet healthcare need (45% vs 32% among incarceration naive), not lower. This paradox challenges assumptions that increasing social connectedness alone reduces healthcare disparities for justice involved populations and points to a distinction within social capital theory (Putnam, 1995). Justice involved populations may possess bonding capital, emotional support within homogenous networks, yet lack bridging capital, the access to diverse resources and institutional connections necessary for navigating complex systems like healthcare.

Recent reentry interventions emphasize peer support and community connection, assuming that strengthening social networks will reduce healthcare disparities (Treitler et al., 2025). However, our finding suggests that this assumption requires empirical validation: the problem is not insufficient friendships, but insufficient healthcare specific social capital (Hendryx et al., 2002). Friends cannot help navigate insurance systems, employment barriers, or healthcare infrastructure they themselves struggle to access. Consequently, individuals with incarceration histories who report friend support may experience elevated healthcare needs because their social networks, while emotionally present, lack the institutional knowledge and bridging connections required to overcome systemic access barriers.

These findings demand a paradigm shift from individual focused interventions to structural reforms. Rather than building generic peer support programs, healthcare and justice systems must prioritize bridging capital, equipping both individuals and their social networks with concrete healthcare literacy and institutional navigation skills. Specific recommendations include: (1) universal screening protocols in healthcare settings to identify justice involved individuals at point of entry, flagging high risk reentry periods; (2) community embedded peer navigation programs led by individuals with lived experience of incarceration, specifically trained in insurance navigation, provider access, and system advocacy; (3) formal institutional partnerships between healthcare and criminal justice systems to reduce administrative barriers; and (4) dedicated funding for healthcare capacity building in communities experiencing high incarceration rates. These structural interventions address the root cause identified by our data: not the presence or absence of social connection, but the quality and institutional reach of that connection.

These findings build upon previous studies in three ways. First, this study confirmed prior evidence that individuals with incarceration histories face significant barriers to healthcare access and rely more heavily on emergency departments for care, compared to those without incarceration histories, consistent with earlier work identifying justice involvement as a marker of structural vulnerability. Second, by situating incarceration within the Andersen Behavioral Model and applying rigorous adjustment for predisposing, enabling, and need factors, we demonstrate that incarceration operates as an independent structural determinant, not just a proxy for socioeconomic disadvantage, insurance gaps, or health burden. This finding moves beyond descriptive documentation of disparities to mechanistic understanding of how incarceration disrupts care relative to other determinants. Third, the identification of friend support as an amplifier, rather than a buffer, of incarceration's effect on healthcare access represents a novel finding that challenges assumptions about informal support and necessitates reframing intervention approaches from generic peer support to healthcare capital building efforts.

Limitations and Strengths

While this study provides valuable insights, it is important to acknowledge its limitations. First, the cross-sectional design of Add Health Wave V restricts causal inference and limits our ability to establish temporal ordering between incarceration history and healthcare access outcomes.

Second, the study relied on a broad, self-reported measure of “ever incarcerated,” which does not capture duration, frequency, or recency of incarceration and may mask heterogeneity in justice involvement experiences (e.g. single arrest may have different consequences than repeated incarceration). Third, we measured friend support as a single timepoint and using only one domain of friend support, limiting our ability to examine multiple dimensions of social support and the longitudinal dynamics between justice involvement and social networks.

Despite these limitations the study possesses notable strengths: it used a nationally representative sample of adults with mental illness, applied rigorous causal inference methods (inverse probability weighting), and comprehensively tested multiple potential moderators, strengthening confidence in the generalizability and robustness of findings. The consistency of incarceration’s effect across demographic, economic, and clinical strata suggests that findings are unlikely to be explained by unmeasured confounding. Additionally, the identification of friend support as a significant moderator, an unexpected and counterintuitive finding, demonstrates that systematic moderation testing can reveal important nuances in how structural determinants operate within vulnerable populations.

Conclusions

This study provides robust, nationally representative evidence that incarceration history is a significant and independent structural determinant of healthcare access and continuity for adults with mental illness. Distinct from socioeconomic disadvantages, insurance gaps, or illness severity, incarceration operates through institutional and policy pathways to shape health outcomes. The dual findings, increased unmet healthcare need (45% higher odds) and inappropriate emergency department reliance (80% higher odds), reflect systemic failures to design healthcare transitions that anticipate and accommodate justice involvement.

The paradoxical amplification of unmet healthcare need among those with friend support reveals a significant gap: emotional support, while valuable, cannot substitute for healthcare specific social capital (institutional knowledge, provider relationships, and system navigation skills) that enable individuals and their networks to overcome structural barriers. Addressing these disparities requires structural interventions detailed in the discussion: universal screening at healthcare entry points, community embedded peer navigation, formal healthcare justice partnerships, and dedicated funding for capacity building in high incarceration communities. Future research should empirically validate whether these interventions effectively build bridging capital and whether findings generalize to individuals with co-occurring substance use disorders and mental illness, as populations at highest risk for fragmented care.

Declarations

Author Contribution

A.E.: Conceptualization, Data Curation, Formal Analysis, Methodology, Visualization, Writing – Original Draft, Writing – Review & Editing.C.B.: Methodology, Formal Analysis, Writing – Review & Editing.T.R.: Conceptualization, Resources, Supervision, Writing – Original Draft, Writing – Review & Editing.C.T.: Conceptualization, Writing – Review & Editing.O.J.: Conceptualization.E.S.: Conceptualization, Methodology, Formal Analysis, Validation, Supervision, Writing – Original Draft, Writing – Review & Editing.

Data Availability

The Add Health surveys that support the findings of this study are available from University of North Carolina, but restrictions apply to the availability of these data, which were used under license for the current study and so are not publicly available. The data are, however, available upon request and with the permission of University of North Carolina.

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Figures

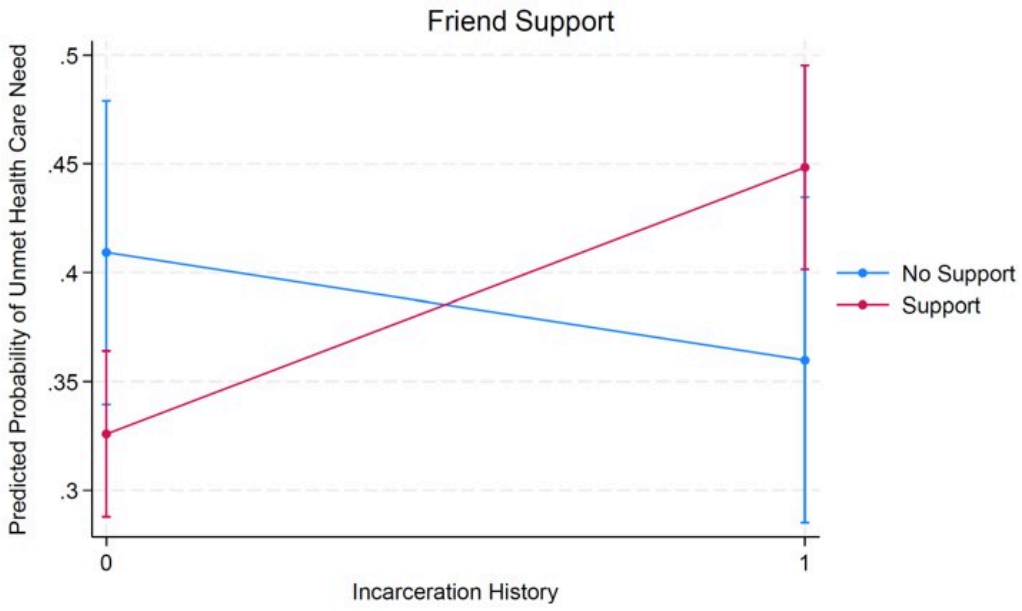


Figure 1

Adjusted Predicted Probability of Unmet Healthcare Need by Incarceration History, Friend Support Moderator

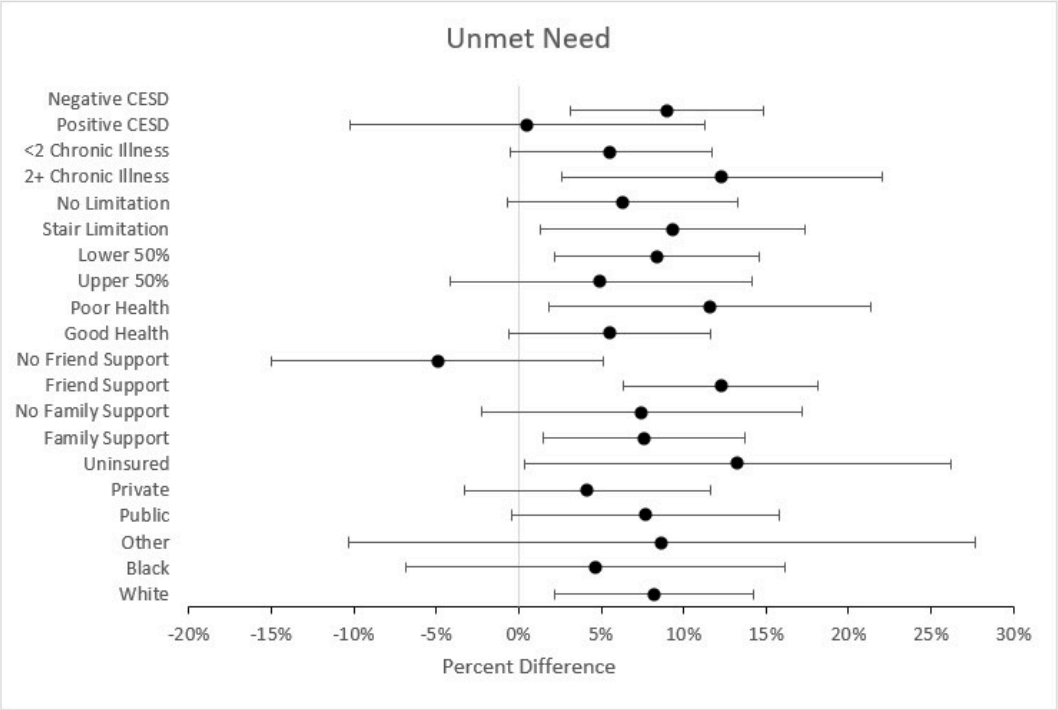


Figure 2

Moderation of the Association Between Incarceration and Unmet Need

Supplementary Files

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- SupplementaryAppendix.docx