Adverse Childhood Experiences and Arrest Rates among Individuals with Serious Mental Illnesses

Oluwatoyin Ashekun, MPH, Adria Zern, MPH, Stephanie Langlois, and Michael T. Compton, MD, MPH

Adverse childhood experiences (ACEs) are linked to both poor mental health and adverse social outcomes, including arrest and incarceration. Furthermore, individuals with serious mental illnesses (SMI) are known to have high rates of childhood adversity and are overrepresented in all facets of the criminal justice system. Few studies have examined the associations between ACEs and arrests among individuals with SMI. We examined the impact of ACEs on arrest among individuals with SMI while controlling for age, gender, race, and educational attainment. In a combined sample from two separate studies in different settings ($N = 539$), we hypothesized that ACE scores would be associated with prior arrest, as well as rate of arrests. The prevalence of prior arrest was very high (415, 77.3%) and was predicted by male gender, African American race, lower educational attainment, and mood disorder diagnosis. Arrest rate (number of arrests per decade, which thus accounted for age) was predicted by lower educational attainment and higher ACE score. Diverse clinical and policy implications include improving educational outcomes for individuals with SMI, reducing and addressing childhood maltreatment and other forms of childhood or adolescent adversity, and clinical approaches that help clients reduce the likelihood of arrest while addressing trauma histories.

ACEs are potentially traumatic events occurring in childhood and adolescence that have long-lasting detrimental impacts on individuals' health and well-being. ACEs are common and are strongly associated with health-related risk behaviors, many health conditions, and even early mortality.[1] The original ACEs study assessed the relationship between various types of adversity in childhood and health outcomes; two-thirds of participants reported at least one adverse childhood experience.[2] In that sample and others, researchers have found that ACEs are significantly associated with increased risk of depression, anxiety, substance abuse, and suicide attempts,[3,4] as well as a multitude of adverse physical health outcomes. For many youths, ACEs occur early in childhood and accumulate during adolescence.[5] In addition to the many negative health implications, research suggests a significant relationship between adolescent maltreatment and increased risk for arrest, general and violent offending, and illicit drug use.[6] One study found that among adult female inmates, over 70 percent reported experiencing intense physical violence during childhood from parents or other caregivers.[7]

Exposure to ACEs is also associated with the presence of SMI in adulthood.[8] A large body of research links early adversity to psychological difficulties later in life, and childhood trauma in particular has strong and long-lasting effects.[9] The rates of prior trauma exposure among individuals with SMI vary from 49 to 100 percent, with both physical and sexual abuse being common. Among individuals with SMI, 13 to 64 percent

reported childhood sexual abuse, and 22 to 66 percent reported childhood physical abuse.[10] Exposure to multiple traumas increases the probability of psychosis.[11] Among men with schizophrenia, 94 percent had experienced at least one and the majority (63%) had experienced four or more childhood adversities, including family history of mental illness, emotional abuse, and neglect.[12]

Compared with the general population, individuals with SMI are more likely to get arrested, experience longer periods of incarceration, and more commonly re-offend.[13,14] The concerning prevalence of mental illnesses, and SMI in particular, in jails and prisons has been detailed extensively,[15–17] and it is thought that the over-representation of individuals with SMI in the criminal justice system is linked to deinstitutionalization, inadequate funding of community mental health services, and police officers' approaches toward individuals with SMI,[14] among other factors.

Although ACEs are known to be particularly common among persons who later develop SMI, and although it is widely known that those with SMI often have extensive criminal justice involvement, very few studies have examined associations between ACEs and arrests in this population. In a two-year longitudinal study from the At Home/ Chez Soi demonstration project providing Housing First versus treatment as usual to 1,888 homeless adults with mental illnesses in five Canadian cities, ACE score was associated with odds of experiencing criminal justice involvement (12% reported none, 19% reported one to two, 19% reported three to four, and 50% reported greater than four types of ACEs).[18,19] We sought to determine the impact of ACEs on arrests among individuals with SMI while controlling for several key covariates: age, gender, race, and educational attainment. Specifically, in a combined sample from two separate studies involving individuals with SMI, we hypothesized that ACE scores would be associated with having ever been arrested, as well as the frequency or rate of arrests across time. We made an *a priori* decision to combine the two datasets from these previous studies because they both happened to have the same measure of adverse childhood experiences, as well as measures of arrests. Both studies involved individuals with SMI treated in public-sector settings, and combining the datasets increased our sample size and power.

Methods

Study 1 Setting and Sample

Study 1 was a randomized, controlled trial of a recovery-oriented model of community navigation that took place in southeast Georgia, primarily in the Savannah and Brunswick areas.[20,21] Longitudinal data were collected, though the current analysis relies on baseline data collected between December 2014 and June 2018. Participants included 240 patients nearing discharge from three inpatient settings: one state psychiatric hospital and two crisis stabilization units. Eligibility criteria included being 18 to 65 years of age; presence of a psychotic or mood disorder diagnosis; absence of known or suspected intellectual disability or dementia; absence of a significant medical condition that could compromise participation; a Mini-Mental State Examination[22,23] score of 24 or greater; capacity to give informed consent for study participation; having had two separate inpatient psychiatric admissions for two or more days in the past 12 months; and being discharged to reside within the eight counties served by the public mental health agency hosting the research.

A demographics form was used to collect participants' age, gender, race, level of education, relationship status, and other variables. Participants then took part in a two- to four-hour research interview to collect data for the parent study. Research diagnoses were made using the mood disorders and psychotic disorders modules of the *Structured Clinical Interview for DSM-5, Research Version*.[24] Participants were reimbursed for their time and effort. All research procedures were approved by the New York State Psychiatric Institute Institutional Review Board.

Study 2 Setting and Sample

Study 2 focused on food insecurity and other social adversities among individuals with serious mental illnesses in Washington, D.C. Cross-sectional data were collected between April and October 2013. Participants included 299 English-speaking outpatient clinic patients from five community mental health "Core Service Agencies" across diverse neighborhoods. The same eligibility criteria were used as in Study 1, though there was no requirement for past 12-month inpatient psychiatric admissions.

As in Study 1, a demographics form was used to collect participants' age, gender, race, relationship status, and other variables. Participants then completed an approximately 90-minute survey, again by a trained

research assistant. Data were entered directly via electronic tablets using the Research Electronic Data Capture (REDCap) system, a secure data collection and management web application. As reported previously,[25] diagnoses were categorized as a psychotic or a mood disorder based on the patient's self-reported diagnosis ($n = 298$) and a review of clinical records when available ($n = 173$). Because of the high concordance between these two means of assessing diagnostic category ($\kappa = .76$, $P < .001$, $n = 173$), we used the patient-reported diagnosis in subsequent analyses to minimize missing data on this key variable ($n = 298$). All research procedures were approved by The George Washington University Institutional Review Board and by the Core Service Agency directors.

Measures and Rating Scales

In both studies, adverse childhood experiences were assessed using the ACEs questionnaire, a ten-item dichotomous (yes/no) scale first developed by the researchers of the ACEs study to evaluate people for a history of exposure to ten categories of adversity during their first 18 years of life.[2,26] The ten categories cover constructs related to abuse (emotional, physical, and sexual), neglect (emotional and physical), and household dysfunction (domestic violence, parental divorce or separation, household substance abuse, mental illness, and parental incarceration).[26,27] The total ACE score thus ranges from zero to ten. The ACE questionnaire has shown evidence of good test-retest reliability.[28,29]

Arrests were measured differently in the two studies. For Study 1, participants' Record of Arrest and Prosecution (RAP) sheets were obtained, with participants' consent, from the Georgia Crime Information Center, which receives arrest reports state-wide under the Georgia Bureau of Investigation. These RAP sheets allowed us to extract subjects' number of lifetime arrests in the state of Georgia. For Study 2, the number of lifetime arrests was collected through self-report. Because the number of lifetime arrests heavily depends on age, we calculated arrest rate by dividing lifetime arrests by age, and multiplying by ten to improve interpretability, resulting in an average number of arrests per decade.

Data Analysis

The two datasets were merged on all relevant variables, and distributional properties and descriptive statistics for all variables were examined. Bivariate tests included chi-squared and independent sample Student's t-tests. For the two dependent variables of interest, having ever been arrested and arrest rate, we conducted a binary logistic regression and a multiple linear regression model, respectively, using backward stepwise elimination with the following predictors: age, gender, race, mood versus psychotic disorder, Study 1 versus Study 2, years of education, and ACE score. All analyses were conducted using IBM SPSS 26.

Results

Sociodemographic and clinical characteristics of the study sample ($N = 539$) are shown in Table 1. Compared with Study 1 participants, Study 2 participants were significantly older (48.4 ± 9.1 versus 35.9 ± 11.6; $t = 14.15$, $df = 537$, $P < .001$), less likely to be male (53.2% of the sample versus 64.6%; $\chi^2 = 7.12$, $df = 1$, $P = .008$), and more likely to be African American or Black (96.7% of the sample versus 49.6%; $\chi^2 = 149.57$ $df = 1$, $P < .001$). Participants in the two studies did not differ in terms of ethnicity (519 (96.3%) were non-Hispanic), years of education completed (11.2 ± 2.7), marital status (323 (59.9%) were single and never married), or employment status (480 (89.2%) were unemployed in the past month). The majority of the sample in Study 1 (155, 64.6%) had a psychotic disorder, whereas 180 (60.4%) of the sample in Study 2 had a mood disorder ($\chi^2 = 33.20$, $df = 1$, $P < .001$). Although ACE scores did not differ between the two samples (overall sample: 4.6 ± 2.9), Study 2 participants (who were older and more likely to be African American or Black, as noted above) were more likely to have ever been arrested: 244 in Study 2 (82.2%) versus 171 in Study 1 (71.3%); $\chi^2 = 8.99$, $df = 1$, $P = .003$. Their arrest rates, which account for age, did not differ, however (1.6 ± 2.7 arrests per ten years in the overall sample, and 2.1 ± 2.9 arrests per ten years among the 415 [77.3%] who had ever been arrested).

Race and gender associations with ACE score, ever arrested, and arrest rates are shown in Table 2. Gender was significantly associated with ACE score and having ever been arrested. Specifically, females had a significantly higher ACE score (5.2 ± 2.9) than males (4.2 ± 2.8; $t = 3.98$, $df = 532$, $P < .001$), and males were more likely than females to have ever been arrested (82.7% versus 69.6%; $\chi^2 = 15.55$, $df = 1$, $P < .001$). Race was significantly associated with

Table 1   Sociodemographic and Clinical Characteristics of the Study Sample, $n = 539$

Characteristic	Overall sample ($n = 539$)		Study 1 ($n = 240$)		Study 2 ($n = 299$)		t	df	P
	M	SD	M	SD	M	SD			
Age, years	42.8	12.0	35.9	11.6	48.4	9.1	14.15	537	<0.001
Educational attainment, years, $n = 537$	11.2	2.7	11.0	2.7	11.4	2.7	1.65	535	0.10
Adverse Childhood Experiences (ACE) score	4.6	2.9	4.7	2.9	4.5	2.9	0.81	532	0.42
Arrest rate among the entire sample, $n = 537$	1.6	2.7	1.7	2.2	1.6	3.1	0.237	535	0.82
Arrest rate among those ever arrested, $n = 415$	2.1	2.9	2.3	2.3	2.0	3.3	1.29	413	0.20
	n	%	n	%	n	%	χ^2	df	P
Ever arrested, $n = 537$	415	77.3	171	71.3	244	82.2	8.99	1	0.003
Gender, male	314	58.3	155	64.6	159	53.2	7.12	1	0.008
Ethnicity, non-Hispanic	519	96.3	228	95.0	291	97.3	2.01	1	0.16
Race, African American or Black[a]	380	75.2	114	49.6	266	96.7	149.57	1	<0.001
Marital status, single and never married	323	59.9	148	61.7	175	58.5	8.20	4	0.09
Unemployed in the past month	480	89.2	208	87.0	272	91.0	2.14	1	0.14
Diagnostic category, $n = 538$									
Mood disorder	265	49.3	85	35.4	180	60.4			
Psychotic disorder	273	50.7	155	64.6	118	39.6	33.20	1	<0.001

[a]Only African American/Black and White participants are included in this comparison as there were too few in other categories.

having been arrested, with African American or Black individuals being more likely to have ever been arrested ($\chi^2 = 12.77$, $df = 1$, $P < .001$). Among those who had been arrested, there were no significant differences in lifetime arrest rate by race or gender. Because gender was associated with ACE score and having ever been arrested, we ran a preliminary model of having been arrested with ACE score,

Table 2   Race and Gender Differences in ACE Score, Ever Arrested, and Arrest Rate

Variable	M	SD	t	df	P
ACE score					
Race			1.80	499	0.07
Black	4.5	2.9			
White	5.0	2.8			
Gender			3.98	532	<0.001
Male	4.2	2.8			
Female	5.2	2.9			
Arrest rate					
Race			0.11	388	0.91
Black	2.1	3.1			
White	2.2	2.1			
Gender			1.26	413	0.21
Male	2.3	2.9			
Female	1.9	2.9			
	n	%	χ^2	df	P
Ever arrested					
Race			12.77	1	<0.001
Black	310	81.6			
White	80	64.5			
Gender			15.55	1	<0.001
Male	259	82.7			
Female	156	69.6			

gender, and ACE × gender interaction, but the interaction term was not significant, so we did not include it in subsequent models.

The binary logistic regression model for the likelihood of having ever been arrested and the multiple linear regression model for arrest rate are shown in Table 3 and Table 4, respectively. For the logistic regression, we used a backward stepwise elimination method to examine independently significant variables. The logistic regression model pertaining to ever arrested indicated that gender (Wald $\chi^2 = 11.28$, $P = .001$), race ($\chi^2 = 16.93$, $P < .001$), years of education completed ($\chi^2 = 5.82$, $P = .016$), and diagnostic category ($\chi^2 = 4.21$, $P = .040$) were all significant and independent predictors of having been arrested (Cox and Snell $R^2 = .074$). The linear regression model pertaining to arrest rate indicated that years of education completed ($\beta = -.16$, $P = .002$) and ACE score ($\beta = .13$, $P = .011$) were significant predictors ($R^2 = .040$).

Discussion

Several findings are noteworthy. First, we found a very high rate of prior criminal justice involvement: 77.3 percent of the sample had been arrested at some point in their lifetime. This is consistent with previous findings that patients with SMI are more likely to have ever been arrested compared with the general population. Other studies have found between 28 and

Table 3 Binary Logistic Regression Results for Likelihood of Having Ever Been Arrested, $n = 497$

Variable	B	SE	Wald χ^2	P	OR
Gender (male = 0, female = 1)	−0.78	.23	11.28	0.001	0.46
Race (African American or Black = 0, White = 1)	−0.99	.24	16.93	<0.001	0.37
Years of education completed	−0.10	.04	5.82	0.016	0.90
Diagnosis (mood disorder =0, psychotic disorder = 1)	−0.47	.23	4.21	0.040	0.62
Constant	3.81	.67	32.62	<.001	45.02

50 percent of individuals with SMI had been arrested at least once in their lifetime.[13,14,30] Our results suggest that some populations with SMI might face an even higher risk of arrest than previously reported.[31,32] The arrest rate among those who had been arrested was 2.1 ± 2.9 indicating a high frequency of involvement with the criminal justice system. Our findings underscore the need for behavioral health and criminal justice interventions that will address the needs of people with SMI who are at risk of criminal justice involvement. Well-established risk/needs/responsivity paradigm principles,[33] though originally developed for a population without SMI, are applicable here, as those with SMI appear to share the same risk factors for criminal recidivism as those without such illnesses.[34,35] Furthermore, many of the risk/needs/ responsivity concepts map directly onto the social determinants of health (e.g., the "Needs" list includes, among others, educational and vocational challenges), and the presence of a SMI is a responsivity factor, both because symptoms may interfere with successful participation in needs-focused treatment (e.g., substance use interventions) and because individuals with SMI are predisposed to other needs and challenges like high rates of unemployment.[36]

Although the ACE score did not predict likelihood of having ever been arrested (perhaps because of the overshadowing impact of the presence of SMI itself), among those who had been arrested, the ACE score was a significant predictor of arrest rate. This is consistent with one of a few studies showing that exposure to ACEs had a significant effect on arrest rates among homeless persons with SMI.[18,19] Although our study indicates that ACEs increase criminal justice involvement among those with SMI, future

Table 4 Multiple Linear Regression Results for Arrest Rate among Those Who Had Ever Been Arrested, $n = 415$

Variable	B	SD	β	t	P
Years of education completed	−0.18	0.06	−0.16	−3.10	0.002
ACE total	0.13	0.05	0.13	2.56	0.011
Constant	3.46	0.71		4.86	<0.001

research should focus on examining the pathways between higher ACE scores and increased frequency of arrest. Interventions are needed to reduce the prevalence of ACEs; attend to their detrimental effects in social (e.g., criminal justice), physical health, and mental health domains; and reduce the likelihood of arrest among those most at risk (particularly those with SMI and greater exposure to ACEs).

Our study also demonstrated that years of education was predictive of having ever been arrested, as well as arrest rate, with more education being protective for both variables. Other studies have found that education can lower arrests by increasing wages, enhancing the opportunity costs of incarceration; increasing social stigma associated with incarceration for white-collar workers; increasing risk aversion; and decreasing the time youth may have for criminal activity.[37] This is consistent with numerous findings showing that lower educational attainment increases likelihood of arrest, especially among people with multiple arrests. For example, nationally representative data from the National Survey on Drug Use and Health[38] found that 66 percent of people with multiple arrests in one year had no more than a high school degree.[39] Other research shows that greater educational attainment decreases the probability of being arrested. In an analysis of arrests in all 50 states, it was reported that an increase of one year in states' average years of schooling was associated with an 11 percent reduction in state-level arrest numbers.[40] This disparity related to educational attainment persists for incarcerations as well. Data from the 2017 National Survey on Drug Use and Health[41] found that people who had been arrested three or more times had the lowest educational attainment, with 74 percent having no more than a high school education and 38 percent having no high school diploma. Our findings show that, like the general population, educational attainment is an important predictor of arrest among individuals with SMI. In light of the connection between lower educational attainment and lower employment opportunities and success, psychosocial

interventions such as targeted vocational interventions could improve outcomes across multiple interrelated social welfare domains that affect criminogenic risk factors.

In addition, our analysis showed that male gender and African American race were significantly associated with having ever been arrested. Interestingly, among those who had been arrested, there was not a significant difference in lifetime arrest rate by gender or race. This is consistent with prior findings on gender and race differences. According to a 2017 report, African Americans were overrepresented among those arrested, making up only 13 percent of the general population but accounting for 21 percent of those arrested only once and 28 percent of those arrested more than once.[39] According to the Bureau of Justice Statistics, estimates show that almost one in every three Black males will be incarcerated in either a state or federal prison in their lifetime.[16] The percentage of having ever been arrested among African American or Black males between 1974 and 2001 was 16.6 percent, which is more than twice that of Hispanic males (7.7%) and six times that of white males (2.6%).[42] The disproportionate number of African American males incarcerated in the general population was replicated in our sample with SMI. Thus, it is critical that interventions intentionally seek to address the mechanisms by which systemic/structural racism contributes to criminal justice over-representation (e.g., educational inequalities; poverty, income and wealth inequality; housing instability).

Several methodological limitations are noteworthy. The first pertains to the difference in our method of collecting arrest data between the two studies. Study 1 used state-wide administrative data, which would not have included any arrests occurring outside of Georgia (and many participants lived within an hour of one or more surrounding states). On the other hand, Study 2 relied on self-report, which, although it covered arrests in any state, could be limited by recall error or biases. Although we know of no literature validating self-report arrest data against administrative data, self-report of another stigmatized condition, substance use (in comparison to objective urine toxicology measures) has been shown to be largely reliable and valid.[43–45] Furthermore, we entered the study site (and thus arrest ascertainment approach) into both regression models, and it was not a significant predictor in either model, which may help to validate the accuracy of the self-report measures used in Study 2.

Second, both studies relied on the ACE questionnaire, which although very widely used, only captures a relatively small array of adverse childhood experiences. Other studies should inquire about many other aspects of adversity in childhood and adolescence. Third, there was also an inherent selection bias for participants with more serious courses of illness related to the Study 1 eligibility criterion of having two inpatient psychiatric hospitalizations. Thus, our results are most applicable to patients with a more serious course of illness, and other studies should extend to patients without inpatient hospitalization histories. Fourth, similar to the different approaches to ascertaining arrest data in the two studies, diagnoses were obtained via semi-structured research interview in Study 1, and by patient self-report in Study 2. Fifth, current or prior severity of illness was not included in the analysis. Finally, the data come from only two sites and thus findings may not be generalizable to other settings across the United States.

This exploration of history of arrest and frequency of arrest could play an important role in improving understandings of criminogenic risk factors for individuals with SMI. The importance of education in our sample is evident. Since the usual age of symptom onset overlaps with critical periods of continuing education in young adults, it is important that clinical treatment plans incorporate educational (and vocational) goals and commitments. Additionally, the pathways by which adverse childhood experiences predict the frequency of arrest must be better understood so that adequate trauma services can be developed to ameliorate this relationship. Continuing to explore these predictors is a crucial step in reducing the over-representation of individuals with SMI in the criminal justice system.

For forensic clinicians, programs aimed at preventing exposure to childhood adversity and bolstering protective factors (ranging from preschool programs enhancing socioemotional development to school-based interventions proven to decrease bullying, and from parenting interventions that reduce the risk of abuse and neglect to mentoring programs in adolescence and young adulthood) should be recognized and promoted as holding promise for reducing later criminal justice involvement. Furthermore, treatment models that incorporate awareness of the clear association between exposure to childhood adverse events and arrests (e.g., trauma-focused treatment in juvenile justice and adult correctional settings) should be embraced.

Acknowledgments

References

1. Centers for Disease Control and Prevention. CDC-Kaiser ACE Study [Internet]. Available from: https://www.cdc.gov/violenceprevention/aces/about.html. Accessed December 31, 2022

2. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) study. Am J Prev Med. 1998; 14(4):245–58

3. Dube SR, Anda RF, Felitti VJ, et al. Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the adverse childhood experiences study. JAMA. 2001; 286(24):3089–96

4. McCauley J, Kern DE, Kolodner K, et al. Clinical characteristics of women with a history of childhood abuse: Unhealed wounds. JAMA. 1997; 277(17):1362–8

5. Dierkhising CB, Ko SJ, Woods-Jaeger B, et al. Trauma histories among justice-involved youth: Findings from the National Child Traumatic Stress Network. Eur J Psychotraumatology. 2013; 4 (1):20274

6. Smith CA, Ireland TO, Thornberry TP. Adolescent maltreatment and its impact on young adult antisocial behavior. Child Abuse Negl. 2005; 29(10):1099–119

7. Browne A, Miller B, Maguin E. Prevalence and severity of lifetime physical and sexual victimization among incarcerated women. Int'l J L & Psychiatry. 1999; 22(3-4):301–22

8. Stumbo SP, Yarborough BJH, Paulson RI, et al. The impact of adverse child and adult experiences on recovery from serious mental illness. Psychiatr Rehabil J. 2015; 38(4):320–7

9. Schäfer I, Fisher HL. Childhood trauma and psychosis—what is the evidence? Dialogues Clin Neurosci. 2011; 13(3):360–5

10. Grubaugh AL, Zinzow HM, Paul L, et al. Trauma exposure and posttraumatic stress disorder in adults with severe mental illness: A critical review. Clin Psychol Rev. 2011; 31(6):883–99

11. Shevlin M, Dorahy MJ, Adamson G. Trauma and psychosis: An analysis of the National Comorbidity Survey. Am J Psychiatry. 2007; 164(1):166–9

12. Vallejos M, Cesoni OM, Farinola R, et al. Adverse childhood experiences among men with schizophrenia. Psychiatr Q. 2017; 88(4):665–73

13. Fisher WH, Simon L, Roy-Bujnowski K, et al. Risk of arrest among public mental health services recipients and the general public. Psychiatr Serv. 2011; 62(1):67–72

14. Prins SJ. Does transinstitutionalization explain the overrepresentation of people with serious mental illnesses in the criminal justice system? Community Ment Health J. 2011; 47(6):716–22

15. Human Rights Watch. Ill-equipped: U.S. prisons and offenders with mental illness [Internet]; 2003 Oct 21. Available from: https://www.hrw.org/report/2003/10/22/ill-equipped/us-prisons-and-offenders-mental-illness. Accessed December 31, 2022

16. James DJ, Glaze LE. Bureau of Justice Statistics special report: Mental health problems of prison and jail inmates [Internet]; 2006. Available from: https://bjs.ojp.gov/library/publications/mental-health-problems-prison-and-jail-inmates. Accessed December 17, 2021

17. Vogel M, Stephens KD, Siebels D. Mental illness and the criminal justice system. Sociol Compass. 2014; 8(6):627–38

18. Edalati H, Nicholls TL, Crocker AG, et al. Adverse childhood experiences and the risk of criminal justice involvement and victimization among homeless adults with mental illness. Psychiatr Serv. 2017; 68(12):1288–95

19. Edalati H, Nicholls TL, Schütz CG, et al. Examining the relationships between cumulative childhood adversity and the risk of criminal justice involvement and victimization among homeless adults with mental illnesses after receiving housing first intervention. Can J Psychiatry. 2020; 65(6):409–17

20. Compton MT, Hankerson-Dyson D, Broussard B, et al. Opening Doors to Recovery: A novel community navigation service for people with serious mental illnesses. Psychiatr Serv. 2011; 62 (11):1270–2

21. Compton MT, Kelley ME, Pope A, et al. Opening Doors to Recovery: Recidivism and recovery among persons with serious mental illnesses and repeated hospitalizations. Psychiatr Serv. 2016; 67(2):169–75

22. Folstein MF, Folstein SE, Mchugh PR. "Mini-Mental State": A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975; 12(3):189–98

23. Cockrell JR, Folstein MF. Mini-Mental State Examination (MMSE). Psychopharmacol Bull. 1988; 24(4):689–92

24. First MB, Williams JB, Karg RS, et al. Structured Clinical Interview for DSM-5—Research Version. Arlington, VA: American Psychiatric Association; 2015

25. Compton MT, Bakeman R, Capulong L, et al. Associations between two domains of social adversity and recovery among persons with serious mental illnesses being treated in community mental health centers. Community Ment Health J. 2020; 56(1):22–31

26. Levenson JS, Socia KM. Adverse childhood experiences and arrest patterns in a sample of sexual offenders. J Interpers Violence. 2016; 31(10):1883–911

27. Bethell CD, Carle A, Hudziak J, et al. Methods to assess adverse childhood experiences of children and families: Toward approaches to promote child well-being in policy and practice. Acad Pediatr. 2017; 17(7S):S51–S69

28. Chapman DP, Whitfield CL, Felitti VJ, et al. Adverse childhood experiences and the risk of depressive disorders in adulthood. J Affect Disord. 2004; 82(2):217–25

29. Dube SR, Williamson DF, Thompson T, et al. Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. Child Abuse Negl. 2004; 28(7):729–37

30. White MC, Chafetz L, Collins-Bride G, et al. History of arrest, incarceration and victimization in community-based severely mentally ill. J Community Health. 2006; 31(2):123–35

31. Holcomb WR, Ahr PR. Arrest rates among young adult psychiatric patients treated in inpatient and outpatient settings. Hospital Comm Psychiatry. 1998; 39(1):52–7

32. Fisher WH, Roy-Bujnowski KM, Grudzinskas AJ, Jr., et al. Patterns and prevalence of arrest in a statewide cohort of mental health care consumers. Psychiatr Serv. 2006; 57(11):1623–8

33. Andrews D, Bonta J. The psychology of criminal conduct. New York: Routledge; 2014

34. Skeem JL, Winter E, Kennealy PJ, et al. Offenders with mental illness have criminogenic needs, too: Toward recidivism reduction. Law & Hum Behav. 2014; 38(3):212–24

35. Mahoney MJ. Comparing the risk factors of recidivism for offenders with and without mental illness [Master's theses]; 2017.

Available from: https://ecommons.luc.edu/luc_theses/3690. Accessed November 7, 2022

36. Rotter M, Compton M. Criminal legal involvement: A cause and consequence of social determinants of health. Psychiatr Serv. 2022; 73(1):108–11

37. Lochner L. Education, work, and crime: A human capital approach. Int Economic Rev. 2004; 45(3):811–43

38. SAMHSA. National Survey on Drug Use and Health [Internet]; 2020. Available from: https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health. Accessed December 31, 2022

39. Jones A, Sawyer W. Arrest, release, repeat: How police and jails are misused to respond to social problems. Prison Policy Initiative [Internet]; 2019. Available from: https://www.prisonpolicy.org/reports/repeatarrests.html. Accessed December 17, 2021

40. Lochner L, Moretti E. The effect of education on crime: Evidence from prison inmates, arrests, and self-reports. Am Econ Rev. 2004; 94(1):155–89

41. SAMHSA. National Survey on Drug Use and Health 2017 [Internet]; 2018. Available from: https://www.samhsa.gov/data/report/2017-nsduh-detailed-tables. Accessed December 31, 2022

42. Bonczar T. Prevalence of Imprisonment in the U.S. Population, 1974–2001 [Internet]; 2003. Bureau of Justice Statistics. Available from: https://bjs.ojp.gov/content/pub/pdf/piusp01.pdf. Accessed December 31, 2022

43. Jackson CT, Covell NH, Frisman LK, et al. Validity of self-reported drug use among people with co-occurring mental health and substance use disorders. J Dual Diagnosis. 2005; 1(1):49–63

44. Napper LE, Fisher DG, Johnson ME, et al. The reliability and validity of drug users' self reports of amphetamine use among primarily heroin and cocaine users. Addict Behav. 2010; 35 (4):350–4

45. Khalili P, Nadimi AE, Baradaran HR, et al. Validity of self-reported substance use: Research setting versus primary health care setting. Subst Abuse Treat Prev Policy. 2021; 16(1):66