

The Relationship between Trauma, Arrest, and Incarceration History among Black Americans: Findings from the National Survey of American Life

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Abstract

Prior research indicates an association between exposure to trauma (e.g., being victimized) and perpetration of crime, especially in the context of chronic victimization. This study examines the relationship between trauma exposure, posttraumatic stress disorder (PTSD), and history of arrest and incarceration among a representative sample of black Americans from the National Survey of American Life (N = 5,189). One-third had a history of arrest, and 18 percent had a history of incarceration. Frequency of trauma exposure was associated with involvement with the criminal justice system. Relative to never experiencing trauma, experiencing ≥ 4 traumas was associated with elevated odds of arrest (odds ratio [OR] = 4.03), being jailed (OR = 5.15), and being imprisoned (OR = 4.41), all $p < .01$. PTSD was also associated with likelihood of incarceration among those with a history of trauma (OR = 2.18, $p < .01$). Both trauma exposure and trauma-associated psychopathology are associated with increased likelihood of arrest and incarceration in adulthood among black Americans.

Keywords

trauma, posttraumatic stress disorder, crime

The size of the incarcerated population in the United States increased by 400 percent between 1977 and 2005 (Hartney and Vuong 2009). This increase has resulted in substantial racial disparities in likelihood of incarceration: Between 20 percent and 30 percent of black adult males will be incarcerated at least once by midlife, as compared to 4.4 percent of white males (Bonczar and Beck 1997; Pettit and Western 2004). Black Americans are also disproportionately likely to experience trauma and its psychological sequelae: For example, approximately 1 in 5 black children experience maltreatment as compared to 1 in 10 white children (Wildeman et al. 2014), and nearly

9 percent of black adults have a history of post-traumatic stress disorder (PTSD) as compared to 7 percent of whites (Kessler et al. 2005; Roberts et al. 2011). Exposure to traumatic stress early in

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life amplifies risk for developing PTSD in response to trauma in adulthood, indicating a cumulative effect of stressors (Sherin and Nemeroff 2011). Regardless of race, the prevalence of trauma and PTSD are particularly elevated in urban, low-income communities, with nearly one in four adults in these types of neighborhoods experiencing PTSD (Breslau et al. 1991; Goldmann et al. 2011). It is individuals from these same socially disadvantaged communities who have a disproportionately increased likelihood of both experiencing trauma and involvement with the criminal justice system (Golembeski and Fullilove 2008; Hartney and Vuong 2009; Nicosia, MacDonald, and Arkes 2013).

The high correlation between trauma and contact with the criminal justice system experienced by impoverished and minority populations in the United States points to the fact that victims (especially victims of violent trauma) and perpetrators of crime often share the same physical environment (Sampson and Lauritsen 1994). That is, it is the inhabitants of high-crime neighborhoods who are at the highest risk of becoming victims of crime, which in turn is mostly committed by perpetrators living in the same community (Berg and Loeber 2011). Law enforcement's selective targeting of areas with high victimization elevates the likelihood of detecting minor transgressions (e.g., vandalism, loitering), which might go unnoticed in places with less police presence (Fagan and Davies 2000; Parker, Lane, and Alpert 2010; Sherman 1990). Additionally, within highly targeted communities where police encounters are a common occurrence, hypervigilance and hostility could lead to more escalation in interactions with police, which increases the likelihood of being taken into custody even in the absence of a substantiated criminal charge later (Harris 1993; Jernigan 2000; Kraska and Kappeler 1997; Moore and Elkavich 2008; Parker et al. 2010; Worden and Shepard 1996). This suggests the potential for a cyclical relationship between trauma exposure and contact with the criminal justice system.

The Links between Victimization, PTSD, and Contact with the Criminal Justice System

Numerous criminological studies have reported an association between exposure to trauma (e.g.,

being victimized) and perpetration of crime, especially in the context of chronic victimization (Baron 1997; Berg and Loeber 2011; Chen 2009; Fishman, Mesch, and Eisikovits 2002; Jennings, Piquero, and Reingle 2012; Kinsler and Saxman 2007; Ousey, Wilcox, and Fisher 2011; Paton, Crouch, and Camic 2009; Sampson and Lauritsen 1994; Wittebrood and Nieuwebeerta 1999). For example, it is recognized that one's own aggressive behavior increases the likelihood of experiencing violent trauma against oneself, particularly in the form of retaliatory behavior (Berg and Loeber 2011; Dobrin 2001; Fishman et al. 2002; Jennings et al. 2012; Stewart, Schreck, and Simons 2006). However, less is known about the role of trauma-related psychopathology (i.e., PTSD) in this relationship.

One potential process linking trauma, PTSD, and contact with the criminal justice system is through greater engagement in externalizing behaviors (e.g., acting out in an aggressive and oppositional manner or engaging in illicit substance use) after trauma exposure, as these are behaviors that may be detected by law enforcement. Empirical support for this hypothesis comes from multiple directions: First, studies of incarcerated individuals invariably report high prevalence of previous trauma and PTSD in both juvenile (Chen 2009; Paton et al. 2009) and adult violent offender samples (Gunter et al. 2012; Kinsler and Saxman 2007; Neller et al. 2006; Saxon et al. 2001). Second, in qualitative studies, young male victims of violent crime, particularly those from low-income communities where mistrust of police is common, repeatedly discuss their belief that only swift retaliation will show strength, prevent disrespect, and keep them safe from future victimization (Rich and Grey 2005; Stewart et al. 2006). Despite this common belief, however, evidence documents that such a "code of the street" mentality instead increases the risk of future injury and death (Berg and Loeber 2011; Stewart et al. 2006), suggesting a possible cycle of victimization, violent offending, and repeat victimization. Third, the vast majority of individuals experience some short-term (<1 month) symptoms of psychological distress after a traumatic experience, such as hyperarousal, hypervigilance, outbursts of anger, emotional numbing, or nightmares (American Psychiatric Association 2000). Experiencing such PTSD symptoms, even at sub-clinical levels, may increase engagement in externalizing behaviors that puts individuals at an

increased risk of involvement with the criminal justice system (Donley et al. 2012), particularly if they occur in a community context with a high degree of police surveillance. Fourth, evidence shows that certain symptoms of PTSD (e.g., nightmares, re-experiencing) prompt coping with illicit drugs, which increases likelihood of arrest and prosecution for drug offenses (Chilcoat and Breslau 1998; Cornelius et al. 2010; Duncan 1974; Rich and Grey 2005) for both adults and adolescents (Slade et al. 2008).

Thus, there is converging evidence that trauma exposure and posttraumatic psychopathology (i.e., PTSD) may increase risk of contact with the criminal justice system through prompting aggressive, retaliatory behaviors and/or engaging in illicit substance use, particularly if these behaviors occur in a community context where they are more likely to be detected by law enforcement. However, most of these studies have been conducted in samples of current inmates; such samples will result in biased estimates of the relationship between trauma and contact with the criminal justice system because only a minority of individuals who are arrested are subsequently imprisoned (discussed in detail in the following). In addition, few studies have included substantial numbers of women to examine gender differences. Therefore, it remains unresolved how trauma and the development of PTSD are related to arrest and incarceration history in the general population. This shortcoming is especially important to address because of the potential cyclical relationships between these elements.

The Role of Gender

There are two reasons why it is important to explore whether there are gender differences in the association between trauma, PTSD, and contact with the criminal justice system. While women are much less likely to have contact with the criminal justice system than men, when they do, women tend to be arrested and incarcerated for qualitatively different crimes. Second, women are more likely to develop PTSD after experiencing trauma relative to men, even after nonsexual traumas such as car accidents. Third, studies of incarcerated populations indicate that women are more likely to report history of trauma (particularly emotional, physical, and sexual abuse) than male inmates, suggesting that trauma exposure

may be more salient for women's contact with the criminal justice system than men's. These are discussed in turn.

Foremost, gender differences in arrest and incarceration rates are substantial, and women are implicated in criminal behavior at much lower rates than men (Steffensmeier and Allan 1996). Moreover, a recent study found that when arrested, women are more likely to avoid charges and (if sentenced) are twice as likely to avoid incarceration or receive shorter sentences for comparable crimes (Starr 2012). Consequently, women make up only 7 percent of the prison population (Mauer 2013). However, black women are still approximately six times more likely to be incarcerated than white women, mirroring the racial disparities seen in the male population (Mauer 2013). In addition, women offenders have different criminal histories compared to men (Steffensmeier and Allan 1996). Though the gap is narrowing, women offenders are still much less likely to be involved in violent crime (Lauritsen, Heimer, and Lynch 2009), and if they are, it is more likely due to an assault against someone they knew relative to men (Greenfeld and Snell 2000). Conversely, women are more likely than men to be serving time for drug offenses (Greenfeld and Snell 2000) despite the fact that women are less likely to play a central role in the drug trade (Lapidus et al. 2005). This picture is supported by the fact that in 1998, nearly one-third of female federal prison inmates reported that they had committed their offense to obtain money to buy drugs (Greenfeld and Snell 2000), and female offender populations report higher rates of substance use disorders than men (Braithwaite, Treadwell, and Arriola 2008; Lynch, Fritch, and Heath 2012).

Second, women are more likely to experience some interpersonal traumatic events that would constitute a crime (e.g., being raped or assaulted) relative to men; these types of events are connected with a substantially elevated risk of developing PTSD relative to experiences such as natural disasters and accidents (Breslau et al. 1991; Yehuda and LeDoux 2007). Because exposure to interpersonal trauma occurs less randomly compared to accidents, this link might reflect demographic characteristics (like gender) that are correlated with risk rather than qualitatively distinct reactions to trauma for women compared to men (Yehuda and LeDoux 2007). Empirical research has shown, however, that gender differences in risk of developing PTSD are not due solely to

differences in exposure type (e.g., combat vs. rape) and/or severity (Breslau 2001; Sherin and Nemeroff 2011).

Finally, there is emerging evidence suggesting that female offenders are more likely to have a history of physical and sexual abuse and interpersonal trauma and higher rates of PTSD and other serious mental health problems compared to male offenders (Green et al. 2005; James and Glaze 2006; Lynch, DeHart, et al. 2012; Lynch, Fritch, et al. 2012). Taken together, extant evidence indicates that there may be gender differences in the magnitude of the relationship between trauma-related psychopathology (i.e., PTSD) and contact with the criminal justice system.

Qualitative Versus Quantitative Aspects of the Association between Trauma and Contact with the Criminal Justice System

There has been limited empirical research on qualitatively distinct types of trauma and contact with the criminal justice system. It is unknown whether this relationship is specific to certain types of violent trauma (e.g., rape or assault vs. combat or war-related experiences) or whether there is a cumulative (i.e., dose-response) effect of repeated exposure to trauma and likelihood of involvement with the criminal justice system. Studies of incarcerated adults suggest that the most frequently reported exposures are related to interpersonal trauma (e.g., mugging, battery, assault), while the most common traumatic experiences in community samples often involve witnessing events or events without a perpetrator (e.g., accidents and natural disasters) (Gunter et al. 2012). However, because inmate samples tend to report much more frequent exposure to traumatic events in general, it remains unclear if this signifies a distinct quality inherent to interpersonal trauma or if it is simply the manifestation of a threshold effect.

Rationale for Examining Multiple Indicators of Contact with the Criminal Justice System

Arrest, jail, and prison represent different levels of involvement with the criminal justice system. However, the progression from arrest to jail to

prison depends on the specific details of each individual case (Sigler and Horn 1986; Whitebread and Slobogin 2000). For example, the police or prosecution can decide to release a suspect without further consequences at any time during or after questioning (West's Encyclopedia of American Law 2008a). Even when charges are pressed, an individual might make bail immediately but is later sentenced to multiple years in prison having never spent a night in jail. On the other hand, a person could also be held in pretrial detention for several months before being found not guilty and released. Therefore, it is important that research on predictors of contact with the criminal justice system look at these indicators separately.

Arrest generally refers to being taken into custody for questioning; the action of arrest does not imply that charges will be pressed. While there is significant variation by state, jails are typically locally operated, short-term facilities, while prisons are long-term facilities run by the state or federal government primarily for felons with sentences of more than 1 year (Bureau of Justice Statistics 2015). In order to be held for longer periods of time (usually for more than 48 hours, limits may vary by state), charges must be filed and presented at a preliminary hearing before a judge. There a determination is made if the suspect has to remain in pretrial detention in a jail until the case is decided in court or if they will be given the opportunity to post bail (West's Encyclopedia of American Law 2008b). As a result, jail populations typically hold a mix of three types of inmates: (1) individuals that have been sentenced to incarceration for shorter sentences (i.e., typically less than 1 year), (2) individuals in pretrial detention who have not yet been found guilty of a crime (i.e., those who were either not granted or could not post bail), and (3) individuals awaiting sentencing or transport to a prison.

In summary, the majority of people who are arrested do not serve time, which demonstrates that the threshold for being arrested is comparatively low and very different from a conviction and prison sentence. The lack of linear progression from arrest to incarceration is apparent in the current sample, where only 35.5 percent of the individuals who reported being arrested also reported ever being jailed, and even fewer (7.7 percent) experienced a prison sentence. Because the threshold for arrest is so much lower than being imprisoned, it is possible that the relationship between trauma and involvement with the criminal justice

system differs across these indicators (e.g., behaviors associated with PTSD may put individuals at higher likelihood of being arrested for nonviolent offenses, but these same behaviors may not be related to likelihood of conviction and imprisonment).

Present Investigation

The aim of this study is to examine the relationship between type and frequency of trauma exposure, as well as the development of PTSD, and arrest and incarceration history in a representative sample of black Americans. It is important to examine the relationships between victimization and incarceration within the U.S. black population in particular because this group is disproportionately affected by both trauma and contact with the criminal justice system (Bonczar and Beck 1997; Hartney and Vuong 2009; Nicosia et al. 2013; Pettit and Western 2004; Wildeman et al. 2014). We evaluated several hypotheses:

Hypothesis 1: Exposure to trauma is associated with elevated likelihood of different forms of involvement with the criminal justice system (i.e., arrest, juvenile detention, jail or prison).

Hypothesis 2: Frequency and type of trauma have qualitatively similar but quantitatively distinct associations with involvement with the criminal justice system (i.e., lower degree of involvement of arrest vs. being incarcerated).

Hypothesis 3: Among those with a history of trauma, developing significant trauma-related psychopathology in the form of PTSD is associated with elevated likelihood of involvement with the criminal justice system beyond the effects of trauma exposure.

Finally, for the reasons articulated previously, we explored whether these relationships differed in magnitude by gender.

METHOD

Data come from the restricted-access component of the National Survey of American Life (NSAL), a nationally representative sample of African Americans and Afro Caribbeans, as well as a sample of non-Hispanic whites residing in

census tracts that have a black population of at least 10 percent ($N = 6,070$) (Jackson et al. 2004). Face-to-face interviews took place between 2001 and 2003. This analysis is limited to the subset of African American ($N = 3,570$) and Afro Caribbean ($N = 1,619$, including 181 respondents identifying as black Hispanic) participants who completed information about their trauma and incarceration history (85.5 percent of the total NSAL sample; 98 percent of the black subsample); by design, the PTSD module was not administered to the white respondents. Thus, questions on traumatic experiences were not available for this group, and they were excluded from the analysis.

The NSAL is approved by the Institutional Review Board at University of Michigan. Access to the restricted data was granted by the Interuniversity Consortium for Political and Social Research (ICPSR), and this analysis qualified for exempt status by the Institutional Review Board at Virginia Commonwealth University.

Measures

Trauma Exposure. History of exposure to trauma was assessed by self-report. Individuals were asked about 26 specific types of traumatic experiences (e.g., Were you ever sexually assaulted; did you ever see someone badly injured or killed) and two open questions (Did you ever experience any other extremely traumatic or life-threatening event; did you ever have a traumatic event that you didn't tell me about because you didn't want to talk about it) based on *Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV)* guidelines for PTSD (for a full list of trauma items see Supplemental table 1 in the online journal). To quantify frequency of exposure, and reflecting the left-skewed distribution of the frequency variable, these responses were combined into a single variable with four categories based on the distribution of the frequency variable: 0 = never experienced a traumatic event, 1 = experienced one event (acute or chronic), 2 = 2 to 3 events, and 3 = ≥ 4 traumatic events. The average number of events was 2.4, with a standard deviation of 2.6.

Next, exploratory factor analysis (EFA) was used to identify qualitatively distinct categories of trauma experiences from the 28 trauma items (Field 2009). The resulting scree plot and eigenvalues of the EFA indicated either a three- or

four-factor solution, and we selected a three-factor solution because it provided the clearest delineation of conceptually meaningful factors. These three factors represented (1) general trauma (i.e., being mugged, being in a life-threatening accident), (2) perpetration-related trauma (i.e., accidentally or purposefully injuring someone badly), and (3) war-related trauma (i.e., being a refugee, being in combat). Individuals were categorized as experiencing at least one trauma of each type (yes = 1 or no = 0) and could be coded as experiencing more than one type of trauma (e.g., categories were not mutually exclusive).

PTSD. PTSD was assessed using World Mental Health Composite International Diagnostic Interview (WMH-CIDI), a fully structured, lay interviewer-administered diagnostic interview (Kessler et al. 1998). Diagnoses made with the WMH-CIDI are based on the *DSM-IV* criteria and have moderate concordance with clinical psychiatric interviews (Kessler et al. 2005). PTSD is diagnosed if symptoms of PTS, such as irritability, persistent hyperarousal or hypervigilance, outbursts of anger, emotional numbing including loss of fear, or ongoing involuntary reminders of the exposure, such as nightmares, flashbacks, or insomnia, persist for longer than a month and impair everyday functioning (American Psychiatric Association 2000). Unlike any other psychiatric disorder, trauma exposure is a necessary condition for developing PTSD based on the diagnostic criteria (American Psychiatric Association 2000). Thus, it is necessary to condition analysis on trauma history when examining if PTSD is related to incarceration. Among participants who reported experiencing at least one PTSD-qualifying trauma ($N = 4,139$), individuals were categorized as meeting *DSM* criteria or not (coded 1 or 0, respectively) for PTSD at any point in their lifetime.

Arrest and Incarceration History. Two aspects of history of involvement in the criminal justice system were assessed by self-report: arrest and incarceration. Participants were asked, "Have you ever been arrested as an adult?" and responses were dichotomized (ever/never). Lifetime history of incarceration was assessed by endorsement of one of the following institutionalizations: (1) jail, (2) prison, (3) reform school, or (4) detention center. The latter two were combined into a single variable indicating juvenile incarceration due to small numbers. Multiple

positive answers were possible, and thus categories are not mutually exclusive. Arrest and different forms of incarceration were modeled as separate outcomes for the reasons described previously.

Confounders. Demographic factors such as race/ancestry (African American, Afro Caribbean, or all other black Hispanic), age (in years), gender, household socioeconomic status (calculated as income-to-needs-ratio), and education (years of education in four categories: 0-11 years, 12 years, 13-15 years, and >16 years) have repeatedly been associated with likelihood of experiencing trauma and arrest/incarceration and were included as covariates (e.g., Breslau 2001; Pettit and Western 2004; Wildeman et al. 2014). PTSD is highly comorbid with other psychiatric disorders such as anxiety, depression, or substance use disorders, with approximately 80 percent of patients diagnosed with PTSD having at least one other disorder (Grinage 2003). In order to account for these other psychiatric conditions that may confound the association between trauma and arrest/incarceration, a dichotomous variable indicating lifetime history of alcohol dependence, drug dependence, depressive disorder, or anxiety disorder, all assessed by WMH-CIDI, was created to indicate history of any comorbid *DSM-IV* mood/anxiety/substance use disorder (any/none).

Finally, there is evidence indicating that neighborhood factors such as level of crime or strength of police presence are associated with levels of crime detection (Fagan and Davies 2000; Parker et al. 2010; Sherman 1990). To account for this potential confounding influence of differential police presence in high-trauma neighborhoods, we assessed presence of a police station in the respondent's neighborhood (yes/no) and the respondents' perception of the frequency of criminal behavior in their neighborhood (ranging from 1 = never to 5 = very often); due to the distribution of this variable, it was necessary to recode it as a dichotomized variable (perceive crime in neighborhood is not frequent = 1-3 vs. perceive crime in neighborhood is frequent = 4-5).

Data Analysis

We initially examined the distribution of demographic characteristics, trauma history, and PTSD by incarceration and arrest history. We then conducted a series of logistic regression

analyses predicting arrest and incarceration from trauma experience frequency and trauma type, adjusting for demographic characteristics, socioeconomic status, and comorbid substance use and mood disorders. Initial analyses indicated that the relationship between age and income with incarceration history was nonlinear, and so we included squared terms for these variables in the analyses. We examined the relationship between PTSD and arrest and incarceration history, also adjusting for demographic and socioeconomic variables but not comorbid substance use/mood disorders because of high levels of comorbidity/co-linearity with PTSD. To account for the diagnostic criteria unique to PTSD, which requires exposure to trauma for the diagnosis, we limited this sample to participants who reported at least one traumatic experience. As a sensitivity analysis, we additionally adjusted for neighborhood characteristics (e.g., presence of a police station, perception of crime) to examine to what degree these contextual factors explained the association between trauma and arrest/incarceration. Results were identical with and without these two neighborhood covariates (data not shown), and they were thus excluded from the final models.

Finally, while the temporal relationship between trauma and incarceration could not be definitely determined because age of contact with the criminal justice system was not reported, we undertook two additional analyses to evaluate our hypothesis that trauma preceded incarceration. First, among those who experienced each type of trauma, we assessed the age of trauma onset by arrest history. If trauma precedes arrest, we would generally expect the age of trauma onset to be earlier for those with a history of arrest compared to those who had never been arrested. Second, we examined two specific trauma types that were explicitly asked “when you were a child” (i.e., witnessing domestic violence and experiencing physical abuse by a caretaker, see Supplemental Table 1) with likelihood of arrest, juvenile incarceration, and any incarceration. We compared the results of these early life traumas with two comparison events: being in a life-threatening car accident and being in a natural disaster. If these early life traumatic events showed robust relationships with the incarceration outcomes, particularly relative to the comparative traumas, this would also be consistent with our hypothesis of trauma preceding incarceration.

All analyses were conducted using population weights to adjust for the complex survey design,

using the complex sampling procedure of SPSS Version 22 (IBM Corporation 2013). In this work, we stress precision of the study estimates with a focus on 95 percent confidence intervals (CI); p values are presented as an aid to interpretation, and all p values refer to two-tailed tests.

RESULTS

Tables 1 and 2 describe the characteristics of the sample, stratified by incarceration history and arrest history, respectively. Overall, 80.6 percent of respondents reported experiencing at least one traumatic event (79.1 percent of women and 82.6 percent of men). The lifetime prevalence for PTSD in this population was 8.7 percent (11.5 percent among women and 5.1 percent among men). Over 90 percent of individuals who had been in prison also experienced at least one general traumatic event, including 25 percent who experienced war-related trauma. Exposure to trauma among those reporting juvenile incarceration was high as well; approximately 70 percent of this group experienced ≥ 4 traumatic events, and one in four met criteria for PTSD.

Contact with the criminal justice system was common. Men were more likely to be arrested and incarcerated; 23.0 percent of men and 8.5 percent of women reported a history of incarceration (18.1 percent overall, $p < .001$). Nearly one in three reported a history of arrest (51.0 percent of men and 19.7 percent of women, $p < .001$). Individuals with a history of arrest and incarceration had lower household socioeconomic status than individuals without involvement in the criminal justice system. Individuals with a history of arrest were more likely to report lifetime alcohol (8.0 percent vs. 3.6 percent, $p < .001$) and drug dependence (6.1 percent vs. 2.5 percent, $p < .001$) as well as major depression (11.8 percent vs 10.1 percent, $p < .05$, see Table 2); findings were similar for incarceration. African Americans were more likely to have been arrested than Afro Carribeans ($p < .001$), but there was no significant ethnic difference in history of incarceration ($p = .059$). There was substantial correlation between different types of incarceration; for example, 29.3 percent who had been in juvenile detention had also been jailed.

There was no evidence that the relationship between trauma and arrest or incarceration history differed by gender (all p values for interaction

Table 1. Descriptive Characteristics by Incarceration History: National Survey of American Life.

	Total		Any Incarceration		Juvenile Incarceration		Jailed		Imprisoned	
	N	Column Percentage	N	Column Percentage	N	Column Percentage	N	Column Percentage	N	Column Percentage
Total	5,189	100.0	672	100.0	126	100.0	515	100.0	104	100.0
Demographics										
Race/ancestry										
African American	3,570	93.0	531	94.8	95	93.4	412	95.4	85	95.1
Afro Caribbean	1,438	6.0	118	4.8	24	5.8	87	4.3	14	4.4
All other black Hispanic	181	0.9	23	0.4	7	0.8	16	0.3	5	0.5
Gender										
Male	1,913,	44.5	443	70.9	81	69.4	331	70.0	82	78.7
Female	3,276	55.5	229	29.1	45	30.6	184	30.0	22	21.3
Age (mean, SD)	42.18	.49	39.80	.77	36.08	1.45	40.32	.97	39.85	1.05
Socioeconomic status										
Income-to-needs ratio (mean, SD)	2.69	.09	2.28	.13	2.53	.37	2.22	.12	1.84	.23
Years of education										
0-11 years	1,225	24.0	241	38.7	50	48.4	180	36.8	51	50.7
12 years	1,842	37.3	235	34.6	39	28.1	189	36.5	28	27.7
13-15 years	1,252	24.0	136	19.0	23	15.0	100	18.9	21	17.6
>16 years	870	14.7	60	7.7	14	8.5	46	7.8	4	4.0
Neighborhood characteristics										
Police station	4,054	62.9	472	68.7	87	68.9	362	68.0	68	63.5
Crime high	1,961	38.6	227	24.6	47	35.2	154	27.0	37	39.8
Comorbid mental health										
Substance use										
Lifetime alcohol dependence	140	3.6	70	10.9	14	12.4	46	9.4	20	17.5
Past 12 months alcohol dependence	46	1.2	25	4.2	5	4.4	15	3.2	10	10.3
Lifetime drug dependence	105	2.5	52	8.3	12	11.0	36	7.5	16	17.3
Past 12 months drug dependence	26	.6	12	1.6	3	2.4	8	1.2	4	4.8

(continued)

Table 1. (continued)

	Total			Any Incarceration			Juvenile Incarceration			Jailed			Imprisoned		
	N	Column Percentage		N	Column Percentage		N	Column Percentage		N	Column Percentage		N	Column Percentage	
Major depressive disorder (MDD)															
Lifetime MDD	513	10.1		86	12.8		18	14.4		65	12.7		16	14.2	
Past 12 months MDD	264	5.3		53	7.5		13	10.3		38	6.9		9	6.5	
Trauma and PTSD															
Frequency of trauma															
No traumatic event	1,050	19.4		53	7.2		8	6.9		38	6.4		8	6.4	
1 traumatic event	648	12.0		46	6.7		6	3.4		39	7.2		7	6.6	
1 chronic traumatic event	297	5.7		24	3.5		1	.2		21	4.4		2	1.0	
2-3 traumatic events	1,540	28.4		194	27.4		28	19.9		151	28.7		26	21.3	
≥ 4 traumatic events	1,654	34.5		355	55.3		83	69.6		266	53.3		61	64.7	
Type of trauma															
General trauma	4,095	80.0		615	92.1		118	93.1		474	92.8		95	92.6	
War-related trauma	575	12.0		120	19.0		27	22.1		84	18.0		28	25.4	
Perpetration trauma	199	4.7		81	12.9		24	19.1		61	12.4		17	17.4	
PTSD															
Lifetime PTSD	415	8.7		84	14.4		23	25.0		61	12.9		13	16.3	
Past 12 months PTSD	176	3.7		40	6.2		9	8.0		30	6.0		3	3.0	
Contact with the criminal justice system															
Arrest history	1,412	33.6		645	95.4		110	87.8		505	97.4		103	98.2	
Incarceration history															
Juvenile incarceration	126	3.2		126	19.8		—	—		38	7.7		14	13.2	
Jailed	515	12.3		515	75.8		38	29.3		—	—		34	62.8	
Imprisoned	104	2.6		104	16.4		14	10.9		34	8.0		—	—	

Note. n = unadjusted N; Column Percent = weighted percentage. juvenile incarceration comprises detention center or reform school. PTSD percentages are relative to participants with at least one traumatic experience. Incarceration outcomes are not mutually exclusive.

Table 2. Descriptive Characteristics by Arrest History: National Survey of American Life.

	No Arrest History		Arrest History	
	n	Column Percentage	n	Column Percentage
Total	3,706	100.0	1,412	100.0
Demographics				
Race/ancestry				
African American	2,384	92.1	1,132	95.0
Afro Carribean	1,196	6.9	226	4.2
All other black Hispanic	126	1.0	54	.8
Gender				
Male	1,019	32.5	864	67.5
Female	2,687	67.5	548	32.5
Age (mean, SD)	42.97	.50	40.29	.63
Socioeconomic status				
Income-to-needs ratio (mean, SD)	2.81	.10	2.48	.10
Years of education				
0-11 years	767	19.8	439	32.3
12 years	1,297	36.9	517	37.6
13-15 years	933	26.2	305	19.9
>16 years	709	17.2	151	10.2
Neighborhood characteristics				
Police station present	2,531	65.6	959	67.7
Crime high	579	16.3	382	25.3
Comorbid mental health				
Substance use				
Lifetime alcohol dependence	31	1.2	108	8.0
Past 12 months alcohol dependence	9	.4	37	2.9
Lifetime drug dependence	21	.5	81	6.1
Past 12 months drug dependence	5	.1	21	1.7
Depression				
Lifetime major depressive dis- order (MDD)	323	9.3	182	11.8
Past 12 months MDD	157	4.8	102	6.3
Trauma and PTSD				
Frequency of trauma				
No traumatic event	862	23.0	148	10.5
1 traumatic event	530	13.7	113	8.9
1 chronic traumatic event	237	6.5	59	4.3
2-3 traumatic events	1,132	29.4	400	27.0
≥4 traumatic events	945	27.3	692	49.3
Type of trauma				
General trauma	2,807	76.2	1,258	89.0
War-related trauma	345	9.5	223	17.3
Perpetration trauma	64	2.0	134	10.2
PTSD				
Lifetime PTSD	251	7.3	160	11.3
Past 12 months PTSD	95	3.0	79	5.2

(continued)

Table 2. (continued)

	No Arrest History		Arrest History	
	n	Column Percentage	n	Column Percentage
Contact with criminal justice system				
Incarceration history				
Any incarceration	26	1.0	645	45.8
Juvenile incarceration	15	.5	110	8.4
Jailed	10	.5	505	35.5
Imprisoned	1	.1	103	7.7

Note. n = unadjusted N; Column Percentage = weighted percentage. Juvenile incarceration comprises detention center or reform school. PTSD percentages are relative to participants with at least one traumatic experience.

>.1; data not shown), with the exception of perpetration trauma, in which men who experienced this trauma were more likely to be arrested and incarcerated than women. However, we believe this result is driven by gender differences in the prevalence of perpetration trauma rather than indicating a true “synergistic” interaction, and thus the results in the following are presented for the entire sample, adjusting for gender as a covariate.

As shown by Table 3, frequency of trauma exposure was significantly associated with likelihood of all outcomes in a dose-response manner (Figure 1, Panel A). Respondents who reported ≥4 traumatic events had fourfold higher odds of being arrested (95 percent confidence interval [CI], 2.67-6.07) and fivefold higher odds of being incarcerated (95 percent CI, 3.19-8.33) relative to individuals who never experienced a traumatic event. Restricting the sample to respondents who reported at least one trauma produced similar results. For example, relative to individuals who experienced only one trauma, experiencing two to three traumatic events (odds ratio [OR] = 1.38, 95 percent CI, 1.03-1.83) and four or more traumatic events (OR = 2.77, 95 percent CI, 2.04-3.77, overall *p* < .001) were both significantly associated with elevated odds of arrest. Similar numbers were obtained with regards to any incarceration (2 to 3 traumatic events, OR = 1.77, 95 percent CI, 1.16-2.72; ≥4 traumatic events, OR = 3.29, 95 percent CI, 2.08-5.20, *p* < .001), juvenile incarceration (2 to 3 traumatic events, OR = 3.34, 95 percent CI, 1.23-9.10; ≥4 traumatic events, OR = 9.32, 95 percent CI, 3.41-25.43, *p* < .001), jail (2 to 3 traumatic events, OR = 1.60, 95 percent CI, 1.02-2.50; ≥4 or more traumatic events, OR = 2.56, 95 percent CI, 1.58-

4.15, *p* < .001), and imprisonment (2 to 3 traumatic events, OR = 1.48, 95 percent CI, .60-3.68; ≥4 traumatic events, OR = 3.35, 95 percent CI, 1.24-9.03, *p* < .01).

We then turned to the issue of temporal ordering of trauma and incarceration. First, among those who experienced a specific traumatic event (Supplemental Table 1 in the online journal), we compared the mean age at which each traumatic event first occurred for those with a history of arrest to those without arrest history (Supplemental Table 2 in the online journal). While the vast majority of traumatic events first occurred at similar times for individuals with and without a history of arrest (only 11 events had significance *p* < .05; different mean ages of onset), in all but two of the instances where there were significant differences, those with a history of arrest had an earlier age of onset of the traumatic event. Next, we fit regression models predicting juvenile detention, arrest, and any incarceration for the two specific childhood-onset traumatic events (Table 4). Both of these early life traumas were significantly associated with all three outcomes, with the largest effect sizes for juvenile detention. We then fit these same models using two comparison traumas: car accident and natural disaster. There was no significant relationship between experiencing a natural disaster and either juvenile detention or incarceration and only a modest relationship (OR = 1.22) with arrest. Experiencing a life-threatening car accident, which occurred at significantly earlier ages for those with a history of arrest versus those without (22.3 vs. 27.6 years, respectively), was significantly associated with all three outcomes.

Turning to the analysis of qualitatively distinct types of trauma, all types of trauma (general,

Table 3. Relationship between Trauma Exposure and Involvement in the Criminal Justice System.

Model	Arrested			Incarceration (Total)			Juvenile Incarceration			Jailed			Imprisoned		
	OR	95 Percent CI		OR	95 Percent CI		OR	95 Percent CI		OR	95 Percent CI		OR	95 Percent CI	
Frequency of trauma															
No traumatic events	1.0			1.0			1.0			1.0			1.0		
1 traumatic event	1.46	.98-.15		1.57	.88-2.79		.52	.11-2.36		2.03***	1.10-3.74		1.30	1.10-3.74	.38-4.49
2-3 traumatic events	1.99***	1.41-2.81		2.78***	1.76-4.39		1.73***	.58-5.15		3.23***	2.06-5.05		1.93	2.06-5.05	.62-6.00
≥4 traumatic events	4.03***	2.67-6.07		5.15***	3.19-8.33		4.86***	1.80-13.15		5.16***	3.14-8.47		4.41**	3.14-8.47	1.55-12.58
Type of trauma															
No general trauma	1.0			1.0			1.0			1.0			1.0		
General trauma	2.51***	1.80-3.48		3.08***	2.02-4.69		2.79*	1.03-7.57		3.34***	2.17-5.14		2.52	2.17-5.14	.95-6.69
No war-related trauma	1.0			1.0			1.0			1.0			1.0		
War-related trauma	1.48*	1.02-2.16		1.65*	1.08-2.52		1.99*	1.06-3.76		1.44	.91-2.27		2.41**	.91-2.27	1.39-4.16
No perpetration trauma	1.0			1.0			1.0			1.0			1.0		
Perpetration trauma	4.10***	2.56-6.56		3.09***	1.97-4.83		3.08**	1.43-6.63		2.56***	1.58-4.13		2.74**	1.58-4.13	1.33-5.64
N = 5,189															
PTSD															
Never PTSD	1.0			1.0			1.0			1.0			1.0		
Lifetime PTSD	1.91**	1.32-2.78		2.64***	1.88-3.71		3.74***	1.99-7.03		1.71**	1.15-2.55		1.85	1.15-2.55	.97-3.50
N = 4,139															

Note. CI = confidence interval; OR = odds ratio. All trauma models were adjusted for age, gender, ethnicity, income, education, and mental health. The PTSD model was adjusted for age, gender, ethnicity, income, and education; due to high comorbidity, the model was not adjusted for mental health. The sample in the PTSD model was reduced to participants reporting trauma; participants reporting no traumatic event were excluded.
 *p < .05. **p < .01. ***p < .001.

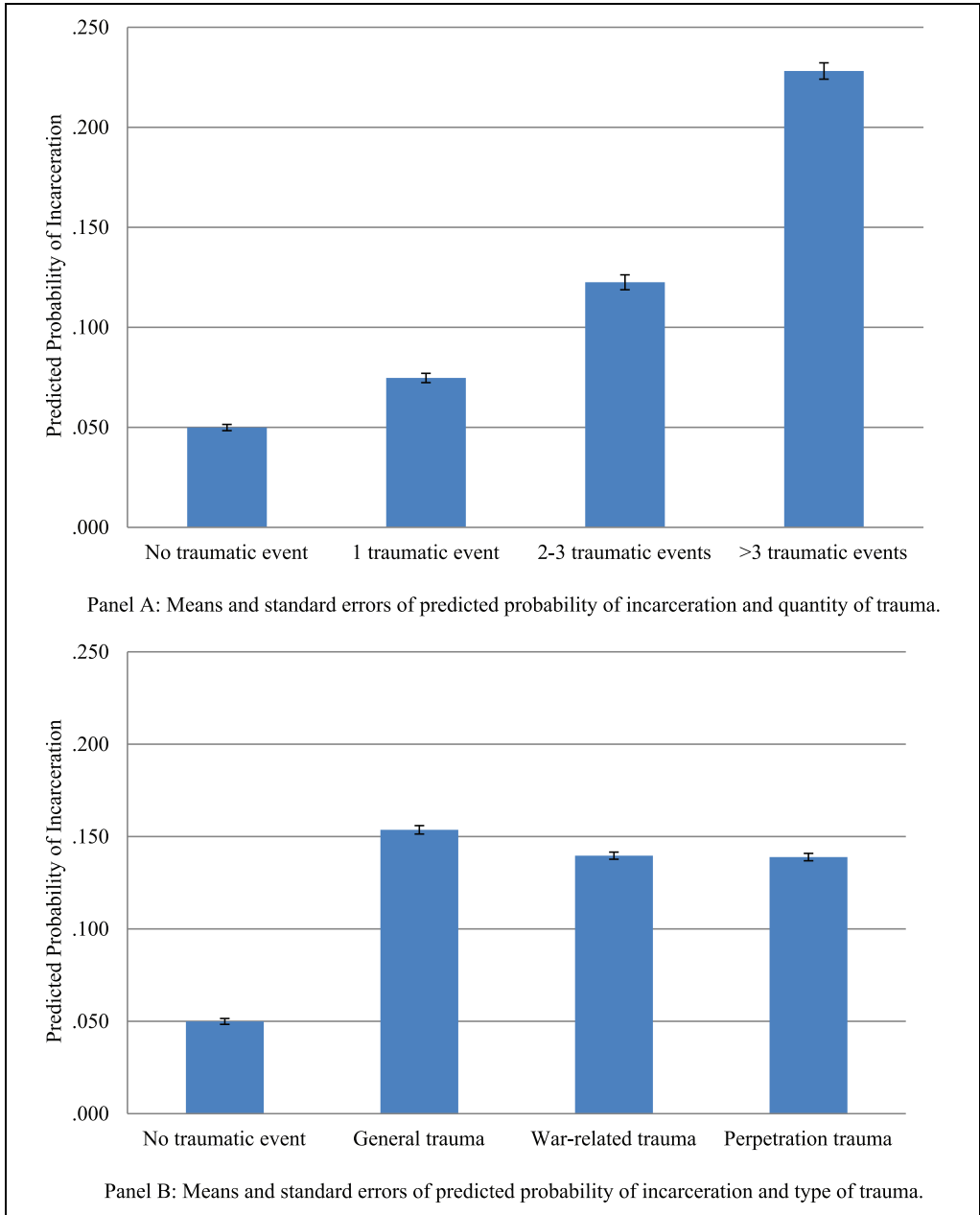


Figure 1. Relationship between quantity (Panel A) and type (Panel B) of trauma exposure and probability of any type of incarceration. Estimates were adjusted for age, gender, ethnicity, income, education, and mental health. Predicted probabilities for different type of trauma (Panel B) were estimated from respondents reporting at least one trauma.

war-related, and perpetration) were significantly associated with higher likelihood of contact with the criminal justice system (Figure 1, Panel B).

Individuals who reported perpetration trauma had fourfold higher odds of history of arrest (95 percent CI, 2.56-6.56, $p < .001$) and threefold higher

Table 4. Logistic Regression Predicting Arrest and Incarceration by Early Life and Comparison Traumas.

Model	Juvenile Detention		Arrest		Any Incarceration	
	OR	95 Percent CI	OR	95 Percent CI	OR	95 Percent CI
Childhood trauma						
Beaten as child	3.75	2.34-6.02	1.97	1.52-2.56	1.94	1.43-2.63
Witness domestic violence as child	1.71	1.14-2.57	1.53	1.28-1.82	1.58	1.28-1.94
Comparison trauma						
Car accident	1.72	1.15-2.58	2.23	1.89-2.63	2.04	1.67-2.49
Natural disaster	1.22	.77-1.93	1.22	1.02-1.46	1.23	.98-1.53

Note. CI = confidence interval; OR = odds ratio. All models were adjusted for age, gender, ethnicity, income, and education.

odds of history of incarceration (95 percent CI, 1.97-4.83, $p < .001$) relative to respondents with no history of perpetration trauma. Respondents who experienced general trauma had greater odds of arrest (OR = 2.51, 95 percent CI, 1.80-3.48, $p < .001$) and incarceration (OR = 3.08, 95 percent CI, 2.02-4.69, $p < .001$), especially in jail (OR = 3.34, 95 percent CI, 2.17-5.14, $p < .001$), relative to individuals who did not experience general trauma.

Finally, among participants reporting at least one traumatic event (N = 4,139, bottom of Table 3), lifetime history PTSD was significantly associated with higher odds of arrest (OR = 1.91, 95 percent CI, 1.32-2.78, $p < .01$) and incarceration (OR = 2.64, 95 percent CI, 1.88-3.71, $p < .001$). This relationship was most pronounced for juvenile incarceration (OR = 3.74, 95 percent CI, 1.99-7.03, $p < .001$).

DISCUSSION

This is the first study to our knowledge that investigates the connections between trauma exposure, PTSD, and contact with the criminal justice system in a nationally representative community sample of black Americans. The main findings of this study are threefold. First, frequency of trauma exposure was significantly associated with elevated odds for involvement with all indicators of contact with the criminal justice system (i.e., arrest, jail, prison, and incarceration as juveniles) for both men and women. Second, this relationship was generally consistent across qualitatively distinct types of trauma; however, as expected, perpetration-related trauma had the strongest

relationship to arrest and incarceration. Finally, PTSD was significantly associated with increased likelihood of most outcomes, consistent with the hypothesis that this clinical syndrome, above and beyond trauma exposure itself, is related to involvement in the criminal justice system. However, the relationship between PTSD and these outcomes was of lower magnitude than the relationship between number of traumatic events, indicating that chronic exposure to trauma, rather than the clinical manifestations of this exposure (i.e., PTSD), is the main driver of this relationship.

We feel it is critical to state that the finding that trauma exposure is a risk factor for arrest and incarceration in no way discounts the possibility that (1) incarceration itself may be a setting where trauma occurs (and may be a form of trauma itself) and (2) that history of incarceration may increase likelihood of exposure to subsequent trauma after release. The relationship between trauma and incarceration is complex, these hypotheses are not mutually exclusive, and as we discuss in detail in the following, the potential cyclical relationship between trauma and incarceration must be understood within context. Further investigations are needed to examine how these factors interrelate over the life course.

Limitations and Strengths

Several important study limitations merit attention. First, this is a cross-sectional study and thus we cannot make inferences about causality or temporality. However, the additional analyses comparing childhood-onset traumas revealed that these early onset traumas had robust associations with

all incarceration outcomes, with the strongest association to juvenile detention. This lends support to our hypothesis that reactions to experiencing trauma predict contact with the criminal justice system. Further, the analysis of the mean differences in age of trauma onset for participants with and without history of arrest corroborated this picture. Specifically, not only were individuals with a history of arrest more likely to experience traumatic events, they tended to experience them at an earlier age than individuals who were not arrested (even when these differences were not statistically significant). These findings are consistent with our hypothesis that traumatic events are a risk factor for subsequent contact with the criminal justice system. Second, all data were obtained by self-report, which may result in biased estimates because of reluctance to disclose prior convictions out of fear of repercussions (e.g., loss of right to welfare and public housing due to drug or felony convictions) (Godsoe 1998; Popkin et al. 2000; Rodney 2003). If this misclassification was nondifferential with respect to trauma experience, this would bias our result toward rather than away from the null (Szklo and Nieto 2012). Also, not all participants who reported adult incarceration also reported being arrested; while this may reflect errors in self-report, it may also reflect cases where a judgment was passed without an arrest (i.e., criminal responsibility was not contested and pretrial arrest was not deemed necessary) (Whitebread and Slobogin 2000). Third, as this is a community-based sample, individuals still incarcerated are excluded from the sampling frame. Fourth, we lacked data on reasons for arrest or incarceration. This study also had a number of strengths, including the large, nationally representative, community-based sample of black Americans and the use of a validated diagnostic instrument to assess psychopathology.

Trauma and Incarceration in Context

There are several contextual explanations for the correlation between victimization and offending that could not be directly assessed in the present study. First, the geographic concentration of crime, particularly drug-related offenses, in certain neighborhoods means that the observed association may in part be driven by a detection effect resulting from police targeting (Fagan and Davies 2000; Kraska and Kappeler 1997; Parker et al.

2010; Sherman 1990). Indeed, it is possible that previously arrested and incarcerated individuals are specifically targeted and experience a higher likelihood of arrest and more severe punishment after subsequent police contact (Bowers 2008; Dana 2001; Farrell and Swigert 1978) and that such repeated arrests increase the potential for victimization within institutional settings. However, we obtained nearly identical results when we additionally adjusted for perception of violent crime in neighborhood and presence of police station, suggesting that the observed relationships are not (solely) due to detection; however, we had only limited data on these contextual factors and thus cannot definitively evaluate this hypothesis in our study.

Second, one explanation for the relationship between trauma, PTSD, and incarceration could, in part, be the result of subtle changes in interactions during police encounters (Harris 1993; Jernigan 2000; Kraska and Kappeler 1997; Moore and Elkavich 2008; Parker et al. 2010). Most notable in this context are our findings of a consistent dose-response relationship of frequency of traumatic experiences and increased likelihood of arrest. The comparatively high number of respondents who reported arrest (overall 33 percent of the sample) versus the low number who also reported being incarcerated illustrates the low threshold for being arrested as compared to being charged and/or convicted of a crime serious enough to warrant incarceration, even short term in a jail. Furthermore, the recent example of temporary drops in arrest rates of over 65 percent in New York City in January 2015 underscores just how much discretion police officers have in whether or not to make arrests (Celona, Cohen, and Golding 2014; Goodman and Baker 2015). Suspects who display a hostile or disrespectful demeanor toward officers are more likely to be arrested (Worden and Shepard 1996); thus, one possible interpretation of our findings is that hypervigilance and hostility as a result of trauma (and/or PTSD) could increase probability for subsequent arrest through more escalation in interactions with police, without criminal behavior as direct underlying cause (Engel, Sobol, and Worden 2000; Worden and Shepard 1996). For example, in a qualitative study with young male victims of violent crime coming from low-income communities, while only a small proportion met diagnostic criteria for PTSD, a majority reported hypervigilance and a loss of fear leading to them

taking on even perceived dangerous opponents, indicating that process by which trauma impacts perpetration may occur at sub-threshold levels of psychopathology (Rich and Grey 2005). While we lacked data to test this hypothesis directly, our results suggest that this could be an important area of future investigation.

Third, incarceration itself could be a traumatizing experience or at least a context that promotes hypervigilance even in absence of actual trauma, which may increase liability for trauma-related psychopathology (Boxer, Middlemass, and Delorenzo 2009; DeVeaux 2013; Wolff et al. 2007). This process is likely exacerbated in populations of men of color and other marginalized groups (e.g., low-income, homosexual, transgender, etc.) because they are disproportionately subject to incarceration instead of referrals to substance abuse treatment for nonviolent drug-related offenses (Moore and Elkavich 2008; Nicosia et al. 2013). Furthermore, it is probable that these mechanisms lead to a cycle where trauma is followed by contact with the criminal justice system, which further traumatizes individuals and increases their likelihood of living in poverty in a high-crime neighborhood with increased likelihood of victimization after release. Our results should thus be interpreted in light of a potential bidirectional or cyclical relationship between exposure to trauma and arrest and incarceration.

Implications for Addressing Social Disparities in Health

The relationship between trauma and incarceration has implications for the emergence and persistence of health disparities over the life course (Oliver 2006; Pettit and Western 2004; Schnittker, Massoglia, and Uggen 2011, 2012; Watkins 2012). The burden of both physical and mental health conditions among inmates is greater and is associated with more impairment when compared to the general population (Maruschak 2008; Maruschak and Beavers 2009; Wilper et al. 2009). This also means that our findings have implications for the discrimination and psychological distress experienced by *formerly* incarcerated individuals (Turney, Lee, and Comfort 2013), which can have deleterious effects on the ways these individuals (predominantly men) reenter their communities (Watkins 2012). The stigma associated with being formerly incarcerated can

deteriorate a man's chances for gainful employment and forming social relationships (London 2006), leading to significant economic hardship (Western et al. 2015) and weakened family ties (Western and McClanahan 2000). Formerly incarcerated men (particularly men of color) face discrimination and distrust by potential employers, which exacerbates their ability to obtain and maintain employment in their communities (Holzer, Raphael, and Stoll 2004), including impacting their access to health care (Dumont et al. 2013). Incarceration thus has lingering effects that exacerbate health disparities over the life course and profoundly impacts former inmates' ability to maintain a sense of security (e.g., social and financial) within their communities. The intersection between trauma and incarceration can become a point of intervention to address these disparities as they develop over the life course; a recent study showed that psychotherapy can reduce recidivism among formerly incarcerated individuals, demonstrating the utility of understanding the likely bidirectional relationship between trauma and the criminal justice system for interventions (Blattman, Jamison, and Sheridan 2015).

CONCLUSION

It is important to emphasize that our findings do not speak to the interactions between race, trauma, and exposure to the criminal justice system. Our study addressed only how trauma contributes to variation among black Americans, the population that is disproportionately affected by both trauma and contact with the criminal justice system. However, it is important to interpret our findings within the complex context in which contact with the criminal justice system happens. Namely, racism, concentration of crime in certain neighborhoods, and tension between law enforcement and citizens are factors exacerbating the cumulative disadvantage already faced by poor minority individuals. These factors cannot be ignored when trying to understand the ways in which arrest and incarceration impact the lives of black men and women in the United States.

In sum, this study highlights the multiple layers of disadvantage comprised in victimization and involvement with the criminal justice system for blacks living in the United States. The results point to the importance of systemic, community-level interventions to address the phenomenon and the need for an interdisciplinary approach to understanding the influence of mass incarceration

on public health (Young 2006). Future research should focus on longitudinal associations and the developmental processes by which trauma leads to increased likelihood of involvement with the criminal justice system.

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