



What Trauma Looks Like for Incarcerated Men: A Study of Men's Lifetime Trauma Exposure in Two State Prisons

Maria M^{1*}, Carrie PD², Tanya R², Christopher V³ and Christopher W¹

¹Brown School of Social Work, Washington University, Missouri, USA

²College of Social Work, Florida State University, Florida, USA

³School of Social Work, University of Iowa, Iowa, USA

*Corresponding author: Maria Morrison, Washington University, St. Louis, USA, Tel: 3342070409; E-mail: m.morrison@wustl.edu

Received Date: October 30, 2018; Accepted Date: December 14, 2018; Published Date: December 21, 2018

Abstract

Objective: While it is understood that high rates of trauma exposure are common among incarcerated male populations, there is limited data on the nature of the trauma exposure. This study sought to develop foundational knowledge about the trauma experiences of incarcerated men in order to provide a basis for further theory building in this area.

Method: This study used a quantitative-qualitative approach to examine the trauma histories of a randomly selected sample of 67 men incarcerated in the Missouri Department of Corrections.

Results: The analyses revealed several patterns among study participants, including near universal trauma exposure in adolescence with the most frequent exposures involving witnessing or being proximate to violent deaths of family and friends. The mean age of exposure for all trauma exposure types measured was 17 years old. We found that for this group of incarcerated men, trauma exposures in childhood tended to result more from community violence than child maltreatment (e.g., abuse and neglect by caregivers).

Conclusion: The study results suggested that further research may be needed into the effects of close proximity to violent death during this particular window in adolescent development. Neuroscience research has shown that this is a "sensitive period" in brain development with potential negative outcomes in early adulthood, including emotional regulation deficits that can potentially lead to increased risk of arrest. Further research on trauma exposure within this population is needed both to appropriately serve men while in prison or in the process of reentering society and to support efforts to reduce mass incarceration.

Keywords: Trauma; Trauma exposure; Traumatic stress; PTSD; Prison; Prisoner; Incarcerated; Brain development

Introduction

The U.S. has the highest incarceration rate in the world. The U.S. has 5% of the world's population but nearly 25% of the world's prisoners [1]. There are 2.2 million people in jails and prisons and an additional 4.8 million on probation or parole [2]. The U.S. criminal justice system has disproportionate contact with people of color and people of low socioeconomic status [3]. African Americans, for example, are five times more likely to be incarcerated than whites [4].

Prior studies have shown that between 62%-87% of incarcerated adult males have experienced trauma exposure at some point in their lifetime, prior to incarceration [3,5]. A recent study using the Adverse Childhood Experiences (ACES) Questionnaire found that a sample of violent offenders experienced childhood adversity, on average, at four times the rate of the general population [6]. Another study of Illinois state prisoners published recently found 24% of their sample of male prisoners met the criteria for PTSD [7].

Jails and prisons have become, by default, the largest providers of mental health services in the country, with prevalence of mental illness estimated to be 3-12 times higher among prisoners than in the general population [8]. Moreover, the majority of prisoners struggle with alcohol or drug use [3]. Despite these well-documented high rates of mental health need among male prisoners, prisons are highly punitive by design and not equipped to respond to mental health need. Due to the exponential growth in prison populations over the past 40 years, prisons are overcrowded, unsafe, and harsh disciplinary practices are commonplace [9]. Men's prisons are especially dangerous with one in four male prisoners reporting violent physical victimization [10]. U.S. prisons and jails exacerbate prisoners' mental health challenges and fuel a cycle of recidivism.

Emerging research indicates that trauma is a significant mental health issue in the lives of male prisoners and could be important to conceptualizing interventions that can improve prison safety, prisoner mental health, and reentry outcomes [11]. This paper explores the types and timing of common trauma exposures within a sample of male prisoners.

Background literature

Trauma exposure among male prisoners: In national survey data, one in six male prison inmates reported physical and sexual abuse in childhood. Over half (56%) reported physical trauma during childhood [12]. Trauma exposure in childhood increases the likelihood of mental and behavioral health problems in adulthood, including PTSD [13]. Mundt and colleagues conducted a systematic review and meta-analysis in order to estimate prevalence rates of PTSD within prison populations worldwide [14]. According to the authors, this was the first systematic review to examine this issue. Their review included 56 samples with a total of 21,099 prisoners and found that male prisoners have a 5-fold higher point prevalence rate of PTSD than the general population. They estimated that more than 300,000 prisoners in the U.S. have PTSD.

Mental health symptoms related to traumatic stress or PTSD creates significant disadvantages and functional impairments for former prisoners, adding to the already significant challenges in reentering society [15]. Of particular concern for chronically or repeatedly traumatized individuals are difficulties with emotional regulation, dissociation, and interpersonal instability [16]. While PTSD has not

been found to be associated with re-offending, the combination of PTSD and substance use disorders (SUDs), has [17]. There is a high correlation between PTSD and SUDs, as well as between childhood trauma and SUDs [18], suggesting an increased risk for re-arrest for traumatized former prisoners.

The literature indicates that the age at which a traumatic exposure occurs and the type of exposure have a strong influence over the effect the exposure has. Trauma during childhood, for example, is known to strongly predict negative health outcomes in adulthood [12]. Neuroscience research has contributed to understandings of this relationship by identifying developmental stages when the brain is particularly sensitive to insult as well as the consequences of chronic stress on the developing nervous system [19].

Adolescent brain development: Adolescence is a time of transition from childhood to adulthood. While adolescents can appear physically mature, their brains are actively developing, growing at a rate comparable to the rate during infancy [20]. The human brain during this stage - generally from age 10 to 25 is engaged in a highly sensitive dual process of pruning and myelination as it becomes more efficient and integrated. This shaping and refining of neural pathways is responsive to and dependent on the environment. It is therefore particularly sensitive to environmental stressors such as trauma exposure [20].

The hypothalamic-pituitary-adrenal (HPA) axis, a central part of the stress-response system, undergoes significant development during mid-adolescence (from approximately ages 15 to 17). As a result, teenagers in this age group can be uniquely reactive to stress, more so than those younger and older than them. Researchers have found that teens this age release greater amounts of the stress hormone, cortisol, when faced with highly stressful challenges and demonstrate higher levels of activity in the amygdala, part of the brain responsible for responding to threat [21]. It is hypothesized that due to the vulnerability of the developing brain and stress response systems, intense and/or chronic stress can lead to disrupted maturation. One recent study on the effects of violence exposure on adolescents found that for teens between ages 15 and 19, witnessing or experiencing violence was associated with later decline in impulse control and slower growth in future orientation [22].

Methods

Participants

This study analyzed a cross-sectional data set collected through structured interviews in 2015-2016 by researchers from the Brown School of Social Work's Institute for Advancing Justice Research at Washington University in St. Louis. The data were generated from interviews of a randomly selected sample of 67 men within six to nine months of release from state prisons who were planning to live in a predominantly urban area following release. These were baseline data for a larger planned randomized control trial (RCT) intended to look at the effectiveness of a reentry program. The RCT was approved by the Institutional Review Board of Washington University in St. Louis and appropriate steps were taken to protect this recognized vulnerable population.

The sample was selected from two men's facilities. The inclusion criteria for the sample were as follows: Participants were 18 or older; they would be on parole for at least 12 months after release; they planned to be released to the specified city; they were able to speak

English; and they cognitively understood participation in the study. The exclusion criteria were those prisoners convicted of sex offenses and those with unmanaged serious mental illness. Exclusion criteria were determined by the community partner that would be delivering services to the study treatment condition.

Procedure

Participants were interviewed in person and their answers were recorded by a trained interviewer using computer-assisted software. Each question was read aloud by the interviewer. The interview included a series of standardized assessment tools designed to measure a range of constructs, including (but not limited to): resilience, hope, childhood trauma, health, trauma history, stressful life events, self-control, drug/alcohol craving, psychopathy, self-efficacy, and social network.

Measures

Only the portions of the dataset related to trauma were analyzed for this study. The responses to the Childhood Trauma Questionnaire (CTQ) and the Trauma History Questionnaire (THQ) were the primary focus. The PTSD subscale of the Mini International Neuropsychiatric Interview (MINI) was also referenced. The CTQ is a 28-item survey that measures five types of childhood maltreatment - emotional, physical, and sexual abuse, and emotional and physical neglect. The test takes five minutes and uses a five-point Likert scale with responses ranging from "Never True" to "Very Often True." The developers of this scale found it to have high test-retest reliability ranging from .79 to .86 over four months as well as internal consistency reliability with coefficients of .93-.95 for sexual abuse, .88-.92 for emotional neglect, .84-.89 for emotional abuse, and .81-.86 for physical abuse [23]. A study in 2001 of the psychometric properties of the CTQ also found it to be reliable and valid with a diverse community sample, with coefficients ranging from .58 (for physical neglect) to .94 (for sexual abuse) [24].

For each category of maltreatment, the CTQ produces scores ranging from 5 to 25, with a higher score indicating greater severity of maltreatment. The original researchers transformed variables for each of these categories from a 25-point scale to a 3-point scale. On this new scale, 0 is the least severe and 2 is the most severe. A score less than 8 on the original scale is 0 on the transformed scale; a score of 8 to 12 is 1; and a score of 13 to 25 is 2.

The Trauma History Questionnaire (THQ) is an instrument used for collecting lifetime trauma histories and is one of the most commonly used, having been designed for general, community and clinical populations [25]. It asks 24 questions about specific types of experiences that could be potentially traumatic. When administered in interview format, the survey takes about 15 to 20 minutes. The THQ was developed to operationalize DSM criteria for exposure to traumatic experiences initiating PTSD [25]. These experiences fall under the categories of interpersonal violence, accidents and disasters, serious illness, traumatic loss, and criminal victimization. Participants indicated if they had experienced each one, the age or ages at which they experienced them, and were asked to offer a brief description of the exposures.

The THQ has been found to be reliable for total numbers of event types reported, with coefficients in a test-retest study over a two- to three-month period ranging from .51-.91, with the three "catch all" questions at the end of the survey having the lowest reliability [25].

Prior work has also supported the validity of the THQ. In a study comparing results from the THQ to other measures, the Cohen's kappa coefficients ranged from .61-1.00, considered good to excellent, for 6 of the 9 constructs compared. Those scoring less than .61 were questions about experiencing being robbed by force, a serious accident, and injury caused by a family member [25].

The MINI is a diagnostic instrument used in both clinical and research settings for identifying psychiatric disorders. It is a brief structured interview with separate "modules" for 17 disorders [26]. In this study, the module H of the MINI 7.0.0 for the DSM-V was used to assess PTSD. This module of the MINI was administered after the THQ and began with the following screening question.

After a very frightening or horrible experience, some people can't get it out of their minds. They may lose interest in other people or activities; they may not sleep well; and they may become very jumpy and easily startled or frightened. Did any of these experiences we just talked about have that effect on you?

If the participant answered "no," the assessment stopped there. If the participant answered "yes," the interviewer asked the participant to specify "which one caused the most problems" and then completed the assessment which consisted of 17 brief questions that could be answered with a "yes" or "no."

The MINI for the DSM-V is based on the previous version of the MINI for the DSM-IV [27]. While there are no studies of the psychometric properties of this latest version of the MINI, the MINI for the DSM-IV shows good interrater ($\kappa=.95$ for PTSD) and test-retest reliability ($\kappa=.73$ for PTSD) as well as fair to good validity with other diagnostic questionnaires ($\kappa=.57-.78$ for PTSD) [26].

Data analysis

This study seeks to describe the trauma experiences of incarcerated men. Our research questions were (1) what types of trauma exposures are common for this sample of incarcerated men? and (2) at what ages are trauma exposures most common? The data from each of the 67 male participants were analyzed individually to develop in-depth descriptions of each participant's trauma experiences using both scored and narrative answers to questions from the survey instruments. There was no missing data for the CTQ. However, for the THQ, two participants did not provide responses. These two participants were not included in THQ analyses but were included in descriptions of the sample characteristics otherwise.

During the first stage of analysis, the primary focus was on calculating the numbers of trauma exposures, ages at time of exposures, and types and severity of exposures. SPSS was the primary statistical program used. During the second stage of analysis, patterns and themes were identified within the narrative answers of the THQ, both within and across participant descriptions, with particular focus on those participants who fell within the mean as well as those who were outliers regarding numbers of trauma exposures.

Results

The mean age of this sample of 67 male prisoners was 33 years. Nineteen participants (28.4%) were between 19 and 26; 32 participants (47.8%) were between the ages of 26 and 35; and 16 (23.9%) were between 36 and 58. Forty-five participants (67.2%) identified as Black, 15 (22.4%) identified as White, and the remaining 7 participants (10.4%) identified as other, two of whom (3%) also identified as

Hispanic. Ten percent of this sample met the criteria for PTSD according to results of the PTSD scale of the MINI.

While data on economic status was incomplete, 62 of the participants reported the "typical amount of money" they made in a month during the six months prior to their incarceration. One third of the participants reported making between zero and \$1100, placing them at or below the Federal Poverty Level for a one-person household [28]. Another quarter reported making between \$1200 and \$2000 per month, placing them at or below 200% of the poverty level for a one-person household [28].

Type	Moderate	Severe	Total
Physical abuse	37%	16%	54%
Sexual abuse	3%	3%	6%
Emotional abuse	37%	8%	45%
Emotional neglect	39%	8%	46%
Physical neglect	22%	16%	39%

Note. Sample size=67

Table 1: Percent of Sample Reporting Childhood Maltreatment on CTQ.

Table 1 shows results from the CTQ on the reported rates and severity of childhood maltreatment by type of maltreatment, including physical, sexual, and emotional abuse and emotional and physical neglect. The most prevalent form of maltreatment is physical abuse, with just over half of respondents reporting either moderate or severe levels. Sexual abuse was the least reported within this sample at 6.0%. The other forms of maltreatment were each reported at between 38.8%-46.2%.

We had difficulty accurately capturing the frequencies of individual exposures for all participants given irregularities in how numbers of exposures were recorded for the THQ. For example, for participants who reported having been attacked with a weapon numerous times or having experienced several years of abuse by family, their answers to number of exposures were at times recorded as "countless times" or "hundreds of times."

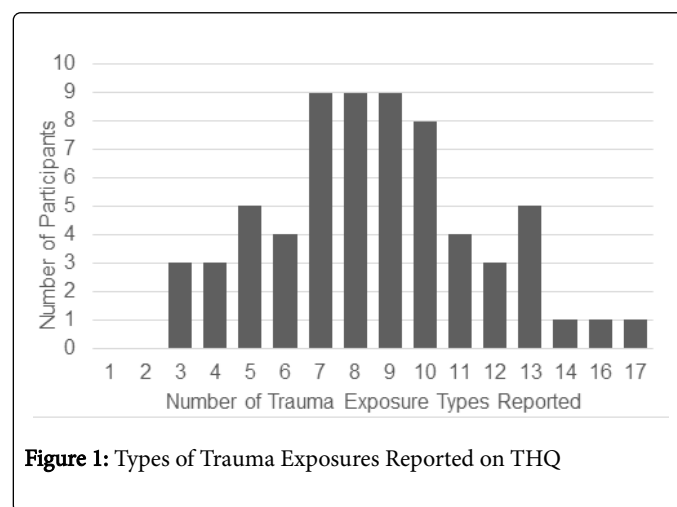


Figure 1: Types of Trauma Exposures Reported on THQ

Researchers using the THQ most commonly count only the types or categories of trauma exposure reported given the difficulties of counting individual exposures. Using this method, we found that, on average, participants reported 8.58 types of trauma exposures in their

lifetimes. Figure 1 shows that just over half (53.8%) of the sample reported being exposed to between 7 and 10 types of traumatic experiences. None reported less than 3. The mean age of first exposure was 16.89 years old and the median was 17 years old.

Question asked on THQ	% "Yes"	Mean Age in Years
Have you ever seen someone seriously injured or killed?	86.1%	16.76
Have you ever had a close friend or family member murdered?	86.1%	15.26
Have you ever received news of a serious injury, life-threatening illness, or unexpected death of someone close to you?	86.1%	20.67
Have you ever had a serious accident at work, in a car, or somewhere else?	75.4%	16.17
Has anyone, including family members or friends, ever attacked you with a gun, knife, or some other weapon?	75.4%	17.43
Have you ever seen dead bodies (other than at a funeral) or had to handle dead bodies for any reason?	72.3%	15.78
Has anyone ever tried to rob you or actually robbed you by using force or the threat of force, such as a mugging?	67.7%	18.76
Has anyone ever tried to rob you or actually robbed you without force?*	52.3%	21.32
Has anyone ever attempted to or succeeded in breaking into your home when you were not there?	43.1%	9.12
Has anyone, including family members or friends, ever attacked you without a weapon and seriously injured you?	36.9%	16.04
Have you ever had a spouse, romantic partner, or child die?*	23.1%	24.87
Have you ever experienced a natural disaster where you felt you or your loved ones were in danger of death or injury?*	21.5%	15.57
Have you ever had a serious or life-threatening illness?	21.5%	22.85
Have you had a close friend or family member killed by a drunk driver?	20.0%	19.33
Note: Sample size=65. Questions not listed in original order of survey instrument.		
*Indicates wording of question has been abbreviated from original survey instrument.		

Table 2: Most common types of trauma exposures reported on THQ with mean age of first exposure.

Table 2 shows results from the THQ on the most commonly reported types of trauma exposures measured across the lifetime. Three categories of exposures were reported by the majority of participants, each reported by 86.1% of the sample (55 out of 65). These included having "seen someone seriously injured or killed;" having "had a close friend or family member murdered;" and having "received news of a serious injury, life-threatening illness, or unexpected death of someone close to you." The mean age of first exposure to witnessing someone injured or killed was 16.76 years old (SD=6.38). For having a friend or family member murdered, the mean age of first exposure was 15.26 (SD=6.67). For having received news of harm to or death of someone close to the participant, the mean age of first exposure was 20.67 (SD=9.14). The majority of these exposures occurred prior to age 26, with 94.5% of those who witnessed injury or death, 89.1% of those that had a friend or family member injured, and 80.0% of those receiving news of harm or death to a loved one experiencing these incidents during childhood or adolescence. Moreover, all participants, without exception, reported experiencing at least one of these three exposures during childhood or adolescence, with the average reporting at least two of these three exposures.

It is also noteworthy that over two-thirds of the sample also reported having been in a serious accident, having seen or handled dead bodies, having been robbed by force, and having been attacked with a weapon. Of this group, about 90.7% reported that these incidents occurred when they were children or adolescents. On average, participants reported experiencing 4.8 of these 7 types of exposures just during childhood or adolescence.

The THQ provides participants the opportunity to offer descriptions of each type of trauma exposure they reported. This allows for a more specific understanding of participants' experiences. In analyzing each of the 65 participants' responses, not only were certain types of trauma exposures very common across participants, but certain narratives were common as well, in particular, the witnessing of violent and sudden death (often by gun) while in their early- to mid-teens.

In presenting detailed data from the THQ, we will overview three cases with exposure to the fewest trauma categories; three cases with exposure to the mean number of categories for this sample; and three comparison cases with the highest number of categories of exposures.

Fewest exposures

Participant 39 was 33 years old at the time of the survey and identified as Black. He reported experiencing no child maltreatment on the CTQ but reported exposures falling into 3 categories on the THQ. Two of these exposures occurred during late adolescence, being forcibly robbed (age 21) and the murder of his aunt (age 25). He also reported that the mother of his children was murdered two years prior to this survey (age 31).

Participant 44 was 29 years and identified as Black. He reported experiencing to child maltreatment on the CTQ and he reported exposures falling into 3 categories on the THQ. These exposures also occurred during late adolescence, having witnessed the serious injury or death of a stranger at age 25 and the murder of his step-brother at age 22. This participant, like many others, also described his neighborhood as being a kind of combat zone.

Participant 58 was 22 and identified as Black. His scores on the CTQ for emotional and physical neglect were in the severe range while other forms of child maltreatment were not indicated. On the THQ, he reported exposures falling into 3 categories. He reported experiencing multiple forcible robberies in his mid-teens (ages 14-17) and being hit by a car at age 14. He reported that at age 21 a close friend and a cousin were both murdered.

Mean exposures

Participant 10 was 25 years old and identified as Black. On the CTQ, he scored in the severe range for emotional neglect, reporting no other categories of childhood maltreatment. On the THQ he reported incidents falling into 9 categories of exposure. He described the neighborhood where he grew up as characterized by street violence. He reported being robbed seven times between ages 16 and 22. At age 8, his cousin was murdered and, at age 15, he saw the dead body of a stranger. At age 17, he was inside a house when it collapsed. At age 21, he was "a bystander during a shooting on [his] block and got shot in the foot" and, in a separate incident, witnessed the murder of a friend. At age 22, another cousin was murdered.

Participant 14 was 22 years old at the time of the survey and identified as Black. He reported no child maltreatment on the CTQ and reported experiences that fell into 10 categories on the THQ, all during mid- to late-adolescence. At age 14, reported being attacked on at least four occasions, once when his cousin chased him with a knife and three times when he was shot at by rival gang members. At age 15, he saw the dead body of a stranger. At age 18, he saw a stranger being seriously injured or killed. And at age 21, his uncle and two cousins were murdered. He also described the neighborhood where he grew up as resembling a combat zone.

Participant 5 was 31 years old and identified as Black. He reported no childhood maltreatment on the CTQ and reported exposures that fell into 13 categories on the THQ. At age 8 or 9, he reported being present during a store robbery during which he feared for his life. At age 11, he began to see frequent shootings "in the street" and was himself shot in the legs when he was the victim of a robbery. He reported that between ages 13 and 14, seven of his neighborhood friends were murdered and, at age 15, he saw one of his friends being killed.

Most exposures

The three participants endorsing the highest numbers of exposures on the THQ were all non-Black and each scored in the severe range on all CTQ scales except for sexual abuse. Participant 50 was 34 years old at the time of the survey and identified as White. His scores on the CTQ were in the severe range for all categories except sexual abuse which he did not report. On the THQ, he reported experiences falling into 17 categories, about twice the mean of the sample. All of the exposure types occurred during his childhood and adolescence. This participant reported extreme violence both outside and inside the home. From ages 4 to 12, he sustained numerous physical injuries at the hands of his mother and "mom's boyfriends."

At age 14 he witnessed his best friend being murdered. At age 17, a person he was dating died. He reported being robbed multiple times during adolescence. Throughout his youth, he reported frequent exposure to street violence and death, much of which was related to "drug deals" involving "meth."

Participant 52 was 38 and identified as Asian or Pacific Islander. He scored in the severe range on all categories of the CTQ except for sexual abuse which he did not report. On the THQ he reported exposures falling into 16 categories during childhood and adolescence. He reported repeated injury by family members between ages 6 and 10, identifying his sisters and cousins as the perpetrators. He also stated that from ages 6 to 17 he was a "street soldier," reporting that 30 close friends and family members had been murdered in his lifetime. He did not provide further detail, indicating that it was "too personal" to discuss with the interviewer. He also reported that he witnessed serious injury or death three times during adolescence, at ages 15, 18, and 20, involving two cousins and a friend who died in prison.

Participant 67 was 33 and identified as White. He also had scores on the CTQ in the severe range on all categories except sexual abuse which he did not report on the CTQ (but indicated on the THQ). On the THQ, he reported exposures that fell into 14 categories. This participant also identified as a military veteran and his narrative was distinct in that his experience of combat was, in fact, in a designated war zone. His life outside the military, however, was also characterized by violence, beginning with maltreatment in his childhood home where he reported numerous physical injuries beginning at age 3, perpetrated by his uncle and his mother. He also reported that, at age 7, he was sexually abused by a babysitter. He reported being robbed multiple times during adolescence; having a friend die of a heroin overdose at age 24; and being attacked on multiple occasions by friends, strangers, and the police during late adolescence.

Discussion

Similar to populations served by the child welfare system, juvenile justice system, and public mental health care systems, men in the prison system have high rates of lifetime exposures to trauma, beginning in childhood. According to a national sample of children and youth, 25.2% of boys experience some form of child maltreatment [29]. This sample of men reported rates twice that. Moreover, male prisoners report rates of lifetime trauma exposure and rates of PTSD several times higher than the general population [7]. In this study, 10% of participants met the criteria for PTSD. This is twice the lifetime rate found in community samples for men [30]. However, the qualitative nature of the trauma exposure experienced by male prisoners is not well understood.

In this study, violence is frequent and pervasive in these brief timelines within participants' lives, regardless of demographics. The theme of witnessing or learning of the violent death of someone they were close to, particularly during childhood or adolescence, was nearly universal for this sample. Being themselves the targets of violence as youth was also prominent. Of note, most of the violence reported was not abuse at the hands of caregivers (that is, not what would be considered "child maltreatment") but attacks by strangers, acquaintances, or "enemies" outside their families. For example, 16 participants reported being shot or shot at by strangers or neighborhood rivals at least once during their childhoods or adolescence (between ages 11 and 25, mean=16.25). Thirteen of these participants identified as Black (two identified as Multiracial and one as White). According to the Centers for Disease Control and Prevention (CDC) half of deaths among Black males in this age group (15-24 years old) come as a result of homicides (compared to white males in this age group for whom homicide accounts for only about 8%) [31].

It is also noteworthy that the highest scorers were among prisoners non-Black. While high rates of exposure to violent death was still present for the non-Black group, childhood maltreatment was more common. In the current sample, it appears that Black prisoners may have been exposed to fewer categories of trauma than non-Black prisoners. One possible theory to explain this is racial groups experiencing less racial discrimination, may have more protective factors that can buffer even those with high rates of childhood trauma from incarceration. Behavioral health issues in adulthood that are often associated with trauma exposure in childhood may be more often responded to with therapeutic interventions for those with racial or other socioeconomic advantages that can be protective against arrest and sentencing to prison. This would be consistent with Wolff and Shi's findings, that white male prisoners received mental and behavioral health services at over twice the rate of black male prisoners in their study. Their study also found that white males and other racial groups reported experiencing more physical and sexual trauma during childhood than black males [12].

At the same time, PTSD rates have been found to be higher among African Americans than people of other racial/ethnic groups as are certain types of trauma exposures [32]. Because African American men are disproportionately affected by mass incarceration and the least likely to receive trauma services, it is of particular importance to understand the types of trauma exposure they experience in order to better target services toward them.

Limitations

This study was of a small sample of prisoners, all of whom were returning to an urban area. Moreover, the data were selected from a secondary data set collected for other purposes. Incarcerated men with sex offenses or unmanaged serious mental health disorders were not included meaning that the average rate reported in this study could be lower than would be reflected if a fully representative cross-section sample were included.

Implications for next steps

Further research is required to better understand the nature of trauma among male prisoners. Evidence on this subject is important to shifting the orientation within the legal system and corrections from retribution to treatment and support services. Other large social

service systems, such as child welfare and juvenile justice, that serve populations with similarly high rates of trauma, have begun adapting their organizational structures to be trauma-informed in an effort to reduce re-traumatization. Research has shown that use of trauma-informed approaches in these systems has been associated with improved mental health outcomes [33]. Given the disproportionately high percentage of African American men and people in poverty having contact with the criminal justice system, there are also significant historical, moral, and social justice reasons for increasing the legal system's awareness of and responsiveness to trauma within this population and making concerted efforts to both avoid further traumatization and provide interventions that aim to ameliorate the effects of trauma.

Conclusion

Nearly all (95%) people in prison will eventually be released [34]. According to the Bureau of Justice Statistics, however, 77% of people released from prison are re-arrested within 5 years. The process of returning to society from prison is a fraught experience during which the majority of former prisoners have limited financial and social resources and face barriers to employment, housing, and basic medical and mental health care [35]. Successful reentry is threatened by substance use relapse, unmanaged chronic disease and mental health disorders, family strain [34], as well as the complex problems resulting from concentrated poverty and a racially biased criminal justice system. It is in the interests of not only prisoners but public safety that correctional systems begin to become aware of the prevalence of trauma and to take into account the needs of prisoners with histories of trauma.

Grants

The project described was supported by Grant Number T32MH019960 from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or the National Institutes of Health.

References

1. Travis J, Western B, Redburn S (2014) The growth of incarceration in the United States: Exploring causes and consequences. The National Academies Press. Washington, DC.
2. Bureau of Justice Statistics (2016) Correctional populations in the United States, 2016. Washington DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
3. Wolff N, Huening J, Shi J, Frueh B (2014) Trauma exposure and posttraumatic stress disorder among incarcerated men. *J Urban Heal* 91: 707-719.
4. Bureau of Justice Statistics (2016) National Prisoner Statistics, 1978-2014. Washington DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
5. Pettus Davis C (2014) Social support among releasing men prisoners with lifetime trauma experiences. *Int J Law Psych* 37: 512-523.
6. Reavis JA, Looman J, Franco KA, Rojas B (2013) Adverse childhood experiences and adult criminality: How long must we live before we possess our own lives? *Perm J* 17: 44-48.

7. Adams S, Houston-Kolnik J, Reichert J (2017) Trauma-informed and evidence-based practices and programs to address trauma in correctional settings. Illinois Criminal Justice Information Authority.
8. Bureau of Justice Statistics (2006) Mental Health Problems of Prison and Jail Inmates. Washington DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
9. Specter D (2006) Making prisons safe: Strategies for reducing violence. *J Law Pol* 22: 125-134.
10. Wagner P, Walsh A (2016) State of incarceration: The global context. Prison Policy Initiative, Washington, DC.
11. Fazel S, Hayes AJ, Bartellas K, Clerici M, Trestman R (2016) The mental health of prisoners: a review of prevalence, adverse outcomes and interventions. *Lancet Psychiatry* 3: 871-881.
12. Wolff N, Shi J (2012) Childhood and adult trauma experiences of incarcerated persons and their relationship to adult behavioral health problems and treatment. *Int J Environ Res* 9: 1908-1926.
13. Chemtob CM, Gudiño OG, Luthra R, Yehuda R, Schmeidler J, et al. (2016) Child Trauma Exposure and Posttraumatic Stress Disorder: Identification in Community Mental Health Clinics. *Evid Based Pract Child Adolesc Ment Health* 1: 103-115.
14. Baranyi G, Cassidy M, Fazel S, Priebe S, Mundt AP (2018) Prevalence of Posttraumatic Stress Disorder in Prisoners. *Epidemiol Rev* 40: 134-145.
15. Sadeh N, McNiel DE (2015) Posttraumatic stress disorder increases risk of criminal recidivism among justice-involved persons with mental disorders. *Criminal Jus Behav* 42: 573-586.
16. Van der Kolk BA, Roth S, Pelcovitz D, Sunday S, Spinazzola J (2005) Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *J Trauma Stres* 18: 389-399.
17. Ardino V (2012) Offending behaviour: the role of trauma and PTSD. *Eur J Psychotraumatol* 3: 1-4.
18. Khoury L, Tang YL, Bradley B, Cubells JF, Ressler KJ (2010) Substance use, childhood traumatic experience, and Posttraumatic Stress Disorder in an urban civilian population. *Depression and Anxiety* 27: 1077-1086.
19. Shonkoff JP, Phillips DA (2000) National Research Council. From neurons to neighborhoods: The science of early child development. National Academy Press, Washington, USA.
20. Arain M, Haque M, Johal L, Mathur P, Nel W, et al. (2013) Maturation of the adolescent brain. *Neuropsychiatr Dis Treat* 9: 449-461.
21. Tottenham N, Galván A (2016) Stress and the adolescent brain: Amygdala-prefrontal cortex circuitry and ventral striatum as developmental targets. *Neurosci Biobehav Rev* 70: 217-227.
22. Monahan K, King K, Shulman E, Cauffman E, Chassin L (2015) The effects of violence exposure on the development of impulse control and future orientation across adolescence and early adulthood: Time-specific and generalized effects in a sample of juvenile offenders. *Development and Psychopathology* 27: 1267-1283.
23. Bernstein DP, Fink L (1998) Childhood Trauma Questionnaire: A retrospective self-report manual. San Antonio, TX: The Psychological Corporation.
24. Scher CD, Stein MB, Asmundson GJG, McCreary DR, Forde DR (2001) The childhood trauma questionnaire in a community sample: Psychometric properties and normative data. *J Traum Stres* 14: 843-857.
25. Hooper LM, Stockton P, Krupnick JL, Green BL (2011) Development, use, and psychometric properties of the trauma history questionnaire. *J Loss Trauma* 16: 258-283.
26. Lecrubier Y, Sheehan DV, Weiller E, Amorim P, Bonora I, et al. (1997) The Mini International Neuropsychiatric Interview (MINI). A short diagnostic structured interview: Reliability and validity according to the CIDI. *European Psychiatry* 12: 224-231.
27. Tolin DF, Gilliam C, Wootton B, Bowe W, Bragdon LB (2016) Psychometric properties of a structured diagnostic interview for DSM-5 anxiety, mood, and obsessive-compulsive and related disorders. *Assessment* 25: 3-13.
28. United States Census Bureau (2016) Poverty thresholds. U.S. Department of Commerce, Washington, DC.
29. Finkelhor D, Turner HA, Ormond R, Hamby SL (2013) Violence, crime, and abuse exposure in a national sample of children and youth: An update. *JAMA Pediatrics* 167: 614-621.
30. Kilpatrick DG, Resnick HS, Milanak ME, Miller MW, Keyes KM, et al. (2013) National Estimates of Exposure to Traumatic Events and PTSD Prevalence Using DSM-IV and DSM-5 Criteria. *J Trauma Stres* 26: 537-547.
31. Centers for Disease Control and Prevention (2015) Leading causes of death (LCOD) in males United States 2015.
32. Roberts AL, Gilman SE, Breslau J, Breslau N, Koenen KC (2011) Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psych Med* 41: 71-83.
33. Center for Behavioral Health Statistics and Quality (2015) Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health.
34. James N (2014) Offender Reentry: Correctional Statistics, Reintegration into the Community, and Recidivism. Department of Justice, National Institute of Correction, Congressional Research Service. Washington, DC.
35. Pettus Davis C (2012) Reverse social work's neglect of adults involved in the criminal justice system: The intersection and an agenda. *Soc Res* 36: 3-8.