



Associations of Childhood & Adult Trauma on Substance Misuse & Mental Health AMONG INCARCERATED MEN

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Among Incarcerated Men**

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Abstract

Men are overrepresented in prisons and report higher rates of trauma exposure than the general population. Research with criminal justice involved populations has established a link between trauma and adverse substance use and mental health outcomes. The purpose of this study is to examine the role of trauma exposure across the lifespan on substance use disorder, mental health status, and emotional well-being amongst prisoners nearing community reentry. Data was collected from the baseline interviews of 67 incarcerated adult men scheduled to be released within 4 to 6 months. Multiple logistic and linear regression models were used to measure associations between childhood trauma severity and adult cumulative trauma exposure on substance use and mental health outcomes. Childhood trauma exposure severity was significantly associated with generalized anxiety disorder, major depressive episode, and reduced emotional well-being. Adult cumulative trauma exposure was significantly associated with substance use disorder. These results suggest that both childhood and adult trauma have associations on behavioral health and well-being outcomes.

Keywords: trauma; criminal justice; mental health; substance abuse; prisoner reentry

Background

There are currently over 1.5 million individuals in state or federal prison custody daily, and approximately 600,000 individuals are released from state and federal prisons in the United States annually (Carson, 2018; James, 2015). Men account for over 90% of the incarcerated population (Bronson & Carson, 2019), and 89% of individuals released in 2005 were men (Alper, Durose, & Markman, 2018). Of those men released, nearly 70% are rearrested three years after release (Alper et al., 2018). These men cycling through our criminal justice system have experienced a high rate of trauma (62-99%; Morrison, Pettus-Davis, Renn, Veeh, & Weatherly, 2018). Similar to women, there is reason to believe that untreated trauma may impact the well-being and recidivism of men as they return to their communities.

To date, most trauma-informed research of incarcerated individuals has focused on women, and there is a need for gender-specific trauma interventions for incarcerated men (Pettus-Davis, Renn, Lacasse, & Motley, 2018). Further, there is limited research that explores trauma experienced during adulthood. Examining the temporal order and type of trauma exposure may offer valuable insight into subsequent effects on mental health outcomes for incarcerated men preparing to reenter society (Pettus-Davis, 2014). As such, the purpose of this study is to examine how childhood and adulthood trauma influence substance use disorder, mental health status, and emotional well-being of incarcerated men. The research questions guiding this study are: 1. Is childhood trauma exposure severity associated with substance use disorder, mental health status and reduced well-being of incarcerated men?; 2. Is adult cumulative trauma exposure associated with substance use disorder, mental health status, and reduced well-being of incarcerated men?

Trauma Exposure for Incarcerated Men

Incarcerated men report high rates of lifetime traumatic experiences and resulting adverse outcomes when compared to the general population (Briere, Agee, & Dietrich, 2016). Between 62-99% of incarcerated individuals have reported a lifetime traumatic experience prior to incarceration (Komarovskaya, Booker Loper, Warren, & Jackson, 2011; Skarupski, Parisi, Thorpe, Tanner, & Gross 2016). Traumatic exposure is an established risk factor for adverse mental health and psychopathological symptoms among incarcerated men (Skarupski et al., 2016; Western & Simes, 2019; Wolff & Shi, 2012).

Trauma Experienced in Childhood

Childhood trauma is associated with increased incarceration experiences and more frequent criminal offending behavior (Altintas & Bilici, 2018; Wolff & Shi, 2012). Prior research has found that incarcerated men report higher levels of childhood trauma compared to general population samples (Komarovskaya et al., 2011; Morrison et al., 2018). In one study, incarcerated men reported a higher rate of childhood physical abuse (54% vs. 25%) compared to a general population sample (Morrison et al., 2018). In a systematic review of the impact of childhood abuse on adult male prisoners, childhood trauma was found to have a strong association with male prisoner mental health, substance use behavior, and behavior issues (Goddard & Pooley, 2019). Additionally, Goddard and Pooley (2019) reported an association between childhood trauma and lifetime history of depression, anxiety, and other mental health disorders. Among incarcerated men, childhood trauma exposure is a substantial predictor of detrimental mental health outcomes in adulthood (Skarupski et al., 2016; Wolff & Shi, 2012). In a study of 3,986 incarcerated men, childhood physical abuse was associated with depression, substance misuse, and anxiety treatment among incarcerated men (Wolff & Shi, 2012).

Incarcerated men with a history of childhood trauma are at an increased risk of substance abuse (McClellan, Farabee, & Crouch, 1997; Wolff & Caravaca Sanchez, 2019). Comorbid childhood trauma exposure and substance use disorder are associated with an increased likelihood of having a co-occurring mental health disorder diagnosis among incarcerated men (Messina et al., 2007). Higher prevalence rates of childhood cumulative trauma were found to be predictive of higher lifetime mental health treatment service utilization, earlier substance use, and involvement with serious drug crimes among incarcerated men who reported a history of substance use (Messina et al., 2007). Adverse childhood experiences were a substantial risk factor of reported alcohol use in the sample. For every adverse childhood event reported, the likelihood of alcohol abuse increased by 29% (Levenson, 2016). Additionally, in terms of mental health, childhood trauma is associated with increased depression symptomology among incarcerated men (Skarupski et al., 2016; Wolff & Shi, 2012). Childhood trauma victimization among incarcerated men is also associated with an increased incidence of depression symptoms reported in adulthood (Roxburgh & MacArthur, 2014; Skarupski et al., 2016). Lastly, Wolff and Shi (2012) reported that physical trauma and abandonment in childhood were both predictive of increased treatment for anxiety symptoms while incarcerated.

Trauma Experienced in Adulthood

Adult trauma victimization research among incarcerated men has received far less attention than trauma exposure during childhood (Carlson & Shafer, 2010). Additionally, the prevalence of lifetime trauma rates of incarcerated men is more established in the literature, but these encompass both trauma victimization in childhood and adulthood (Carlson & Shafer, 2010; Pettis-Davis, 2014). Adult trauma prevalence rates vary by sample composition and operationalization of trauma, with estimates ranging from 3.3% to 55.4% (Carlson & Shafer, 2010; Harlow, 1999; Haugebrook, Zgoba, Maschi, Morgen, & Brown, 2010).

Previous research has examined the impact of adult trauma on mental health and criminal justice outcomes among incarcerated men (Wolff & Shi, 2012). Their research established that adult physical trauma was associated with depression symptoms, anxiety symptoms, and substance misuse (Wolff & Shi, 2012). Adult trauma of all types (physical, sexual, and abandonment) were associated with negative behavior outcomes in the psychopathology domains of interpersonal problems, self-regulation problems, and hopelessness (Wolff & Shi, 2012). Interestingly, the effect sizes of trauma experiences reported in adulthood were mostly larger than the same trauma experience types reported in childhood relating to psychopathology outcomes. While important, this research does not address the compound impact of trauma exposure during adulthood. Specifically, adult trauma has been investigated to a less degree than childhood trauma when assessing for impact on mental health outcomes, and this study established a record of the adverse impact of adult trauma on incarcerated men (Wolff & Shi, 2012). Associations between cumulative adult trauma and substance use disorders have not been examined, and more research is needed to measure how increased exposure to child and adult trauma influences substance use disorder risk among incarcerated men. Incarcerated men who reported adult physical trauma victimization and abandonment in adulthood were also more likely to report adverse anxiety symptomology (Wolff & Shi, 2012).

The relationship between trauma and increased symptoms appears to be influenced by factors such as the number of trauma events experienced, temporal order of trauma events experienced, and the type of trauma victimization (Roxburgh & MacArthur, 2014; Skarupski et al., 2016; Wolff & Shi, 2012). More research is needed to examine the discrete influences of childhood trauma exposure severity and adult cumulative trauma exposure on mental health symptoms and substance use behaviors among incarcerated men. Additionally, the impact of trauma victimization on well-being is relatively understudied in incarcerated men (Johnson Listwan, Colvin, Hanley, & Flannery, 2010). For justice-involved individuals, well-being is

critical because it offers protective factors that can alleviate distress (Ryff, Radler, & Friedman, 2015). Trauma victimization inhibits well-being among incarcerated men (Hochstetler, Murphy, & Simons, 2004; Johnson Listwan et al., 2010). In one study, exposure to trauma prior to prison was a significant predictor of decreased psychological well-being while incarcerated (Maschi, Viola, & Morgen, 2013; Maschi, Viola, Morgen, & Koskinen, 2015). Measuring the independent impact of child and adult trauma on well-being is a practical extension of past research that offers a novel contribution to the literature.

Childhood and adult trauma exposure are linked to adverse substance abuse and mental health outcomes among incarcerated men (Messina et al., 2007; Wolff & Shi, 2012), yet significant gaps in the literature remain. Many of these studies are outdated, and there is a need for further examination of associations between trauma exposure and substance use and mental health symptoms among incarcerated men. Trauma experienced in adulthood is particularly uninvestigated in this population, as there is limited evidence available regarding cumulative adulthood trauma and substance abuse and mental health outcomes. To date, most studies of incarcerated men involving trauma exposure and mental health outcomes have not used Diagnostic and Statistical Manual of Mental Disorders (DSM-V) criteria. Lastly, the gap of literature on trauma exposure and emotional well-being warrants empirical examination to explore their interrelationships. This study aims to examine associations of childhood and adult trauma on mental health outcomes to inform intervention development and clinical practice for incarcerated men with a history of traumatic events.

Methods and Materials

Data was collected from a sample of 81 men and women who were in the custody of the Missouri Department of Corrections and were part of a larger longitudinal randomized controlled trial approved by the Washington University Institutional Review Board. The subsample of 67 men was used for the current study. All data was collected in 2016. Participants were 18 years

old or older and scheduled for release from prison in approximately four to six months into the St. Louis metro-area. Participants were English speaking and demonstrated cognitive capacity to understand study participation. Data was collected during an in-person interview format by trained professionals and stored electronically.

Measures

Demographics and Control Variables. The following demographics were collected from participants: race, age, and a lifetime mental health diagnosis.

Childhood Trauma History Questionnaire. Childhood trauma exposure severity is representative of the total score reported for the Childhood Trauma Questionnaire (CTQ). The short-form CTQ is a validated 28-item measure that assesses history of childhood maltreatment constructed from the original 70-item CTQ measure (Bernstein et al., 2003). The CTQ categorizes and assesses childhood trauma into the following five domains; physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect (Bernstein et al., 2003). Each of these domains are captured in the measure through five-item subscales with values that range from 1 (Never) to 5 (Very Often). Higher scores on a scale denote a higher level of trauma severity reported during childhood. The 28-item CTQ has demonstrated a strong inter-rater reliability (.9 to 1.0) and criterion-related validity (Bernstein et al., 2003).

Trauma History Questionnaire. Adult cumulative trauma exposure is a composite variable that reports the total number of adult trauma events experienced. The Trauma History Questionnaire (THQ) is a psychometrically established 24-item measure that assesses for traumatic history in the domains of criminal victimization trauma, disaster trauma, general trauma, physical trauma, and sexual trauma (Hooper, Stockton, Krupnick, & Green, 2011). The measure was developed to garner self-reported information regarding specific types of lifetime traumatic exposure related to PTSD among general, community, and clinical populations (Hooper et al., 2011). The total number of trauma events reported is obtained through summing

each item in the measure. The measure also captures the age in which the respondent reported experiencing the trauma event, which provided us with a cut-off for deciding if the trauma occurred in childhood or adulthood. The measure may be utilized in an interview format and is estimated to take 15-20 minutes to complete (Hooper et al., 2011). The THQ demonstrates strong test-retest reliability in capturing the total number of traumatic events reported with coefficients ranging from .51 to .90 (Hooper et al., 2011). When compared to other measures, the THQ exhibited strong construct validity with six out of nine constructs scoring adequate Cohen kappa coefficients ranging from .61 to 1.00 (Hooper et al., 2011). Additionally, THQ items are associated with PTSD symptomology which is further indicative of construct validity (Hooper et al., 2011).

MINI Neuropsychiatric Interview. The Mini International Neuropsychiatric Interview (MINI; Hendricks et al., 2014; Sheehan et al., 1997) was used to assess for the presence of substance use disorder, alcohol use disorder, major depressive episode, and generalized anxiety disorder. The MINI has demonstrated adequate test-retest and inter-rater reliability for lifetime substance use disorder, alcohol use disorder, major depressive disorder, and generalized anxiety disorder (Sheehan et al., 1997). Test-retest values for these diagnoses ranged from .78-.87 and inter-rater reliability scores ranged from .94 – 1.00 (Sheehan et al., 1997). Additionally, it has demonstrated utility in correctional settings (Black, Arndt, Hale, & Rogerson, 2004).

The MINI assesses for substance use disorder symptoms through ten items that measure substance use disorder symptomology in the year prior to entering prison. Additionally, the measure captures substance use disorder withdrawal symptoms within the following substance classifications: opioids, stimulants, cannabis/marijuana, and sedatives. Substance use disorder symptomology is determined if two or more substance/withdrawal symptoms are reported by a participant in the year prior to entering prison.

Alcohol use disorder symptomology is captured by ten categorical items that gauge symptoms consistent with an alcohol use disorder in the year prior to entering prison. Symptoms captured in this measure range from drinking consumption, alcohol craving, drinking impact on responsibilities, risky drinking behavior, etc. If a respondent reports two or more alcohol symptoms, they are classified as reporting symptomology consistent with alcohol use disorder in the year prior to entering prison.

Major depressive episode symptomology was measured by seven items that were indicative of depressive episode symptoms and one item that assessed if symptoms caused significant distress in a person's life. If a respondent reported five or more symptoms and indicated that these symptoms caused significant distress, they were coded as meeting symptomology consistent with a current major depressive episode.

Generalized anxiety disorder symptomology was assessed by six items that represented symptoms consistent with generalized anxiety disorder. If a respondent reported three or more symptoms and indicated that they caused significant life distress, they were coded as having symptomology consistent with a current generalized anxiety disorder.

36-Item Short Form Survey. The 36-Item Short Form Survey (SF-36) was used to measure emotional well-being. The SF-36 survey is a validated 36-item measure developed to assess health in the domains of physical, social, and emotional well-being (Doll, Petersen, & Stewart-Brown, 2000). The emotional well-being scale is a 5-item scale that measures the emotional well-being that a participant is reporting. In previous research, the emotional well-being scale reported a Cronbach's alpha of .88 and an item-scale correlation range of .74 to .78 (Gandek, Sinclair, Kosinski, & Ware Jr, 2004).

Data Analysis Protocol

All analyses for this study were completed in SPSS version 25. Univariate analyses were conducted to assess variable frequencies and determine the viability of variables for further

analysis. Bivariate analyses were conducted to test the association of indicators on outcome variables to guide the construction of linear and logistic regression models. Multiple linear and logistic regression models were run as the primary forms of analyses for this study. Due to sampling size constraints, childhood trauma exposure severity and adult cumulative trauma exposure were run in discrete models as independent variables. Multiple linear and logistic regressions were run for each dependent variable operationalized above. For the first set of models, childhood trauma severity was the independent variable and covariates of any mental health diagnosis, race, and age were controlled for in the analysis. These covariates were identified based on their relevance in previous research with criminal justice populations (Severson, Bruns, Veeh, & Lee, 2011; Veeh, Severson, & Lee, 2017). In the second class of models, adult cumulative trauma exposure was the independent variable and the covariates of any mental health diagnosis, race, and age were controlled for in the analysis. The outcome variables in each multiple regression model were substance use disorder, alcohol use disorder, generalized anxiety disorder, major depressive episode, and emotional well-being, respectively.

Results

Descriptives

Of the 67 men in the sample, the mean age was 30.87 years of age. 52 participants were persons of color, and 15 participants were white. The mean childhood trauma severity score reported was 42.10, with a minimum score of 25 and a maximum score of 88 reported. The mean number of adult trauma exposure experiences was 5.81, with a minimum of zero and a maximum of 13 traumatic event experiences reported. 22.4% of participants reported symptoms that met criteria for alcohol use disorder in the year prior to entering prison, while 37.3% of participants reported symptomology that met criteria for substance use disorder in the year prior to entering prison. Generalized anxiety disorder criteria were met by 17.9% of participants. A current major

depressive episode was reported by 13.4% of respondents. For a full breakdown of sociodemographic characteristic information, please see Table 1.

Multiple Regression Results for Childhood Trauma Severity as an Indicator

Childhood trauma exposure severity was predictive of generalized anxiety disorder, a major depressive episode, and reduced emotional well-being in regression models controlling for the covariates of lifetime mental health diagnosis, race, and age. Childhood trauma exposure severity was not associated with substance use disorder or alcohol use disorder. In the multiple logistic regression model with generalized anxiety disorder as an outcome, each incremental increase in reported trauma severity was associated with a 10% increase in the odds of generalized anxiety disorder (AOR = 1.10; 95% CI = 1.03, 1.18). Age was inversely associated with generalized anxiety disorder controlling for other covariates (AOR = 0.88; 95% CI = 0.78, 1.00). In the multiple logistic regression model predicting a major depressive episode, childhood trauma exposure severity was also associated with increased odds for a major depression episode (AOR = 1.05; 95% CI = 1.00, 1.10). In the multivariate linear regression model predicting emotional well-being, childhood trauma exposure severity was associated with reduced emotional well-being ($b = -.34$; 95% CI = -0.66, -0.01). Additionally, any lifetime mental health diagnosis was also associated with lower emotional well-being ($b = -19.55$; 95% CI = -29.65, -9.45). For a full breakdown of model results please refer to Table 2.

Multiple Regression Results for Adult Cumulative Trauma Exposure as an Indicator

Adult cumulative trauma exposure was predictive of substance use disorder when controlling for the covariates of any lifetime mental health diagnosis, race, and age. Adult cumulative trauma exposure was not associated with alcohol use disorder, generalized anxiety disorder, a major depressive episode, or emotional well-being. In the multiple logistic regression model with substance use disorder as an outcome, adult cumulative trauma exposure was associated with increased odds of substance use disorder (AOR = 1.35, 95% CI = 1.07, 1.70).

Race was also associated with substance use disorder, as persons of color had 12 times higher odds of substance use disorder than white participants (AOR = 12.28, 95% CI = 2.03, 74.34). Any lifetime mental health diagnosis was predictive of reduced emotional well-being ($b = -20.34$; 95% CI = -31.17, -9.52). For a full breakdown of model results please refer to Table 3.

Discussion

The results of this study provide novel contributions into the associations between childhood trauma exposure severity and adult cumulative trauma exposure on substance use disorder, mental health status, and the well-being of incarcerated men. Trauma exposure over the lifespan is associated with criminal justice system involvement, as is substance abuse, mental health diagnoses, and well-being (Messina et al., 2007; Pettus-Davis, 2014; Wolff & Shi, 2012). This study aimed to explore associations of childhood and adulthood trauma exposure on substance abuse and mental health outcomes to better understand their interrelationships among incarcerated men. Study findings have significant implications for clinical practice and intervention development for men with criminal justice system involvement.

Childhood trauma exposure severity was predictive of generalized anxiety disorder, a major depressive episode, and reduced emotional well-being among incarcerated men. The association between childhood trauma exposure severity and generalized anxiety disorder aligns with prior research that has found an increased prevalence of anxiety symptoms among incarcerated men with childhood trauma exposure (Perez-Pedrogo et al. 2018; Wolff & Shi, 2012). Childhood trauma exposure severity's association with a major depressive episode is consistent with past studies by Skarupski et al., (2016), and Roxburgh and MacArthur (2014). To the best of our knowledge, this is the first study that has identified childhood trauma exposure severity as a risk factor of emotional well-being among incarcerated men. The non-significant relationship between childhood trauma exposure severity and substance use disorder or alcohol

use disorder contrasts with prior research that has found associations between childhood trauma exposure and substance and alcohol abuse (Wolff & Shi, 2012).

Adult cumulative trauma exposure was predictive of substance use disorder, and this finding is consistent with prior research that found an association between adult trauma exposure and substance abuse (Wolff & Shi, 2012). Adult cumulative trauma exposure was not predictive of generalized anxiety disorder or a major depressive episode. These results differ from Wolff and Shi's (2012) findings that adult trauma was predictive of depression and anxiety symptoms. New to the literature is the lack of an association between cumulative adult trauma exposure with emotional well-being among incarcerated men. This study expands upon prior research that has found associations between lifetime (Pettus-Davis, 2014), childhood trauma exposure, and adult trauma exposure (Wolff & Shi, 2012), on substance use and mental health outcomes.

This study's use of childhood trauma exposure severity and substance use disorder, generalized anxiety disorder, and major depressive episode criteria expands on past research that have used other criteria to assess for relationships between childhood trauma exposure and health and mental health outcomes. Past studies among incarcerated men have examined any childhood trauma exposure (Wolff & Shi, 2012) or cumulative childhood trauma (Messina et al., 2007). This study's utilization of childhood trauma exposure severity as an independent variable offers a unique lens into the association between trauma and mental health outcomes. This study adds meaningful contributions related to the understudied relationship between adult trauma and mental health outcomes among incarcerated men. It builds on prior research that has measured adult trauma through the lens of lifetime trauma exposure (Pettus-Davis, 2014) and any adult trauma exposure (Wolff & Shi, 2012) by utilizing cumulative adult trauma exposure as an independent variable.

The differences between childhood trauma exposure severity and adult cumulative trauma exposure's associations with substance use disorder, mental health, and emotional well-

being indicate the importance of examining the individual impact of childhood and adult trauma on mental health symptomology among incarcerated men. Wolff & Shi (2012) found differences between childhood and adult trauma exposure's associations with similar outcomes, although adult trauma exposure was associated with more substance abuse and mental health outcomes than this study. These differences may be explained by the different operationalizations of childhood and adult trauma as well as differences in the operationalization of substance abuse, anxiety, and depression between the present study and Wolff and Shi's (2012) study. The present study's use of psychometrically established measures designed to measure clinical diagnoses symptomology provides insight into how childhood trauma exposure severity and adult cumulative trauma translate to mental health symptomology through clinical diagnostic criteria.

Study findings also offer significant insight into the need for trauma-informed assessment and intervention services for incarcerated men reentering society. The specific associations between childhood trauma exposure severity and adult cumulative trauma exposure on specific outcomes demonstrate the importance of thorough trauma screening among incarcerated individuals to identify co-occurring trauma exposure history with substance use disorders, mental health status, and reduced emotional well-being. Administered trauma screenings are needed to identify individual trauma exposure histories among incarcerated men (Wolff et al., 2015). Trauma assessments can inform the development of individualized trauma-informed service plans both during incarceration and post-release (Pettus-Davis et al., 2018). Trauma-informed interventions are offered in most prison facilities, but there is scant empirical evidence available regarding their effectiveness among incarcerated men. Even less is understood regarding trauma informed interventions for incarcerated men reentering society (Pettus-Davis, 2014).

Considering the contextual setting and circumstances of trauma interventions for justice involved individuals is important because of the unique dynamics associated with incarceration and reentry (Pettus-Davis et al., 2018). Generally, empirically supported trauma interventions

incorporate one or more of the following approaches: psychoeducation, emotion regulation, coping skills development, interpersonal functioning, social support, and cognitive processing (Pettus-Davis et al., 2018). Trauma interventions that emphasize education, recognition, and coping skills development are most practical while an individual is incarcerated (Wolff et al., 2015). Such present-focused interventions are more acceptable in the incarceration setting than trauma interventions that are past-oriented (Wolff et al., 2015). In a randomized clinical trial of incarcerated men, the past-oriented interventions Seeking Safety and the Male-Trauma Recovery Empowerment Model were both effective in reducing PTSD and adverse mental health symptoms compared to the waitlist group (Wolff et al., 2015).

A comprehensive approach for trauma-informed reentry involves examining intervention points for both the incarceration and community reentry settings (Pettus-Davis et al., 2018). The reentry transition period is marked by substantial adjustment for incarcerated men, especially in the earliest reentry months (Arditti & Parkman, 2011; Mears, Wang, Hay, & Bales, 2008). Behaviors and cognitions reinforced in the incarceration setting may be considered maladaptive in communities, and this period of readjustment is stressful (Haney 2003; Pettus-Davis, 2014). Men reentering the community may lack formal supports (such as behavioral health access) which increases the stress of reentry (Mallik-Kane & Visser, 2008; Wheeler & Patterson, 2008).

One recently developed intervention approach for incarcerated men reentering society calls for an extensive focus on developing positive coping strategies and positive interpersonal relationships to promote productive community reentry (Pettus-Davis et al., 2018). Within this framework, traumatic events and coping skills can be addressed in a present-oriented manner. In the community setting, the emphasis is on the further development and implementation of coping and emotional regulation strategies, and the bolstering of interpersonal relationships (Pettus-Davis et al., 2018). This framework can serve as an effective model for trauma-informed

interventions for incarcerated men reentering society, especially when integrated with intervention modalities that address substance use, mental health, and emotional well-being.

More research is needed to inform the development and implementation of trauma-informed interventions that can address co-occurring substance use disorders, mental health diagnoses, and emotional well-being. There are a limited number of interventions administered to incarcerated men that incorporate trauma and mental health comorbidity (Pettus-Davis et al., 2018). Additionally, these interventions were not designed for incarcerated men and were developed for individuals who meet criteria for PTSD (Pettus-Davis et al. 2018; Zlotnick, Johnson, & Najavits, 2009). Further development and study of trauma-informed interventions that are appropriate for substance use disorders, mental health status, and emotional well-being can enhance individual-specific treatment for incarcerated men preparing to reenter society.

Limitations

The findings of this study should be interpreted cautiously and consider its methodological limitations. This study used cross-sectional data, and the associations between childhood trauma severity exposure and adult cumulative trauma exposure on key outcomes do not indicate a causal relationship. Longitudinal study designs are needed to empirically test the relationships between childhood trauma exposure severity and adult cumulative trauma exposure on substance use disorder symptomology, mental health status, and emotional well-being. The small study sample size limits the statistical power of the analyses, and these findings should be interpreted with caution. Another limitation is the utilization of participant self-report responses for data collection and analyses. It is possible that participants misrepresented responses in the interview setting, and the use of administrative data or clinical records may have bolstered the validity of our findings.

Conclusion

This study demonstrates potential pathways between childhood trauma exposure severity and adult cumulative trauma exposure on substance use disorder, mental health status, and emotional well-being among incarcerated men. Our findings are consistent with past research that has identified differences between childhood trauma and adult trauma exposure on mental health outcomes among incarcerated and non-incarcerated samples. New to the literature are the specific associations between childhood trauma exposure severity and adult cumulative trauma exposure onto symptomology that are consistent with substance use disorder, generalized anxiety disorder, or a major depressive episode among incarcerated men. Additionally, this study has established an empirical record of an association between childhood trauma exposure severity and reduced emotional well-being among incarcerated men. These findings suggest that childhood and adult trauma exposure are unique in their relationships with substance use disorder, mental health status, and emotional well-being among incarcerated men. Future research should consider using longitudinal studies to further examine the interrelationships between these constructs. Such studies can inform the development and implementation of trauma-informed interventions that are applicable to the incarceration and reentry settings.

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Table 1

Sociodemographic Characteristics (n=67)

	Mean/ N (%)	SD
Age	30.87	9.28
Race		
<i>White</i>	15 (22.4)	
<i>Person of Color</i>	52 (77.6)	
Childhood Trauma Exposure Severity	42.10	14.79
Adult Cumulative Trauma Exposure	5.81	3.28
Alcohol Use Disorder		
<i>Yes</i>	15 (22.4)	
<i>No</i>	52 (77.6)	
Substance Use Disorder		
<i>Yes</i>	25 (37.3)	
<i>No</i>	42 (62.7)	
Generalized Anxiety Disorder		
<i>Yes</i>	12 (17.9)	
<i>No</i>	55 (82.1)	
Major Depression		
<i>Yes</i>	9 (13.4)	
<i>No</i>	58 (86.6)	
Emotional Well-Being	69.31	21.49

Table 2

Regression Models for Childhood Trauma Exposure Severity, Substance Use Disorder, Alcohol Use Disorder, Generalized Anxiety Disorder, Major Depressive Episode, and Emotional Well-being

	Substance Use Disorder [95% CI] ^a	Alcohol Use Disorder [95% CI]	Generalized Anxiety Disorder [95% CI]	Major Depressive Episode [95% CI]	Emotional Well-being [95% CI]
Childhood Trauma Exposure Severity	1.00 [.96, 1.04]	1.01 [.97, 1.05]	1.10** [1.03, 1.11]	1.05* [1.00, 1.10]	-.34* [-.66, -.01]
Any Lifetime Mental Health Diagnosis	.26* [.07, .96]	.27 [.05, 1.33]	.00 [.00, .00]	.18 [.02, 1.75]	-19.55** 29.65, -9.45]
Race	10.56** [2.59, 43.22]	2.23 [.65, 7.63]	5.09 [.82, 31.5]	1.22 [.21, 7.02]	2.47 -9.51, 14.45]
Age	.97 [.92, 1.03]	1.00 [.94, 1.06]	.88* [.78, 1.00]	.94 [.85, 1.04]	.27 [-.26, .81]

^a Standardized coefficients from logistic regressions and unstandardized coefficients from linear regression are presented with 95% CI = confidence intervals. ** p < .01; * p < .05

Table 3

Regression Models for Adult Cumulative Trauma Exposure, Substance Use Disorder, Alcohol Use Disorder, Generalized Anxiety Disorder, Major Depressive Episode, and Emotional Well-being

	Substance Use Disorder [95% CI] ^a	Alcohol Use Disorder [95% CI]	Generalized Anxiety Disorder [95% CI]	Major Depressive Episode [95% CI]	Emotional Well-being [95% CI]
Adult Cumulative Trauma Exposure	1.35* [1.07, 1.70]	.99 [.80, 1.23]	1.03 [.80, 1.32]	1.03 [.82, 1.28]	.15 [-1.58, 1.87]
Any Lifetime Mental Health Diagnosis	.43 [.10, 1.79]	.25 [.05, 1.32]	.00 [.00, .00]	.22 [.02, 1.56]	-20.34** [-31.17, -9.52]
Race	12.28** [2.03, 74.34]	1.54 [.36, 6.55]	4.22 [.82, 21.71]	1.54 [.27, 8.65]	4.82 [-7.77, 17.40]
Age	.93 [.86, 1.01]	1.01 [.94, 1.08]	.96 [.88, 1.04]	.50 [.88, 1.06]	.16 [-.40, .73]

^a Standardized coefficients from logistic regressions and unstandardized coefficients from linear regression are presented with 95% CI = confidence intervals. ** p < .01; * p < .05

