

ADVERSE CHILDHOOD EXPERIENCES (ACEs) AND CO-OCCURRING DISORDERS
(CODs): IS THERE A RELATIONSHIP BETWEEN ACES, SUBSTANCE USE,
AND MENTAL HEALTH AMONG INMATES?

By

Skylar Nicole Crick

Courtney A. Crittenden
Associate Professor of Criminal Justice
(Chair)

Christina N. Policastro
Associate Professor of Criminal Justice
(Committee Member)

Tammy S. Garland
Professor of Criminal Justice
(Committee Member)

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ABSTRACT

Previous literature has shown that adverse childhood experiences (ACEs) are a factor in future criminal behavior, victimization, and overall health (DeLisi et al., 2017; Mersky et al., 2013; U.S. Centers for Disease Control and Prevention, 2020). Research has also found that co-occurring disorders (CODs) are prevalent among inmates with approximately half of inmates meeting the criteria of mental health and substance use disorders in previous studies (Butler et al., 2011; James & Glaze, 2006). The current study explores the relationship between ACEs and CODs, specifically in the areas of substance use and mental health. This study utilizes a secondary data analysis of an Inmate History and Needs survey completed by 166 inmates (59 females, 107 males) from three different rural jails in a southern state. Specifically, I examine if there is a relationship between ACEs and CODs among inmates. Additionally, I explore if CODs differ among male and female inmates and the relationship between parents, CODs, and living with their children prior to arrest.

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LIST OF ABBREVIATIONS

CODs, Co-occurring disorders

ACEs, Adverse childhood experiences

CHAPTER 1

INTRODUCTION

Childhood trauma has been a topic of much empirical exploration in various areas including medical health and criminal justice interaction (Bethell et al., 2014; Felitti et al., 1998; Siegel & Williams, 2003). These areas explore negative outcomes resulting from childhood trauma, specific forms of which have been identified as adverse childhood experiences (ACEs). ACEs are any form of trauma, maltreatment, or neglect experienced before the age of 18 (Felitti et al., 1998). The prevalence of multiple forms of childhood trauma has also led to the exploration into mental health issues and substance abuse as negative consequences (Kessler et al., 2010). Additionally, mental health issues and substance abuse are topics that have been explored in consideration of their co-occurrence (Woody & Blaine, 1979). That is, these negative outcomes often occur simultaneously and may ultimately be associated with each other.

ACEs are also an area of public concern due to the extremely high rates of ACEs among individuals involved with the criminal justice system (Altintas & Bilici, 2018; Baglivio et al., 2014; Baglivio et al., 2015). Those who are involved with the criminal justice system also experience mental health issues and substance use at high rates (Dierkhising et al., 2013; Grant et al., 2004; Mersky et al., 2013; Substance Abuse and Mental Health Services Administration, 2012). Due to these disproportionate rates of childhood trauma, mental health, and substance use among the incarcerated population, research into this population is increasingly needed to create appropriate and effective programming and intervention for those who are justice-involved.

Similarly, once individuals are involved with the criminal justice system, there is a higher likelihood that they will interact with the system again (Baglivio et al., 2014). Thus, exploration into ACEs and co-occurring disorders (CODs) may positively impact those within the criminal justice system as well as the system, and thus, the general public.

CHAPTER II

REVIEW OF LITERATURE

Adverse Childhood Experiences

More recent explanations for anti-social and maladaptive behaviors among adolescents and adults have stemmed from exploration into ACEs. Particularly, exploration includes the relationship between ACEs, trauma, associated stress, and later health as an adult (Bethell et al., 2014; Felitti et al., 1998). Felitti and colleagues (1998) initially identified ten risk factors of adverse childhood exposure in the late 1990s: physical abuse, emotional abuse, sexual abuse, emotional neglect, physical neglect, violent treatment towards mother figure, household substance abuse, household mental illness, parental separation or divorce, and having an incarcerated household member (Baglivio et al., 2014; Felitti et al., 1998). The results of the initial study encouraged further research into the cumulative effects of multiple forms of childhood maltreatment and trauma. As such, ACEs, overall health, and productivity as an adult have increasingly been explored among various populations. These populations vary from national health surveys, community-based city samples (i.e., Cronholm et al., 2015), and other specific populations of interest like extremists (i.e., Windisch et al., 2020), digital media users (i.e., Jackson et al., 2021), and samples from medical evaluation centers (i.e., Felitti et al., 1998). This highlights the growth and versatility of using ACEs to explore more than overall health.

The types of experiences included as ACEs have grown since Felitti and colleagues' (1998) preliminary study identifying them in the late 1990s. The 2016 National Survey of

Children's Health (NSCH) developed measurements including forms of economic hardship, death of a parent or guardian, and discrimination based on race or ethnicity to explore as forms of adverse exposure (Child and Adolescent Health Measurement Initiative, 2017). Additionally, while ACEs include direct experiences of individuals, they also include witnessing abuse and violence in the home. Notably, adverse experiences may be hard to recognize if there are no physical signs or maladaptive behaviors present that are easily identifiable. As a result, traumatic experiences that do not present in a physical manner such as physical abuse or neglect may be difficult for the public and even trained professionals to identify. Nevertheless, Thompson and colleagues (2020) noted that two specific ACEs, economic hardship and parent/caregiver divorce or separation, were strongly associated with other adverse experiences. This encourages potential increase in screening for the identification of individuals who may experience other forms of ACEs. That is, these risk factors may provide a basis for identifying adolescents who are at risk of experiencing other forms of ACEs.

While it is difficult to detect some forms of trauma, identifying economic hardship and parent/caregiver divorce or separation may provide practitioners the ability to use these ACEs as indicators of possible other forms of trauma. In other words, the presence of these factors may lead to further evaluations of individuals, and inversely, the absence of these ACEs may eliminate the need for further evaluation (Crouch et al., 2019; Thompson et al., 2020). Despite difficulty in primary prevention, it is possible to provide parent supportive services to prevent adverse exposure to children. Detection during childhood is advantageous as it may contribute to a greater chance of positive intervention and outcomes as opposed to identifying ACEs retrospectively for adults (Schilling et al., 2007). This allows for the possibility of secondary prevention to occur from trained professionals. This also encourages awareness among those

whose occupation involves working with children. In association, the access to a healthcare provider has been explored as this may be reflective of socioeconomic status and accessibility (Crouch et al., 2019). Healthcare professionals are not able to identify ACEs or provide interventions if they do not interact with certain individuals. Families who do not have access to affordable healthcare may avoid medical professionals and thus, detrimental health-related consequences as a result of ACEs may persist. This allows for negative consequences to continue and increase in severity if they are left untreated due to low economic status and inability to pay for medical treatment. These consequences also include adverse interactions with the criminal justice system and subsequent incarceration due to prevalent substance use, risky behaviors, and negative impacts on school performance for adolescents (Baglivio et al., 2014; Baglivio et al., 2015; Dube et al., 2003; Teague et al., 2008; Widom et al., 2018). Therefore, early detection and intervention is imperative to countering childhood trauma and negative adult outcomes that may result in involvement in the criminal justice system.

Prevalence of Adverse Childhood Experiences

The prevalence of ACEs remains a prominent issue globally. Kessler and colleagues (2010) found that the occurrence of ACEs is similar across countries that vary in income and economic status. Regardless of income level, rate of exposure to childhood trauma for the sampled countries was approximately 39% (Kessler et al., 2010). While economic hardship has been explored as a form of childhood trauma, these findings support the position that other forms of ACEs occur at a high rate independent of economic status or financial security.

While the trauma factors of economic hardship and parent/caregiver divorce or separation can be used as indicators of other potential ACEs, they have also been found to have the highest

prevalence of all ACEs (Crouch et al., 2019; Thompson et al., 2020). Indeed, parental divorce has been found to have a positive relationship with delinquency (Burt et al., 2008). Felitti and colleagues' (1998) initial study did not include economic hardship as a form of trauma in their analysis. Therefore, as research on ACEs has expanded, the prevalence of different trauma exposures and relationships among multiple ACEs have come to light. Research has also explored the compounding effect of multiple ACEs. Although a single traumatic experience may contribute to long-term effects and maladaptive behaviors, the experience of multiple traumatic events may increase the negative impact on overall health (Anda et al., 2010; Baglivio & Epps, 2016; Boullier & Blair, 2018; Dube et al., 2003; Felitti et al., 1998). For example, repeated exposure to ACEs often increases the prevalence of alcohol use, substance use, and poor overall health in early adulthood (Mersky et al., 2013). The prevalence of adverse experiences highlights the need to develop preventative measures to decrease childhood trauma and its' impact into adulthood.

Despite the importance of exploring ACEs and associated consequences, there are major limitations that include underreporting or avoidance of disclosure and difficulty in identifying and defining instances of abuse and/or neglect (Felitti et al., 1998). Identification of child maltreatment, specifically psychological maltreatment, may be difficult for parents as well as professionals in the field due to definitions and recognition of the behavior (Baker et al., 2021). Parents may also not be able to report experiences of their child(ren) if they are not aware of them. Similarly, individuals may find difficulty in disclosure of their victimization, especially if it is being identified retrospectively. While disclosure is often difficult, so is identifying and defining the experience as abuse as well as defining the type of victimization. As such, it can be

speculated that the prevalence of ACEs is highly underreported by adults and adolescents (Baker et al., 2021; Everson et al., 2008).

Consequences of Adverse Childhood Experiences

The effects of ACEs may manifest in different forms including emotional, psychological, and physical consequences (Campbell et al., 2016; DeHart, 2008; Kessler et al., 2010; Monnat & Chandler, 2016). In particular, childhood trauma has been connected to psychiatric problems and dissociative experiences (Altintas & Bilici, 2018), as well as an increased risk of mood disorders, anxiety disorders, and substance use disorders (Kessler et al., 2010). Similarly, another study found a relationship among adverse experiences and daily impairment due to anxiety and mood disorders (McLaughlin et al., 2010). In consideration of physical consequences, there is an association between ACEs and health-related issues such as diabetes, cardiovascular disease, and cancer (Campbell et al., 2016; Felitti et al., 1998). Moreover, Monnat and Chandler (2016) found a high occurrence of negative physical outcomes such as obesity and lack of exercise among adults who report a history of ACEs. The same study identified the relationship between mental health and negative coping mechanisms that affect the physical health of participants. Additionally, the researchers posit that psychological abuse may have greater negative effects on later health as compared to physical abuse, especially self-perceived health (Monnat & Chandler, 2016).

While these consequences have been identified, there are also other themes that have emerged. A qualitative exploration of ACEs by Windisch and colleagues (2020) found themes of loss of childhood innocence, self-blame, and being quick to anger. The researchers found that some study participants reported a change in mentality following a trauma exposure. For

example, reports of an altered mentality and lifestyle changes may be a consequence of sexual abuse (Windisch et al., 2020). Additionally, self-blame may also be a prevalent response to ACEs as children may attribute their mistreatment to themselves instead of the one who perpetrated it (Windisch et al., 2020). Another consequence may be a short fuse or reacting in a defensive manner (Windisch et al., 2020). This may be a defense mechanism in which those who experienced childhood trauma act in a way to protect themselves, similar to a “fight-or-flight” mentality.

Additionally, childhood sexual abuse has been explored as a prevalent form of victimization and revictimization. Finkelhor and colleagues (2007) found a pervasive relationship between childhood sexual abuse and the experience of recurring sexual abuse. That is, children who were sexually abused before the initial survey had approximately a six times increase in the chance of being sexually revictimized in the next year (Finkelhor et al., 2007). Dehart and colleagues (2014) reported that 86 percent of their sample of female inmates experienced sexual violence including molestation prior to the age of 16 and forcible rape after the age of 16. Another prevalent finding is the internalized shame, worthlessness, and withdrawal associated with victimization similar to self-blame identified by Windisch and colleagues (2020). These findings suggest that there are mental health consequences associated with physical and sexual abuse as a juvenile.

Aside from physical and emotional consequences, there are also negative educational and work consequences. Females have reported low educational attainment and poor academic performance due to a lack of parental support (DeHart, 2008). DeHart (2008) found that the lack of parent support coupled with emotional and sexual abuse also contributes to female adolescents’ inability to focus as well as a lack of motivation associated with schoolwork. Low

educational attainment and poor work performance, or inability to work, may contribute to low socioeconomic achievement. In other words, the lack of certain educational status may affect the ability to secure employment which may contribute to a lack of economic security. As such, intergenerational trauma is also a prevalent concept in the discussion of ACEs. One study found that mothers who reported emotional, physical, or sexual abuse in their own childhood were more likely to express concern for their own child(ren)'s wellbeing and developmental risk (Sun et al., 2017). Additionally, Sun and colleagues (2016) identify the long-term effect of trauma and ACEs on stability as an adult that contributes to the potential intergenerational effect that may produce another form of stress (Sun et al., 2016).

In association with economic hardship, food insecurity is also a form of adverse experiences. Research has shown there is an association between childhood trauma, low educational attainment, and successive low wages (DeHart, 2008). Thus, low wages may contribute to food insecurity and/or the lack of disposable income and, ultimately, impact intergenerational trauma. As financial instability and low educational attainment may present additional stress, Monnat and Chandler (2016) found that individuals with an income of 25,000 dollars or less had an increased risk of heart attack or cardiovascular health issues as did individuals with less than a high school diploma compared to those with a college degree (Monnat & Chandler, 2016). These increased risks and negative consequences associated with a lack of financial stability have the potential to contribute to adverse experiences of these individuals' children. Thus, the consequences of financially associated ACEs play a role in the potential for negative adult health outcomes and a cycle of intergenerational trauma. As a result, these negative consequences impact the likelihood of contact with the criminal justice system as well as self-reported offending (Dierkhising et al., 2013; Teague et al., 2008). While drug

offenses are prominent among those who experienced childhood trauma (DeHart et al., 2014), a relationship has also been found between severe physical abuse and a higher rate of self-reported violent and overall offending (Teague et al., 2008).

Co-occurring Disorders of Mental Health and Substance Use

As mentioned, emotional and psychological issues are a major consequence of ACEs, and these issues may result in negative coping mechanisms such as substance abuse. The exploration into the idea that individuals could suffer from multiple disorders that occur at the same time was pioneered by researchers Woody and Blaine (1979). This research sought to explain the relationship between depression and substance use disorders as CODs (Woody & Blaine, 1979). Substance use disorders and psychiatric disorders have been shown to experience a high prevalence of co-occurrence. Grant and colleagues (2004) used data from the National Epidemiological Survey on Alcohol and Related Conditions (NESARC) to analyze the prevalence of co-occurring substance use disorders and certain psychiatric disorders and found that out of those in the general population who identified a substance use disorder, 20 percent had at least one type of mood disorder and 18 percent had an anxiety disorder (Grant et al., 2004). Similarly, the 2019 National Survey on Drug Use and Health (NSDUH) (2020) found that approximately 25% of adults 18 years and older had either any mental health issue or a substance use disorder (SAMSHA, 2020). In consideration of the co-occurrence of mental health, approximately 12% of the population 12 years and older experienced some form of mental health issue and substance use in the previous year (SAMSHA, 2020).

The prevalence of mental health issues and substance use also highlights the need for treatment among approximately one-fourth of the general population (Grant et al., 2004;

SAMSHA, 2004, 2012, 2021). The NSDUH found that only six percent of individuals with CODs received both mental health and substance abuse treatment in the past year (SAMSHA, 2004). In comparison, a later NSDUH in 2019 found that only about eight percent of individuals with CODs received treatment for both issues (SAMSHA, 2020). These national studies highlight the persistent issue of CODs of mental health issues and substance use within the United States. In a similar vein, this population of individuals with CODs also have higher rates of current unemployment, poor health, residential instability, and arrest in the past year (SAMSHA, 2013). The NSDUH reported that 15.9 percent of individuals with CODs were arrested in the past year compared to 12.6 percent and approximately two percent of individuals who had any substance use disorder only and any mental illness only, respectively (SAMSHA, 2013). Indeed, James and Glaze (2006) found that inmates with mental health issues are more likely to be dependent on substances, to be violent recidivists, and to have served three or more prior sentences.

Criminal Justice Involvement

Research has found a relationship among ACEs and risky behavior, depressed mood, and substance use (Anda et al., 2006; Felitti et al., 1998). Notably, risky behavior and substance use may lead to interactions with the criminal justice system. The history of ACEs and victimization often results in individuals with maladaptive and anti-social behaviors as coping mechanisms that may contribute to involvement with the criminal justice system (Baglivio et al., 2014; DeHart et al., 2014). The phenomenon of the victim-offender overlap is pervasive among ACEs and offending. For instance, Baglivio and colleagues (2014) found that ACEs increased the likelihood of involvement in the criminal justice system among youths and increased the risk of

reoffending. Adolescents who have experienced one or more ACEs have an increased risk of recurring interaction with the criminal justice system once they have initially offended (Baglivio et al., 2015). The chance of reoffending as a juvenile also leads to potential justice system interaction as an adult. Individuals who were first arrested as juveniles reported a higher number of traumatic events compared to individuals who were first arrested as adults (Carlson & Shafer, 2010). These findings support the idea that ACEs may contribute to later offending and maladaptive behaviors as an adult.

Moreover, a gender-responsive approach has been supported as females report a significantly higher rate of PTSD compared to males (Dierkhising et al., 2013) as well as higher rates of mental health problems (James & Glaze, 2006). While men have higher rates of offending compared to women and make up the majority of the incarcerated population (92%), the relationship between previous trauma, substance use, and mental health is a critical area of focus among all of those with criminal justice involvement (Carson, 2020). Indeed, women are incarcerated at a disproportionate rate for drug crimes compared to men although they make-up a significantly smaller percentage of the incarcerated population (Carson, 2014). Ultimately, the association among sex, childhood trauma, and CODs shows a pervasive relationship between victimization and offending with specific sex differences (DeHart et al., 2014; Teague et al., 2008). This relationship has been referred to as a cycle in which individuals' use of substances as a coping mechanism for childhood trauma leads to criminal behavior and, thus, interaction with the criminal justice system (Altintas & Bilici, 2018).

Previous research has also found gender differences in the types and prevalence of ACEs between men and women. In addition, DeHart (2008) identified a relationship for women between childhood trauma and subsequent criminal offending. Green and colleagues (2016)

found that approximately two-thirds of the female inmates in their sample had at least one lifetime mental disorder and 83 percent reported at least one substance use disorder. In particular, participants who were older and not employed prior to incarceration had an association with substance use disorder (Green et al., 2016). This study found a dose-response relationship among trauma exposure and mental disorders, including bipolar disorder and post-traumatic stress disorder (PTSD) (Green et al., 2016). That is, the amount of exposure to trauma was found to be related to the negative outcomes of bipolar disorder and PTSD. DeHart and colleagues (2014) also found similar rates of mental illness and substance use disorder as half of females in this study met the criteria for a serious mental illness and 85 percent reported a substance use disorder. Adult female inmates have also reported higher rates of sexual abuse compared to males (Chen & Gueta, 2016). In response to offending, research has found that sexual abuse victims, especially females, have a higher likelihood of being arrested as an adult compared to men (Siegel & Williams, 2003). Females who experienced sexual abuse in childhood were more likely to be arrested for drug offenses as an adult (Siegel & Williams, 2003). Thus, this research begs the discussion of pathways to offending in response to gender.

Juveniles

Although research on exposure to ACEs varies in prevalence, it is conservatively estimated that approximately half of all children have experienced at least one form of ACE (Bethell et al., 2014; Felitti et al., 1998; Mersky et al., 2013), and those individuals who experienced one form of ACE also had an increased probability of experiencing another form of ACE (Felitti et al., 1998; Mersky et al., 2013). In response to ACEs, juveniles involved with the justice system have shown higher rates of adverse experiences compared to juveniles in the

general population with up to 92 percent of juveniles involved in the justice system experiencing at least one form of traumatic exposure (Abram et al., 2004; Dierkhising et al., 2013). Juveniles who have experienced various forms of adverse exposure also have high rates of substance and alcohol use as well as a high prevalence of posttraumatic stress disorder (PTSD) (Dierkhising et al., 2013). For example, the 2017 National Survey on Drug Use and Health reported that approximately five million adolescents participated in problematic substance use (Substance Abuse and Mental Health Services Administration, 2018). Similarly, as of 2019, approximately four percent of the juvenile population ages 12 to 17 met the criteria for a substance use disorder (Substance Abuse and Mental Health Services Administration, 2020). As such, it is reasonable to assume there is a link between childhood trauma and co-occurring mental health and substance use disorders among justice-involved youth. The relationship between ACEs and recidivism is also pertinent as juvenile offenders who report more ACEs have higher rates of recidivism compared to juvenile offenders who report fewer ACEs (Craig et al., 2017; Fox et al., 2015). This also impacts the system as a whole because justice-involved youth who have higher rates of recidivism and are more likely to come into contact with the system as an adult (Loeber et al., 2008; Tracy & Kempf-Leonard, 1996).

Additionally, housing insecurity or homelessness is a pervasive aspect of childhood trauma. In one study on childhood homelessness, only approximately three percent of participants who reported homelessness did not report at least one form of ACE (Radcliff et al., 2019). Thus, the vast majority of participants (approximately 97%) who reported homelessness also reported at least one or more ACEs. A startling finding of the same study is that approximately 74 percent of adults who reported homelessness as a child also reported four or more ACEs and identified housing insecurity as another measure of adverse experiences

(Radcliff et al., 2019). Victimization, in particular childhood victimization, may result in a loss of a secure home. DeHart (2008) identified a relationship for women between childhood sexual abuse and subsequent criminal offending such as running away and substance use (DeHart, 2008). Juveniles who have experienced childhood sexual abuse have shown a higher likelihood of attempting to run away (Siegel & Williams, 2003). The attempt to run away often occurs among females as a mechanism to escape the abuse (Siegel & Williams, 2003). Upon leaving the home, adolescents may experience homelessness and subsequent substance use due to living on the street (Tompsett et al., 2013). These individuals may also escape abuse in the home just to be subject to abuse from those encountered while on the street (DeHart, 2008). This includes individuals using sex-work as a trade for food and/or shelter as well as an introduction to illicit substances that may be used as a coping mechanism for the lack of a stable home (DeHart, 2008). Ultimately, participation in sex-work and the use of illicit substances may lead to encounters with the criminal justice system as these are considered criminal offenses.

Adults

Van der Feltz-Cornelis and colleagues (2019) explored general revictimization and found it to occur more frequently in adults who reported a higher number of ACEs compared to the adults who reported a low ACE score (Van der Feltz-Cornelis et al., 2019). High ACE scores were four or greater ACEs and low scores were less than four (Van der Feltz-Cornelis et al., 2019). These findings suggest the correlation between ACEs and adult adverse experiences (AAE) may be discussed with the concept of polyvictimization, or the exposure to multiple forms of victimization (Finkelhor et al., 2007), which was initially explored in regard to child maltreatment and has been related to ACEs and outcomes (Turner et al., 2010). This concept can

be applied to childhood maltreatment that may continue into adult victimization as well as multiple forms of victimization that occur once in adulthood. In particular, those involved with the criminal justice system have been identified as a subgroup of poly-victims (Ford, 2017). Overall, Bethell and colleagues (2014) highlight the importance and continuing research into ACEs among children and adults, particularly longitudinal research to explore potential preventative practices and protective factors against negative outcomes.

Similar to juveniles, adult prison inmates report a high prevalence of ACEs and trauma (Altintas & Bilici, 2018). Indeed, Altintas and Bilici (2018) found that 37 percent of inmates in their study experienced physical neglect and 68 percent experienced emotional neglect during their lifetime. Similarly, Dube and colleagues (2001) found that 64 percent of inmates in a study on suicide attempts and ACEs reported experiencing at least one form of adverse exposure as a child. Suicide attempts have also been linked to maladaptive coping behaviors such as alcohol and drug abuse as well as mental health issues (Callanan & Davis, 2012). Previous research has found that females are more likely to attempt suicide with medication whereas males are more likely to complete suicide with a firearm (Callanan & Davis, 2012). Additionally, female inmates who attempt suicide are more likely to report childhood trauma including sexual victimization and history of psychiatric disorders (Altintas & Bilici, 2018).

The exploration into a population of female and male jail inmates may add to the existing literature of ACEs and CODs. Moreover, there are many more individuals who cycle through jails as opposed to prison each year, and this may provide the opportunity to reach a more diverse sample if jail populations are used. For example, women in jail experience high rates of trauma exposure and psychiatric disorders (Green et al., 2016; James & Glaze, 2006). A national sample of female jail inmates found that the majority (85%) of participants had a lifetime

substance use disorder, approximately half had a serious mental illness, and reported high rates of ACEs as well as victimization as an adult (DeHart et al., 2014). Additionally, LeBel and Rose (2020) found that female inmates in jail experienced approximately five ACEs on average and approximately 60% scored four or higher on the ACEs scale. As previously mentioned, research has found different rates of ACEs for males and females, and this may account for the frequent use of female-only samples (Johns et al., 2021). However, samples that include male and female inmates allow for greater comparison.

CHAPTER III

METHODOLOGY

Current Study

As previous literature has highlighted, there are a multitude of consequences in relation to childhood trauma. Prevalent consequences include mental health issues and substance use which can lead to involvement with the criminal justice system (Baglivio et al., 2014; Van der Feltz-Cornelis et al., 2019; Grant et al., 2004; SAMSHA, 2013). The aim of the current study is to examine the relationship between ACEs and the co-occurrence of mental health issues and substance abuse among inmates. Specifically, there is consideration for sex differences and parental status. This study utilizes a secondary data analysis from an Inmate History and Needs Survey to answer the following research questions:

RQ1- Is there a relationship between an inmate's experience of ACEs and later CODs?

RQ2- Do rates of CODs differ among male and female inmates?

RQ3- For parents, is there a relationship between CODs and living with children prior to incarceration?

Data and Sample

In order to explore the current research questions this study utilizes a secondary data analysis from an Inmate History and Needs Survey. The use of secondary data provides prompt availability and affordability of data for examination of current issues without inconvenience to

participants (Vartanian, 2011). In this case, the current epidemic of substance abuse and mental health issues can be explored in relation to ACEs through the use of a secondary data collection. There is also the benefit of re-analysis and re-interpretation of existing data to explore new research questions and add to the versatility of the data collection (Johnston, 2017).

In 2019, the original survey explored demographic characteristics, inmate history, inmate needs, and perceptions on drug use and policies among inmates.¹ In particular, the goal was to evaluate the need for specialized jail- and community-based drug addiction and recovery services. This voluntary survey was originally administered to 59 females and 107 males by several trained researchers from the research team at three rural Tennessee jails. The rural jails were located in Grundy, Marion, and Sequatchie Counties. These facilities were selected as the result of a convenience sample of jail administrators who agreed to give access to the research team. Each survey was conducted in-person and assigned a code number that cannot be identified or connected to any participant. The original data was collected by the research team and previously approved by IRB. Due to the use of a secondary data analysis technique, the current study was exempt from IRB review.

Measures

Dependent Variable

Co-occurring Disorders. The main variable of interest in this study is conceptualized as substance use and mental health issues that occur at the same time. This variable was created as a

¹ For more specific information about the study and sampling techniques please see Dierenfeldt, R., Garland, T., Policastro, C., & Crittenden, C. (2019). *Drug abuse and recovery in rural Tennessee communities: A needs assessment.* (Technical Report).

summative scale of mental health including self-reported substance and alcohol use, and includes if participants had used marijuana, cocaine, crack cocaine, methamphetamine, pain pills, heroin, fentanyl, ecstasy/molly, LSD, PCP, psilocybin mushrooms, other non-prescribed substances, and/or other illegal drugs. Marijuana is one of the most widely used illicit drugs and it was reflected in the sample (SAMSHA, 2020). Moreover, research suggests that marijuana is often used to self-medicate symptoms of mental illness which may be reflected in these findings, however, cannot be definitively established (Earleywine, 2005; Miech et al., 2015; Sznitman & Zolotov, 2015). Due to the prevalence of use among the current sample (95.2%) and potential use for self-medication purposes, marijuana was not included in the drug scale for the purpose of this study. The mental health variable explored if participants experienced any mental health related issues including anger issues, anxiety/nervousness, depression, bipolar disorder, borderline personality disorder, post-traumatic stress disorder (PTSD), suicidal thoughts, and/or other. These variables were used to create a summative index capturing the co-occurrence of mental health issues and substance use among the sample of inmates. As depicted in Table 1, the variable had an original scale of 10; however, due to low cell counts for nine and 10, the range was truncated at eight. The original mean (3.62) was minimally affected ($\bar{x} = 3.60$, $SD = 2.19$) after truncation. Other measures of central tendency remained the same.

Independent Variables

Adverse Childhood Experiences. The independent variable includes a summative variable of ACEs, which explores any exposure to adverse and/or traumatic experiences as well as household dysfunction in childhood (Felitti et al., 1998). The survey posed 10 questions to measure ACEs prior to the age of 18 based upon existing measures from Felitti and colleagues

(1998). For example, this variable included “yes” or “no” responses to questions such as “Did a parent or other adult in the household often push, grab, slap, or throw something at you or ever hit you so hard that you had marks or were injured?” Other questions include “Did you live with anyone who was a problem drinker or alcoholic or used street drugs?” and “Was a household member depressed or mentally ill or did a household member attempt suicide?” The scale had a mean of 3.77 (SD = 2.81) and a range of 10 (see Table 1).

Sex. Sex was measured with the question, “What is your sex?” The responses were dichotomized into “male” or “female.” The original survey included the response of “other” with the opportunity to specify one’s sex; however, no participants indicated “other” as a response. As shown in Table 1, 64.5% (n = 107) of the respondents were male and 35.5% (n = 59) were female.

Sexual Orientation. This variable was measured with the question, “What is your sexual orientation?” The responses included: “heterosexual,” “bisexual,” “homosexual,” or “other.” Once again, the “other” response allowed for respondents to specify their sexual orientation. As shown in Table 1, the vast majority of the sample identified as heterosexual (93.4%). Respondents who identified as bisexual comprised 4.8% (n = 8) of the sample while those who identified as homosexual made up 1.2% (n = 2) and those who identified as “other” made up 0.6% (n = 1) of the sample. For the purpose of analysis, sexual orientation was dichotomized into “heterosexual” and “non-heterosexual” due to lack of variation. Thus, 93.4% (n = 155) of the sample was heterosexual and 6.6% (n = 11) was non-heterosexual.

Race. Race was measured by asking the respondents: “What is your race/ethnicity?” The variable was originally measured with the responses of “white (non-Hispanic),” “black/African American,” “Hispanic/Latino,” “Asian,” “Native American/Alaskan Native,” “multi-racial,” or

“other.” Table 1 depicts the univariate statistics of the variable. The majority of the respondents were white and comprised 97% (n = 161) of the sample. The sample also included 1.2% (n = 2) of participants who identified as black/African American, 0.6% (n = 1) who identified as Native American/Alaskan Native, 0.6% (n = 1) who identified as multi-racial, and 0.6% (n = 1) who identified as other. Race was dichotomized into the categories of “white” and “non-white” due to the vast majority of the sample who self-identified as White. As a result, 97% (n = 161) of the sample was white and 3% (n = 5) was non-white. The racial make-up of this sample is to be expected as participants were housed in rural county jails in a southern state. According to the U.S. Census, the counties in which these jails are located have a racial make-up of between 93.1-97% white (U.S. Census Bureau, 2020).

Age. Age was measured with the question, “What is your current age?” It was measured in years and allowed participants to identify their own age. The mean of this continuous variable was approximately 35 years (SD = 9.16) and had a range of 19 to 61 years of age (see Table 1).

Employed Prior to Arrest. This variable was measured by asking the question, “Prior to arrest, were you employed?” The response categories included “yes” or “no.” As shown in Table 1, the majority of respondents (59%) were employed prior to arrest, with 41% (n = 68) reporting that they were not employed prior to arrest.

Charge Type. The type of charge an inmate was incarcerated for was measured by asking the participants, “What is your current criminal charge?” It was an open-ended question in which the responses were recorded and then categorized into five different charge types. The categories included: violent charge, drug charge, property charge, parole violation, and other. For example, the violent charge category included responses such as aggravated assault, domestic assault, and homicide. The self-reported charges of drug possession and the sale and manufacture of

methamphetamine fell into the drug charge category. The property charge category included responses of theft and aggravated burglary. Parole violation was recorded for those who indicated their crime involved a violation of parole. The “other” category included charges that did not relate to the previous categories such as evading, failure to appear, and driving on a revoked license. In some cases, respondents had multiple charges reported to the researchers, as such, all current charges were recorded. Table 1 depicts the univariate statistics of charge type. The majority of the sample, 33.7% (n = 56) reported a current drug charge, 16.9% (n = 28) reported a current violent charge, 21.7% (n = 36) reported a current property charge, 24.7% (n = 41) reported a current parole violation charge, and 27.1% (n = 45) reported a current charge that was grouped into the “other” category.

Children Lived with Prior to Arrest. This variable was used to measure if the participants had any children that lived with them prior to arrest. The question posed by the researchers was, “Did any of your children live with you prior to arrest?” The response categories included “yes” or “no.” There were 62.3% (n = 81) of participants who had any child(ren) living with them prior to arrest and 37.7% (n = 49) who did not (see Table 1).

Table 1 Characteristics of sample

Variable	<i>n</i>	%	\bar{x}	SD	Range
COD scale			3.60	2.19	0-8
ACE scale			3.77	2.81	0-10
Age			35.13	9.16	19-61
Sex					
Male (1)	107	64.5			
Female (0)	59	35.5			
Sexual Orientation					
Heterosexual	155	93.4			
Bisexual	8	4.8			
Homosexual	2	1.2			
Other	1	0.6			
Race					
White	161	97			
Black/African American	2	1.2			
Native American/Alaskan Native	1	.6			
Multi-racial	1	0.6			
Other	1	0.6			
Employed prior to arrest					
Yes (1)	98	59			
No (0)	68	41			
Charge Type					
Violent	28	16.9			
Drug	56	33.7			
Property	36	21.7			
Parole Violation	41	24.7			
Other	45	27.1			
Children lived with prior to arrest					
Yes (1)	81	62.3			
No (0)	49	37.7			

n = 166

Analytic Plan

Given the goal of the current study, univariate, bivariate, and multivariate analyses were employed. The univariate analysis was conducted to provide the frequencies and percentages of the categorical demographic variables and the mean, standard deviation, and range of the continuous variables. The bivariate analysis includes the use of a chi-square analysis as well as

an independent sample *t*-test to explore the research question regarding sex and experience with CODs. In order to further explore the ACEs, mental health issues, substance use, and CODs variables, there were dummy variables created for each. That is, dichotomous variables were created for any ACEs reported where any ACEs (=1) and no ACEs (=0). This was also done for the other variables where any mental health issues (=1) and no mental health issues (=0), any substance use (=1) and no substance use (=0), and any CODs (=1) and no CODs (=0). These variables were created to continue with statistical analysis that requires binary variables due to the use of a chi-square analysis and ordinary least squares regression (Gau, 2019). The chi-square analysis was conducted due to the categorical nature of the variables (Gau, 2019). The *t*-test was conducted to explore the influence of sex on the ACEs scale and the CODs scale variables. This test was conducted due to the categorical nature of the sex variable and the continuous nature of the ACEs and CODs scale variables (Gau, 2019). In order to explore the association of ACEs, sexual orientation, race, age, sex, living with child(ren) prior to incarceration, type of charge, and employed prior to arrest with the CODs continuous dependent variable, a multiple regression was employed (Gau, 2019). Ordinary least squares was used to analyze the factors that may influence the continuous dependent variable of CODs. This allows for analysis of both categorical and continuous independent variables (Gau, 2019). However, the categorical variables must be dichotomous and, as a result, the categorical independent variables used are binary. This analysis also allows for multiples independent variables to be included to explain variance in the dependent variable (Gau, 2019).

CHAPTER IV

FINDINGS

Bivariate Analysis

There were univariate, bivariate, and multivariate analyses employed in order to adequately analyze the data. Table 1 contains the results of the univariate statistics of the sample. To address the second research question, the influence of sex was examined in relation to the main dependent and independent variables using a chi-square analysis. This analysis was used due to the categorical nature of the variables (Gau, 2019). Table 2 depicts the crosstab analysis of the bivariate results of sex and multiple variables of interest. A significant association was found between sex and multiple variables, with a significantly higher percentage of women being incarcerated for a drug charge, reporting any mental health issues, and reporting any CODs. 44.1% of women compared to 28% of men were incarcerated for a drug charge. Additionally, 93.2% of women compared to 79.4% of men reported any mental health issues and 96.6% of women compared to 86.9% of men reported any CODs. Only one variable was found to have a significantly greater percentage of men: prior employment. 68.2% of men compared to 42.4% of women were employed prior to arrest. All other variables: children lived with prior to arrest, any ACEs, and any substance use were found to be not significant with sex.

Table 2 Influence of sex

	Female % (n)	Male % (n)	χ^2
ACEs (any)	94.8% (55)	85.7% (90)	3.159
CODs (any)	96.6% (57)	86.9% (93)	4.104*
Mental Health (any)	93.2% (55)	79.4% (85)	5.468*
Substance use (any)	94.9% (56)	95.3% (101)	.011
Drug charge	44.1% (26)	28.0% (30)	4.372*
Violent charge	10.2% (6)	20.6% (22)	2.928
Property charge	22.0% (13)	21.5% (23)	.006
Parole violation	32.2% (19)	20.6% (22)	2.772
Other charge	22.0% (13)	29.9% (32)	1.193
Children lived with prior	55.9% (33)	44.9% (48)	1.866
Employed prior	42.4% (25)	68.2% (73)	10.509***

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$

To analyze the relationship between sex and the ACEs scale and CODs scale, an independent sample t-test was conducted due to the categorical nature of sex and the continuous nature of the CODs and ACEs variables (Gau, 2019). Table 3 depicts the comparison of means using a t-test for the bivariate analysis of sex and ACEs and CODs. There was a significant difference found for both scales. The average ACE score for women ($\bar{x} = 4.91$, $SD = 2.92$) was significantly higher than the average ACE score for men ($\bar{x} = 3.13$, $SD = 2.54$), $t(164) = 3.24$, $p < .001$. Similarly, the average CODs score for women ($\bar{x} = 4.32$, $SD = 2.10$) was significantly higher than the average CODs score for men ($\bar{x} = 3.21$, $SD = 2.14$), $t(161) = 4.06$, $p < .001$.

Table 3 Relationship between sex and ACEs scale and CODs scale

	Female		Male		t	df
	\bar{x}	SD	\bar{x}	SD		
ACEs Scale	4.91	2.92	3.13	2.54	3.24***	164
CODs Scale	4.32	2.10	3.21	2.14	4.06***	161

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$

For the third research question, a t-test was also used to explore the relationship between CODs and children living with participants prior to incarceration. Table 4 depicts the comparison of means using a t-test analysis of living with children prior to incarceration and CODs. There was no significant finding for this analysis. Inmates who had children living with them prior to incarceration reported an average of 3.53 (SD= 2.31) CODs and inmates who did not have their children living with them prior to incarceration reported an average of 3.67 (SD= 2.08) CODs, $t(164) = .411, p > .05$.

Table 4 Relationship between CODs and living with children prior to incarceration

	Yes		No		<i>t</i>	df
	\bar{x}	SD	\bar{x}	SD		
CODs Scale	3.53	2.31	3.67	2.08	.411	164

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$

Multivariate Analysis

The first research question was addressed with a multiple regression analysis. Ordinary least squares was used to examine the dependent variable, CODs, with ACEs, sexual orientation, race, age, sex, living with child(ren) prior to incarceration, type of charge, and employed prior to arrest. The use of ordinary least squares allows for the dependent variable to be continuous and the independent variables to be continuous or categorical so long as the categorical variables are binary (Gau, 2019), thus this model was used to analyze the relationship among multiple independent variables and the variable of interest, CODs. The regression model was statistically significant ($p < .001$) and produced an R-squared value of .349 which indicates that the model explained 34.9% of variance in the dependent variable (Gau, 2019). Only two variables were

found to be associated with experiencing the CODs of mental health issues and substance abuse. The results indicate that a change in one standard deviation in age results in a .218 standard deviation increase in CODs, $\beta=.218$, $t(11)= 2.533$, $p< .05$, holding all else constant. The beta of .218 indicates that age is a moderate predictor of CODs (Gau, 2019). Also, a change in one standard deviation in ACEs results in a .493 standard deviation increase in CODs, $\beta=.493$, $t(11)= 5.657$, $p< .001$, holding all else constant. The ACEs variable was the strongest predictor of CODs with a very strong beta of .493 (Gau, 2019). All other variables were found to be not statistically significant.

Table 5 Regression of experiencing CODs

Variable	β	SE
ACEs scale	.493***	.067
Race (White=1)	-.004	1.152
Sex (male=1)	-.149	.393
Age	.218*	.022
Heterosexual (=1)	-.053	.772
Children lived with prior to incarceration (yes=1)	-.025	.365
Employed prior to arrest (yes=1)	-.032	.367
Charge drugs (=1)	.045	.412
Charge violent (=1)	.149	.523
Charge property (=1)	.049	.463
Charge parole violation (=1)	.065	.458
Constant		1.651
R-squared	.349***	
F-ratio	5.604***	

Notes: * $p<.05$. ** $p<.01$. *** $p<.001$

The significance of ACEs provoked further exploration into an analysis of ACEs as the variable of interest. Thus, a regression of ACEs was conducted with the independent variables: sexual orientation, race, age, sex, living with child(ren) prior to incarceration, type of charge, and

employed prior to arrest. This regression model was statistically significant ($p < .001$) and the R-squared value of .254 indicates that the model explains 25.4% of variance in the ACEs variable (Gau, 2019). There were three variables found to be significantly related to ACEs scores: sex, age, and violent charge. On average, males scored .265 standard deviations lower than females on the ACEs scale, $\beta = -.265$, $t(10) = -2.970$, $p < .01$, holding all else constant. The beta weight of -.265 indicates that sex is a moderate predictor of ACEs (Gau, 2019). On average, individuals with a violent charge scored .182 standard deviations higher than those who do not have a violent charge, $\beta = .182$, $t(11) = 2.071$, $p < .05$, holding all else constant. The beta weight of .182 indicates that violent charge is a weak predictor of ACEs (Gau, 2019). Also, a change of one standard deviation in age results in a .310 standard deviation decrease in ACEs, $\beta = -.310$, $t(11) = -3.568$, $p < .001$, holding all else constant. The beta weight of -.310 indicates that age is a strong predictor of ACEs and is the strongest predictor in the model (Gau, 2019). All other variables were not statistically significant.

Table 6 Regression of ACEs

Variable	β	SE
Sex (male=1)	-.265**	.525
Race (white=1)	-.059	1.595
Age	-.310***	.029
Heterosexual (=1)	-.052	1.070
Children lived with prior to incarceration (yes=1)	-.075	.504
Employed prior to arrest (yes=1)	-.132	.516
Charge drugs (=1)	.067	.571
Charge violent (=1)	.182*	.712
Charge property (=1)	-.051	.641
Charge parole violation (=1)	-.120	.631
Constant***		2.064
R-squared	.254***	
F-ratio	3.940***	

Notes: * $p < .05$. ** $p < .01$. *** $p < .001$

CHAPTER V

DISCUSSION

The primary purpose of this study was to explore ACES and CODs among inmates. This study utilized a secondary data analysis of an inmates' history and needs assessment survey to contribute to the extant literature regarding trauma, substance use, and mental health among inmates with consideration of sex. In an effort to explore adverse experiences and negative consequences of jail inmates, this study analyzed multiple variables that may be important for this area of research including sex, age, sexuality, employment, charge type, and living situation with children prior to arrest. As such, the findings of this study contribute to the literature on ACEs and inmates who are housed in a jail, not a prison.

Notably, inmates in the sample reported extremely high rates of drug use (95%), mental health issues (85%), and ACEs (89%). Despite the exclusion of marijuana from the drug use category, the sample still reported extremely high rates of drug use. While high rates were expected from an incarcerated sample, these findings were higher than expected. According to the Bureau of Justice Statistics, 83.5% of sentenced jail inmates reported ever using any drug (Bronson et al., 2017). Additionally, 78% of inmates had ever used marijuana (Bronson et al., 2017) whereas 95.2% of jail inmates had ever used marijuana in the sample for this study. Indeed, there are notable takeaways from my study including differences in sex regarding higher rates of COD and ACEs for females as well as a significantly higher percent of females reporting

any mental health issues and any CODs compared to males. Additionally, there was a positive relationship between ACEs and CODs.

Overall, male and female inmates were found to differ in their rates of CODs and ACEs. Females experience significantly higher rates of ACEs and CODs compared to males. This was only significant for CODs in the bivariate analysis. When all other demographic variables were taken into account through multivariate analysis then sex fell out of significance. This is in line with previous research that has shown females experience high rates of physical and sexual abuse as well as substance use disorders and mental illness (Baglivio & Epps, 2016; DeHart, 2008; DeHart et al., 2014; Fazel et al., 2006; Green et al., 2016; James & Glaze, 2006; National Institute on Drug Abuse, 2008). While the initial study conducted by Felitti and colleagues (1998) also explored physical health consequences of ACEs including obesity and sexually transmitted diseases, the findings of this study support the relationship found among ACEs, substance use, and mental health issues. There may also be a relationship among multiple different adverse experiences that occurs through polyvictimization that contributes to CODs. This potential relationship could also increase the prevalence of substance use and mental health issues, especially among females.

In a similar vein, a significantly higher percentage of females were found to experience any mental health issues and any CODs compared to males. Prior research supports the findings of mental health as female inmates report higher rates of mental illness compared to men (Steadman et al., 2009). The focus on inmates also contributes to the literature regarding ACEs by highlighting the prevalence of childhood trauma among the incarcerated jail population. Globally, it is estimated that 40% of people have experienced ACEs (Kessler et al., 2010), this study also supports the argument that inmates have an extremely high prevalence of ACEs with

89% of the sample reporting at least one ACE. In turn, this finding supports the calls for early intervention in childhood trauma to mitigate negative outcomes which may include interaction with the criminal justice system. Due to the sex differences identified in this study, there is support for the argument that males and females experience and cope with traumatic experiences in distinct ways (i.e., Belknap, 2007; Salisbury & van Voorhis, 2009). This includes differences in offending or potential pathways to offending. Moreover, there has been a push for a gender-responsive approach to corrections that sex differences found in this study support. These findings include the higher rates of CODs and ACEs for females, as well as the significantly higher percent of females who reported mental health issues compared to males (Covington & Bloom, 2007).

There was also a positive relationship between ACEs and CODs. That is, as ACEs increase, so do CODs. Similar to findings from previous research (see Anda et al., 2006), multiple forms of childhood trauma increase negative consequences and coping mechanisms such as substance use and depression. Due to ACEs being explored as a form of childhood trauma before the age of 18, there is also the possibility that these forms of trauma occurred before the CODs of mental health and substance abuse. This is important because there is potential to infer causality among ACEs, mental health issues, and CODs. If there is a causal relationship, then there are critical implications for prevention of later CODs; and as such, contributes to the extant literature regarding ACEs. These findings also align with previous research (see Lensch et al., 2021) of a positive association between CODs and ACEs. That is, as CODs increase, so do ACEs. Indeed, as previous studies have shown, there is support for a relationship between multiple traumatic experiences in childhood, mental health issues, and substance use (Anda et al., 2010; Mersky et al., 2013).

Limitations

Despite pertinent findings, this study is not without limitations. A major limitation of this data is the lack of variation in the demographic make-up of the sample as well as the topics of interest: ACEs, mental health issues, and substance use. Since the original survey was conducted in three rural counties in a southern state, there is also a lack of demographic diversity among the data. Despite this limitation, the exploration of a rural sample is also a strength. There is limited existing research regarding rural contexts (Bales & Garduno, 2016). As a result, the race and sexuality variables were dichotomized into white and non-white and heterosexual and non-heterosexual, respectively, and therefore, do not provide specific findings for various groups that fall into the “non-” categories. These variables were dichotomized to continue with statistical analysis because the vast majority of the sample was white (97%) and heterosexual (93.4%). In order for cell counts to be appropriate for statistical analysis, this step had to be taken to explore the data. This is a limitation as it does not contribute to the much needed research into inmates who are not heterosexual, cisgender, and/or white individuals. Apart from demographic diversity, the sample also had a lack of diversity in the topics of interest. Approximately 85% reported any mental illness, 95% reported any substance use, and 89% reported at least one ACE. While the lack of variance is a limitation, these findings also suggest that childhood trauma, mental health issues, and substance use issues are prominent areas of adversity faced by those who encounter the criminal justice system and are taken into custody.

Another limitation is the possibility of underreporting or misremembering events. There are weaknesses associated with the ACE measures due to the retrospective nature of questions and there is the possibility that individuals did not remember adverse events accurately if they were identified (Bremner, 1999). Similarly, the self-report nature of the survey may result in

participants failing to answer questions honestly and/or accurately (Felitti et al., 1998). This study is also cross-sectional and occurs at one point in time. Therefore, it does not allow for a time-sequence (or causal) relationship to be determined. Moreover, the methodology used in this study also produces a limitation due to the use of a secondary data analysis. This is a limitation because the original data was not collected by the current researcher (Vartanian, 2011). As such, the survey instrument and interviews may have been conducted in a different manner or explored varying topics if the current researcher participated in original data collection (Vartanian, 2011). Additionally, there may be specific areas in which the original data cannot be used to answer research questions that are of interest to the current researcher.

Future Research

Future research should work to obtain a more diverse sample of jail inmates to contribute to richer data and literature exploring jail populations. I encourage further exploration into inmates who are not heterosexual and white. This would contribute to the literature in an important manner if approached with consideration for intersectionality (Crenshaw, 1989). An intersectional approach may increase the understanding of ACEs and CODs among jail inmates. This approach would encompass a gender-responsive approach as well as consideration for race, ethnicity, sexuality, socioeconomic status, and other aspects of one's intersections. As previous research has shown there is a relationship among various intersections with substance use, mental health illness, and criminal justice involvement that begs specific attention (Hsieh & Ruther, 2016; Kerr et al., 2014; Rodriguez-Seijas et al., 2019; Strompolis et al., 2019). Moreover, future research should work to analyze a representative sample of jail inmates that is generalizable to the population of U.S. jails. There should also be exploration into a longitudinal

relationship between ACEs and CODs of substance use and mental health issues. As such, this area would also benefit from exploration into ACEs and AAEs to compare the relationship of trauma experienced as a child and trauma experienced as an adult.

CHAPTER VI

CONCLUSION

Overall, the findings from this study highlight the high prevalence of ACEs and CODs among a sample of jail inmates that begs an emphasis on correctional programs that include substance use and mental health treatment with consideration for gender differences. The need for appropriate and efficient correctional treatment is apparent in the extremely high rates of mental health issues, substance abuse, and childhood trauma identified by this sample. As U.S. jails experience many more individuals cycling through the facilities compared to prisons, this setting provides useful information for programs needs within jails. Although jails are meant to be more temporary institutions compared to prisons, there is still a need for appropriate programming for the inmates who would benefit from substance abuse treatment and mental health services. In 2020, there were 8.7 million individuals admitted to local jails across the U.S. (Minton & Zeng, 2021), and it can be inferred that many of these individuals experienced some form of substance use and/or mental health issue. This number highlights the opportunity that the exploration into jail populations holds for appropriate intervention and treatment. Thus, the findings of this study contribute in a meaningful way to existing literature regarding jail inmates and presents important findings regrading sex, ACEs, and CODs of mental health issues and substance use.

REFERENCES

- Abram, K. M., Teplin, L. A., Charles, D. R., Longworth, S. L., McClelland, G. M., & Dulcan, M. K. (2004). Posttraumatic stress disorder and trauma in youth in juvenile detention. *Archives of General Psychiatry, 61*(4), 403-410. 10.1001/archpsyc.61.4.403
- Altintas, M., & Bilici, M. (2018). Evaluation of childhood trauma with respect to criminal behavior, dissociative experiences, adverse family experiences and psychiatric backgrounds among prison inmates. *Comprehensive Psychiatry, 82*(1), 100-107. <https://doi.org/10.1016/j.comppsy.2017.12.006>
- Anda, R. F., Butchart, A., Felitti, V. J., & Brown, D. W. (2010). Building a framework or global surveillance of the public health implications of adverse childhood experiences. *American Journal of Preventive Medicine, 39*(1), 93-98. 10.1016/j.amepre.2010.03.015
- Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., Dube, S. R., & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience, 256*(3), 174-186. 10.1007/s00406-005-0624-4
- Baglivio, M. T., & Epps, N. (2016). The interrelatedness of adverse childhood experiences among high-risk juvenile offenders. *Youth Violence and Juvenile Justice, 14*(3), 179-198. 10.1177/1541204014566286
- Baglivio, M. T., Epps, N., Swartz, K., Huq, M. S., Sheer, A., & Hardt, N. S. (2014). The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *Journal of Juvenile Justice, 3*(2), 1-23.
- Baglivio, M. T., Wolff, K. T., Piquero, A. R., & Epps, N. (2015). The relationship between adverse childhood experiences (ACE) and juvenile trajectories in a juvenile offender sample. *Journal of Criminal Justice, 43*(3), 229-241. <https://doi-org.proxy.lib.utc.edu/10.1016/j.jcrimjus.2015.04.012>
- Baker, A. J. L., Brassard, M. R., & Rosenzweig, J. (2021). Psychological maltreatment: Definition and reporting barriers among American professionals in the field of child abuse. *Child Abuse and Neglect, 114*(1), 104941-104941. 10.1016/j.chiabu.2021.104941

- Bales, W. D., & Garduno, S. L. (2016). Confinement in local jails: Institutions and their clients neglected by criminologists. In T. G. Blomberg, J. M. Brancale, K. M. Beaver, & W. D. Bales (Eds.), *Advancing criminology and criminal justice policy* (pp. 267-281). New York, NY: Routledge.
- Belknap, J. (2007). *The invisible woman: Gender, crime, and justice* (3rd ed.). Belmont, CA: Thompson Wadsworth
- Bethell, C. D., Newacheck, P., Hawes, E., & Halfon, N. (2014). Adverse childhood experiences: Assessing the impact on health and school engagement and the mitigating role of resilience. *Health Affairs*, 33(12), 2106-2115. 10.1377/hlthaff.2014.0914
- Boullier, M., & Blair, M. (2018). Adverse childhood experiences. *Paediatrics and Child Health*, 28(3), 132-138. <https://doi-org.proxy.lib.utc.edu/10.1016/j.paed.2017.12.008>
- Bremner, J. D. (1999). Does stress damage the brain? *Biological Psychiatry*, 45(7), 797-805. [https://doi.org/10.1016/S0006-3223\(99\)00009-8](https://doi.org/10.1016/S0006-3223(99)00009-8)
- Bronson, J., Stroop, J., Zimmer, S., & Berzofsky, M. (2017). Drug use, dependence, and abuse among state prisoners and jail inmates, 2007-2009 [NCJ 250546]. US Department of Justice, Bureau of Justice Statistics. Retrieved from <https://bjs.ojp.gov/content/pub/pdf/dudaspi0709.pdf>
- Burt, A. S., Barnes, A. R., McGue, M., & Iacono, W. G. (2008). Parental divorce and adolescent delinquency: Ruling out the impact of common genes. *Developmental Psychology*, 44(6), 1668-1677. 10.1037/a0013477
- Butler, T., Indig, D., Allnutt, S., & Mamoon, H. (2011). Co-occurring mental illness and substance use disorder among Australian prisoners. *Drug and Alcohol Review*, 30(2), 188-194. <https://doi.org/10.1111/j.1465-3362.2010.00216.x>
- Callanan, V. J., & Davis, M. S. (2012). Gender differences in suicide methods. *Social Psychiatry and Psychiatric Epidemiology*, 47(6), 857-869. <http://dx.doi.org/10.1007/s00127-011-0393-5>
- Campbell, J. A., Walker, R. J., & Egede, L. E. (2016). Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. *American Journal of Preventive Medicine*, 50(3), 344-352. 10.1016/j.amepre.2015.07.022
- Carlson, B. E., & Shafer, M. S. (2010). Traumatic histories and stressful life events of incarcerated parents: Childhood and adult trauma histories. *The Prison Journal*, 90(4), 475-493. <https://doi.org/10.1177/0032885510382224>
- Carson, E. A. (2014). *Prisoners 2013*. Washington, DC: Bureau of Justice Statistics.

- Carson, E. A. (2020). *Prisoners in 2019* (NCJ 25515). Washington, D.C.: Bureau of Justice Statistics.
- Chen, G., & Gueta, K. (2016). Childhood abuse and mental health problems: Does gender matter? *Psychiatric Quarterly*, *87*(1), 189-202. [10.1007/s11126-015-9371-5](https://doi.org/10.1007/s11126-015-9371-5)
- Child and Adolescent Health Measurement Initiative. (2017). 2016 National Survey of Children's Health, Sampling and Survey Administration. Data Resource Center, supported by Cooperative Agreement 1-U59-MC06980-01 from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). www.childhealthdata.org
- Covington, S. S., & Bloom, B. E. (2007). Gender responsive treatment and services in correctional settings. *Women and Therapy*, *29*(3-4), 9-33. https://doi.org/10.1300/J015v29n03_02
- Craig, J. M., Piquero, A. R., Farrington, D. P., & Ttofi, M. M. (2017). A little early risk goes a long bad way: Adverse childhood experiences and life-course offending in the Cambridge study. *Journal of Criminal Justice*, *53*(1), 34-45. <https://doi.org/10.1016/j.jcrimjus.2017.09.005>
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum*, *1*(8), 139 – 167.
- Cronholm, P. F., Forke, C. M., Wade, R., Bair-Merritt, M. H., Davis, M., Harkins-Schwarz, M., Pachter, L. M., & Fein, J. A. (2015). Adverse childhood experiences: Expanding the concept of adversity. *American Journal of Preventive Medicine*, *49*(3), 354–361. <https://doi.org/10.1016/j.amepre.2015.02.001>
- Crouch, E., Probst, J. C., Radcliff, E., Bennett, K. J., & McKinney, S. H. (2019). Prevalence of adverse childhood experiences (ACEs) among US children. *Child Abuse & Neglect*, *92*(1), 209–218. <https://doi.org/10.1016/j.chiabu.2019.04.010>
- DeHart, D., Lynch, S., Belknap, J., Dass-Brailsford, P., & Green, B. (2014). Life history models of female offending: The roles of serious mental illness and trauma in women's pathways to jail. *Psychology of Women Quarterly*, *38*(1), 138-151. <https://doi-org.proxy.lib.utc.edu/10.1177/0361684313494357>
- DeHart, D. D. (2008). Pathways to prison: Impact of victimization in the lives of incarcerated women. *Violence Against Women*, *14*(12), 1362–1381. <https://doi.org/10.1177/1077801208327018>

- DeLisi, M., Alcala, J., Kusow, A., Hochstetler, A., Heirigs, M. H., Caudill, J. W., Trulson, C. R., & Baglivio, M. T. (2017). Adverse childhood experiences, commitment offense, and race/ethnicity: Are the effects crime-, race-, and ethnicity-specific? *International Journal of Environmental Research and Public Health*, *14*(3), 331-343.
DOI:10.3390/ijerph14030331
- Dierenfeldt, R., Garland, T., Policastro, C., & Crittenden, C. (2019). *Drug abuse and recovery in rural Tennessee communities: A needs assessment*. (Technical Report).
- Dierkhising, C. B., Ko, S. J., Woods-Jaeger, B., Briggs, E. C., Lee, R., & Pynoos, R. S. (2013). Trauma histories among justice-involved youth: Findings from the National Child Traumatic Stress Network. *European Journal of Psychotraumatology*, *4*(1), 1483-1492.
10.3402/ejpt.v4i0.20274
- Dube, S. R., Anda, R. F., Felitti, V. J., Chapman, D. P., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the adverse childhood experiences study. *Journal of the American Medical Association*, *286*(24), 3089-3096.
10.1001/jama.286.24.3089
- Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The adverse childhood experiences study. *Pediatrics*, *111*(3), 564-572.
10.1542/peds.111.3.564
- Earleywine, M. (2005). *Understanding marijuana: A new look at scientific evidence*. Oxford University Press, New York.
- Everson, M. D., Smith, J. B., Hussey, J. M., English, D., Litrownik, A. J., Dubowitz, H., Thompson, R., Dawes Knight, E., & Runyan, D. K. (2008). Concordance between adolescent reports of childhood abuse and child protective service determinations in an at-risk sample of young adolescents. *Child Maltreatment*, *13*(1), 14-26.
- Fazel, S., Bains, P., & Doll, H. (2006). Substance abuse and dependence in prisoners: A systematic review. *Addiction (Abington, England)*, *101*(2), 181-191.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*, *14*(4), 245-258.
[https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8)

- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007). Re-victimization patterns in a national longitudinal sample of children and youth. *Child Abuse and Neglect, 31*(5), 479–502. <http://dx.doi.org/10.1016/j.chiabu.2006.03.012>
- Ford, J. D. (2017). *Polyvictimization*. Oxford Bibliographies.
- Fox, B. H., Perez, N., Cass, E., Baglivio, M. T., & Epps, N. (2015). Trauma changes everything: Examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. *Child Abuse & Neglect, 46*, 163–173.
- Gau, J. M. (2019). *Statistics for criminology and criminal justice* (3rd Edition). Sage Publications
- Grant, B. F., Stinson, F. S., Dawson, D. A., Chou, S. P., Dufour, M. C., Compton, W., Pickering, R. P., & Kaplan, K. (2004). Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry, 61*(8), 807–816. [10.1001/archpsych.61.8.807](https://doi.org/10.1001/archpsych.61.8.807)
- Green, B. L., Dass-Brailsford, P., Hurtado de Mendoza, A., Mete, M., Lynch, S. M., Dehart, D. D., & Belknap, J. (2016). Trauma experiences and mental health among incarcerated women. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*(4), 455–463. [10.1037/tra0000113](https://doi.org/10.1037/tra0000113)
- Hsieh, N., & Ruther, M. (2016). Sexual minority health and health risk factors: Intersection effects of gender, race, and sexual identity. *American Journal of Preventive Medicine, 50*(6), 746–755. <https://doi.org/10.1016/j.amepre.2015.11.016>
- Jackson, D. B., Testa, A., & Fox, B. (2021). Adverse childhood experiences and digital media use among U.S. children. *American Journal of Preventative Medicine, 60*(4), 462–470. [10.1016/j.amepre.2020.09.018](https://doi.org/10.1016/j.amepre.2020.09.018)
- James, D., & Glaze, L. (2006). *Mental health problems of prison and jail inmates. Bureau of Justice Statistics Special Report*. Washington, DC: United States Department of Justice.
- Johns, L., Maharjan, S., Magana, G., Kamptner, L., & Lewin, M. (2021). Adverse childhood experiences and adulthood negotiation in intimate partner violence: The sequentially paradoxical role of interpersonal sensitivity among female inmates. *Journal of Interpersonal Violence, 36*(13–14), 6883–6902. [10.1177/0886260518823298](https://doi.org/10.1177/0886260518823298)
- Johnston, M. P. (2017). Secondary data analysis: A method of which the time has come. *Qualitative and Quantitative Methods in Libraries, 3*(3), 619–626.
- Kerr, D. L., Ding, K., & Chaya, J. (2014). Substance use of lesbian, gay, bisexual and heterosexual college students. *American Journal of Health Behavior, 38*, 951–962. <https://doi.org/10.5993/AJHB.38.6.17>

- Kessler, R. C., McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., Aguilar-Gaxiola, S., Alhamzawi, A. O., Alonso, J., Angermeyer, M., Benjet, C., Bromet, E., Chatterji, S., de Girolamo, G., Demyttenaere, K., Fayyad, J., Florescu, S., Gal, G., Gureje, O., . . . Williams, D. R. (2010). Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *The British Journal of Psychiatry*, *197*(5), 378–385. <https://doi.org/10.1192/bjp.bp.110.080499>
- LeBel, T. P., & Rose, S. J. (2020). The persistent impact of childhood trauma: Current mental health challenges faced by women in jail. *Corrections: Policy, Practice, and Research*, *1*(1), 1-23. 10.1080/23774657.2020.1848480
- Lensch, T., Clements-Nolle, K., Oman, R. F., Evans, W. P., Lu, M., & Yang, W. (2021). Adverse childhood experiences and co-occurring psychological distress and substance abuse among juvenile offenders: The role of protective factors. *Public Health*, *194*(), 42-47. 10.1016/j.puhe.2021.02.014
- Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & White, H. R. (Eds.). (2008). *Violence and serious theft: Development and prediction from childhood to adulthood*. Routledge/Taylor & Francis Group.
- McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychopathy in the National Comorbidity Survey Replication (NCS-R) III: Associations with functional impairment related to DSM-IV disorders. *Psychological Medicine*, *40*(5), 847-859. 10.1017/S0033291709991115
- Mersky, J. P., Topitzes, J., & Reynolds, A. J. (2013). Impacts of adverse childhood experiences on health, mental health, and substance use in early adulthood: A cohort study of an urban, minority sample in the U.S. *Child Abuse and Neglect*, *37*(11), 917-925. <https://doi.org/10.1016/j.chiabu.2013.07.011>
- Miech, R. A., Johnston, L., O'Malley, P. M., Bachman, J. G., Schulenberg, J., & Patrick, M. E. (2015). Trends in use of marijuana and attitudes toward marijuana among youth before and after decriminalization: The case of California 2007-2013. *International Journal of Drug Policy*, *26*(4), 336-344. 10.1016/j.drugpo.2015.01.009
- Minton, T. D., & Zeng, Z. (2021). *Jail inmates in 2020 - statistical tables* [NCJ 303308]. U.S. Department of Justice, Bureau of Justice Statistics. <https://bjs.ojp.gov/content/pub/pdf/ji20st.pdf>
- Monnat, S. M., & Chandler, R. F. (2016). Long-term physical health consequences of adverse childhood experiences. *The Sociological Quarterly*, *56*(4), 723-752. <https://doi-org.proxy.lib.utc.edu/10.1111/tsq.12107>

- National Institute on Drug Abuse. (2008). *Comorbidity: Addiction and other mental illnesses* (NIH Publication No. 10-5771). Washington, DC: U.S. Department of Health and Human Services.
- Radcliff, E., Crouch, E., Strompolis, M., & Srivastav, A. (2019). Homelessness in childhood and adverse childhood experiences (ACEs). *Maternal and Child Health Journal*, 23(6), 811-820. <https://doi-org.proxy.lib.utc.edu/10.1007/s10995-018-02698-w>
- Rodriguez-Seijas, C., Eaton, N. R., & Pachankis, J. E. (2019). Prevalence of psychiatric disorders at the intersection of race and sexual orientation: Results from the National Epidemiological Survey of Alcohol and Related Conditions-III. *Journal of Consulting and Clinical Psychology*, 87(4), 321-331. <http://dx.doi.org/10.1037/ccp0000377>
- Salisbury, E. J., & van Voorhis, P. (2009). Gendered pathways: A quantitative investigation of women probationers' paths to incarceration. *Criminal Justice and Behavior*, 36(6), 541-566. [10.1177/0093854809334076](https://doi.org/10.1177/0093854809334076)
- Schilling, E. A., Aseltine, R. H. Jr., & Gore, S. (2007). Adverse childhood experiences and mental health in young adults: A longitudinal survey. *BMC Public Health*, 7(1), 30. [doi:10.1186/1471-2458-7-30](https://doi.org/10.1186/1471-2458-7-30)
- Siegel, J. A., & Williams, L. M. (2003). The relationship between child sexual abuse and women delinquency and crime: A prospective study. *Journal of Research in Crime and Delinquency*, 40(1), 71-94. <https://doi.org/10.1177/0022427802239254>
- Steadman, H. J., Osher, F. C., Robbins, P. C., Case, B., & Samuels, S. (2009). Prevalence of serious mental illness among jail inmates. *Psychiatric Services*, 60(6), 761-765. <https://doi.org/10.1176/ps.2009.60.6.761>
- Strompolis, M., Tucker, W., Crouch, E., & Radcliff, E. (2019). The intersectionality of adverse childhood experiences, race/ethnicity, and income: Implications for policy. *Journal of Prevention and Intervention in the Community*, 47(4), 310-324. <https://doi-org.proxy.lib.utc.edu/10.1080/10852352.2019.1617387>
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2004). *Overview of findings from the 2004 National Survey on Drug Use and Health*, NSDUH. US Department of Health and Human Services (Publication No. SMA 05-4061). Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2012). *Results from the 2010 National Survey on Drug Use and Health: Mental health findings*, NSDUH. US Department of Health and Human Services (Publication No. SMA 11-4667). Rockville, MD: Substance Abuse and Mental Health Services Administration.

- Substance Abuse and Mental Health Services Administration (SAMHSA). (2013). *Results from the 2012 National Survey on Drug Use and Health: Mental Health Findings*, NSDUH. Series H-47. US Department of Health and Human Services (Publication No. SMA 13-4805). Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2018). *Results from the 2017 National Survey on Drug Use and Health: Detailed Tables*. Rockville, MD: Center for Behavioral Health Statistics and Quality.
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2020). *Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health* (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). Rockville, MD: Center for Behavioral Health Statistics and Quality.
- Sun, J., Patel, F., Frank, D. A., Heeren, T. C., & Chilton, M. (2016). Childhood adversity and adult reports of food insecurity among households with children. *American Journal of Preventive Medicine*, 50(5), 561-572. <https://doi.org/10.1016/j.amepre.2015.09.024>
- Sun, J., Patel, F., Rose-Jacobs, R., Frank, D. A., Black, M. M., & Chilton, M. (2017). Mothers' adverse childhood experiences and their young children's development. *American Journal of Preventive Medicine*, 53(6), 882-891. [10.1016/j.amepre.2017.07.015](https://doi.org/10.1016/j.amepre.2017.07.015)
- Sznitman, S. R., & Zolotov, Y. (2015). Cannabis for therapeutic purposes and public health safety: A systematic and critical review. *International Journal of Drug Policy*, 26(1), 20-29. [10.1016/j.drugpo.2014.09.005](https://doi.org/10.1016/j.drugpo.2014.09.005)
- Teague, R., Mazerolle, P., Legosz, M., & Sanderson, J. (2008). Linking childhood exposure to physical abuse and adult offending: Examining mediating factors and gendered relationships. *Justice Quarterly*, 25(2), 313-348. [10.1080/07418820802024689](https://doi.org/10.1080/07418820802024689)
- Thompson, L. A., Filipp, S. L., Mack, J. A., Mercado, R. E., Barnes, A., Bright, M., Shenkman, E. A., & Gurka, M. J. (2020). Specific adverse childhood experiences and their association with other adverse childhood experiences, asthma and emotional, developmental and behavioral problems in childhood. *Pediatric Research*, 88(1), 100-109. [10.1038/s41390-020-0784-y](https://doi.org/10.1038/s41390-020-0784-y)
- Tompsett, C., Domoff, S., & Toro, P. (2013). Peer substance use and homelessness predicting substance abuse from adolescence through early adulthood. *American Journal of Community Psychology*, 51(3-4), 520-529. [10.1007/s10464-013-9569-3](https://doi.org/10.1007/s10464-013-9569-3)
- Tracy, P. E., & Kempf-Leonard, K. (1996). *Continuity and discontinuity in criminal careers (1st ed)*. Springer.

- Turner, H. A., Finkelhor, D., & Ormrod, R. (2010). Poly-victimization in a national sample of children and youth. *American Journal of Preventive Medicine*, 38(3), 323-330. 10.1016/j.amepre.2009.11.012
- U.S. Census Bureau. (2020). *Quick facts*. Retrieved from <https://www.census.gov/quickfacts>
- U.S. Centers for Disease Control and Prevention. (2020). *Preventing adverse childhood experiences*. National Center for Injury Prevention and Control, Division of Violence Prevention. <https://www.cdc.gov/violenceprevention/aces/index.html>
- Van der Feltz-Cornelis, C. M., Potters, E. C., van Dam, A., Koorndijk, R. P. M., Elfeddali, I., & van Eck van der Sluijs, J. F. (2019). Adverse childhood experiences (ACE) in outpatients with anxiety and depressive disorders and their association with psychiatric and somatic comorbidity and revictimization. Cross-sectional observational study. *Journal of Affective Disorders*, 246, 458-464. <https://doi-org.proxy.lib.utc.edu/10.1016/j.jad.2018.12.096>
- Vartanian, T. R. (2011). *Secondary data analysis*. Oxford University Press.
- Widom, C. S., Fisher, J. H., Nagin, D. S., & Piquero, A. R. (2018). A prospective examination of criminal career trajectories in abused and neglected males and females followed up into middle adulthood. *Journal of Quantitative Criminology*, 34(3), 831-852. doi.org/10.1007/s10940-017-9356-7
- Windisch, S., Simi, P., Blee, K., & DeMichele, M. (2020). Measuring the extent and nature of adverse childhood experiences (ACE) among former White supremacists. *Terrorism and Political Violence*, (Ahead of print), 1–22. <https://doi.org/10.1080/09546553.2020.1767604>
- Woody, G. E., & Blaine, J. (1979). Depression in narcotic addicts: Quite possibly more than a chance association. In: R. Dupont, A. Goldstein, & J. O'Donnell (Eds.), *Handbook on drug abuse*. (pp. 277-285). Washington, DC: US Government Printing Office.

VITA

Skylar Crick is a middle Tennessee native who chose to pursue her bachelor's degree in criminal justice at The University of Tennessee at Chattanooga (UTC) upon graduating from Independence High school in Williamson County, TN. After the completion of her bachelor's degree, she chose to continue her education in pursuit of her master's degree in criminal justice at UTC. Skylar worked as a graduate assistant during her time in the master's program. This provided her the opportunity to teach two introduction level criminal justice classes as well as participate in multiple research projects. Skylar is interested in the areas of victimization and social injustice. Despite not having specific plans upon completion of her master's, she hopes to enter the field in a manner that will benefit her community and those around her. It is her ultimate goal that she will always think critically and act compassionately wherever life takes her.