UNDERSTANDING THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND INCARCERATION

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Dedication

This work is dedicated to my grandmothers, Cora “Sis” Feaster and Anize “Granny” Jones. They poured tremendous amounts love, compassion, faith, and hard work into me throughout my life, much of which I am only now recognizing its impact. They made sacrifices that went above and beyond. Their acknowledgment and insistence on education has without a doubt been a driving force throughout my life. They were solid and they are deeply missed. Without the early guidance and structure from these women, I would not have been able to complete this project nor mature into the successful woman I am today.

A special dedication, to survivors of childhood abuse and neglect. As a survivor, I hope this project and those like it continue to inform how we govern ourselves as a society, as parents, future parents, caregivers, and family members of one of the most vulnerable populations in our society. The goal is to expand our world view, policy, procedures, family dynamics, and education system in a way that allows the rich and prosperous growth of children, as well as facilitates healing for anyone who has encountered the life altering phenomena of adverse childhood experiences. In the words of Fredrick Douglas, “It is easier to build strong children than to repair broken men.” The completion of this projects and the start of my career are tools I hope to use to make progress toward both.

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I am grateful to God for the gifts of compassion, love of learning, perseverance, creativity, and tenacity, all of which helped me complete this journey. This journey would not have started were it not for faith.

Abstract

This study aimed to explore the link between adverse childhood experiences (ACEs) and incarceration outcomes in a sample of U.S. adults by evaluating the predictive nature of ACE exposure on incarceration outcomes. The data utilized in this study was obtained from the National Archive of Criminal Justice Data, collected from dependency and arrest records of a group of adolescents in a large urban area in Washington State. The study found that ACEs were not a significant predictor of violent crimes or lifetime criminal involvement—up to age 24. However, male subjects and Black subjects were more likely to be arrested over the course of their lives and for violent offenses. The results indicate that experiences that service as risk factors or increase the odds of arrets or incarceration cannot be used as a predictive model for these or other poor life outcomes and highlight the social implications of singularity with which certain social phenomena is viewed.

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CHAPTER I

Introduction

Statement of the Problem

An adverse childhood experience (ACE) is a potentially harmful or traumatic experienced between the ages of 0-17, this list of experiences is dynamic, and can be sorted into various categories of abuse, neglect, and loss (Center for Disease Control [CDC], 2021b). ACEs can influence biological processes that govern physical and mental health, as well as psychosocial functioning that can influence mood regulation, stimuli responses, anxiety, and many other neurological and biological functions related to development and environmental adaptation (De Bellis & Zisk, 2014; Stephen, 2012). Research has also consistently demonstrated a relationship between ACEs and functional impairments (Barch et al., 2018), neurological development (Dye, 2018; Olsavsky et al., 2021), attachment (Demers et al., 2019), mental health disorders and related symptomatology (Benarous et al., 2017; Tatar & Cansiz, 2018; Ünal & Gençöz, 2019), substance use behaviors (Cawthorpe, 2018; Dube et al., 2003), and criminal behaviors (Saxena & Messina, 2021). Empirical evidence has demonstrated a relationship between many ACE–associated risk factors and incarceration, yet there is a paucity of scientific inquiry into the relationship between ACEs and incarceration. This study seeks to establish a quantitative base demonstrating that ACEs are not a significant predictor of criminal behavior, despite individuals with ACE exposure being more likely to be arrested than those without. This study also seeks to identify factors beyond group-specific characteristics that influence outcomes for those who have experienced ACEs and account for significant differences in incarceration rates between ethnic and racial groups in the U.S., particularly in urban communities.

The U.S. incarceration rate has continued to increase exponentially for centuries, even during years of reported crime reduction. The numbers of incarcerated individuals in the United States have steadily increased throughout the years (Cahalan, 1979; Ewert, et al., 2014; Harzke & Pruitt, 2018; Travis, et al., 2014). In 2019, the current U.S. imprisonment rate for state and federal prisons was 419 per 100,000 residents (Carson, 2019). That is a more than 500 % increase over less than 100 years; the imprisonment rate in 1925 was 79/100,000 residents when this statistic was first recorded (Ewert, 2014). These numbers show steady growth in the U.S. prison population at a rate of nearly 7% per year within less than 100 years. Recent research has described the U.S.'s incarceration rates as highly unusual (Travis et al., 2014), especially when compared to other developed nations.

Incarceration rates in the United States are even more concerning in the context of national crime statics and reports that continue to show decreases in overall violent crimes reports for the past thirty years (Friedman, et al., 2017). The Federal Bureau of Investigation (FBI) has reported decreases in the U.S.'s overall violent and property crime reports as well as in various major cities from 2018–2019; the violent crimes decrease for 2020 represented the third straight year of decline in that area (FBI, 2020). Despite this, the U.S. prison population has continued to grow. This has led to local and national scrutiny of laws and policies that have been perceived as targeting and criminalizing individuals based on their ethnicity, socioeconomic standing, and other demographic factors (Ewert, at al., 2014; Harzke & Pruitt, 2018; Travis et al., 2014). Such profiling inadvertently perpetuates the idea that criminality is innate in both individuals and specific ethnic or racial groups.

Other characteristics (e.g., mental health status, risk factors, needs) of incarcerated persons are often overlooked in society and policy procedures that govern the legal system. Due

to this, policy and law–making have also come under scrutiny in regard to the rising population of incarcerated individuals who either have mental health diagnoses or meet the criteria based on displayed behaviors. Although studies have reported varying mental illness diagnosis rates among incarcerated individuals (Fazel & Seewald, 2012; Prins, 2014), a Bureau of Justice Statistics (BJS) report from 2017 found that more than thirty–seven percent of prison inmates and forty–four percent of jail inmates between the years of 2011 and 2012 had been previously diagnosed with mental health disorders in the United States (Bronson & Berzofsky, 2017). According to Ewert et al. (2014) and Travis et al. (2014), many of these inmates already faced mental health struggles as a result of their environments, prior to incarceration. Such conditions serve as unmet needs and risk factors that are likely to increase exposure to law enforcement officials and the legal system.

Based on the aforementioned findings, there appears to be an intersection of ethnicity, mental illness, and incarcerations, which has led to centuries of political, medical, and psychological decisions that have mislabeled black and brown ethnic groups as innately criminal and deviant (Travis et al., 2014), while ignoring other underlying factors shared by these groups that could potentially lead to incarceration. According to Wildeman and Western (2010), the empirical investigation into the reason for the U.S.'s high incarceration rates can be summed into two causes, "the economic and social life of urban [men] with little schooling and a punitive turn in criminal justice policy" (p. 159). Travis et al. (2014) discussed how social factors and policy making have led to the marginalization of minority groups which show a relationship to increased incarceration rates in those groups. Recently, researchers have begun to pay more attention to adverse childhood experiences (ACEs), a specific type of trauma–related experience that appears in various studies about incarcerated individuals, but is experienced by individuals

in urban environments regardless of ethnicity, race, and other demographic factors frequently associated with incarceration rates (Felitti et al., 1998; Merrick et al., 2017; Narayan et al., 2018).

Research has shown that trauma can impact individuals regardless of their demographic profiles, however, the severity and longevity of these impacts will depend on a number of individual–related variables (e.g., resilience, support, feelings of guilt/shame, early intervention) (Mongan et al., 2017; Narayan et al. 2018). However, the negative impacts of ACEs have been shown to transcend education, age, race, ethnicity, and socioeconomic variables (Felitti et al., 1998). A graded relationship between ACEs, negative health behaviors, and rates of morbid diseases among American adults is mirrored in relationship between ACEs and some mental health disorders related behaviors in adults (Felitti et al., 1998). Notably, Felitti's and colleagues' research also showed rates of morbidity were still high from individuals who experienced ACEs but had little to no history of negative health behaviors.

The prevalence rate of ACEs in the adult U.S. population has been estimated to be very high. In a sample of mostly White individuals with mid– to high–income levels and high levels of education, Felitti et al. (1998) found that 52.1 percent had experienced at least one ACE. Gunter et. al. (2012) found that 61 percent of their forensic population experienced at least one traumatic life event, while Kilpatrick et al. (2013) found that 89.7 percent of their non–forensic population also experienced at least one traumatic event. Additionally, the CDC (2020) reported that in a study conducted across 25 states, 61 percent of adults reported at least one ACE, showing that trauma and traumatic childhood experiences go beyond incarcerated individuals and other populations where society expects to see stories of abuse and trauma.

The population of U.S. citizens incarcerated at a rate of about 810 per 100,000 are 61% likely to have experienced at least one ACE, a consistent predictor of adverse life outcomes like incarceration. This population has been largely ignored by the research community and the resulting lack of relevant data can produce continued disparities in psychological and health care, social resources, and overall wellbeing. Although the quantity and scope of ACE research for the U.S. incarcerated population is limited, some studies report associations between some ACEs and incarceration–related outcomes, special populations, and unique concerns, which are discussed in Chapter 2.

Despite the increased interest in ACEs (e.g., evaluating new outcomes, new study designs, and expanding population diversity), very little research remains on the relationship between ACEs and judicial system involvement among U.S. adults. This gap in research is both clinically and socially alarming, given that incarcerated individuals comprise one of the largest subgroups in the United States. Closing the research gaps regarding incarceration and ACEs can help provide accurate data about ACE experiences and risks of incarceration for U.S. adults, especially those who experience multiple risk factors. Reliable, valid, and culturally sensitive data can inform resources that address and prevent incarceration among U.S. adults and help predicate societal and individual benefits of adequate preventative measures; the CDC has used ACE data in this way to identify treatment and preventative measures for heart disease, stroke, lower–education rates, and other outcomes with well–established adverse associations to ACEs (CDC, 2021b). Thus, the purpose of this study is to explore the predictive nature of ACEs in regard to incarceration outcomes.

Purpose of the Dissertation

The aim of this study is to fill the research gap related to the relationship between ACEs and incarceration outcomes in adulthood. ACEs and incarceration are prevalent in the US, with higher risks and severity levels among minority and disenfranchised groups. It should be noted that the relationship between ACEs and incarceration is intricate and not fully comprehended. Other factors such as genetics, socio–economic disadvantage, and individual behavior may also contribute to the development of criminal behavior. Additionally, evidence suggests that addressing ACEs could potentially reduce the risk of incarceration and improve the overall health and well–being of individuals. Furthermore, expanding knowledge of this relationship may have implications for policy, treatment, and incarceration outcomes for those at higher risk for incarceration, which is sometimes the case for many individuals who reside in urban communities.

I sought to expand this knowledge by utilizing theoretical concepts to highlight the multifaceted nature of an affirmative result. In the present study I examined archival data that indicated, young adults from an urban U.S. area with ACE exposure were more likely to be arrested and at greater risk of arrest for violent crimes than their counterparts without ACE exposure. I posed three questions: First, does the increased risk of arrest associated with ACE exposure indicate ACE exposure can accurately predict incarceration? Second, does ACE exposure predict engagement in different types of criminal behavior (e.g. property, violent, drug/alcohol) or engagement in criminal behavior at different points in life (i.e., adult and juvenile)? Third, are individuals with a higher number of ACE experiences more likely to commit violent crime than non-violent crimes. The number of ACE experiences for the subjects were summed and hierarchal multiple regression analyses were conducted to evaluate the predictive nature of ACEs on incarceration, as defined by the outcome variable—number of

arrests. In using archival data, I was able to examine how changing the analysis method and variable type impacted interpretation of the data regarding arrests outcomes to help better understand the impact ACE exposure has on criminal behavior and identify other factors that may contribute to high incarceration rates among ACE exposed and urban populations in the U.S.

CHAPTER II

Literature Review

Terms and Definitions

To help define and explain the constructs in this project, this section contains a list of terms commonly used in criminal justice, psychology, and forensic psychology fields.

Adverse Childhood Experiences (ACEs), relevant to the populations of interest and sample of this study, are events or experiences that pose potential harm or danger to the individual; these experiences happen before the age of 18. The construct measured in this study includes conventional and expanded ACEs. ACEs are essentially any form of maltreatment or abuse that can cause physical or psychological harm.

Census tracts. Small, usually permanent geographic designation within a county that usually consist of 2,000-8,000 residents. They were originally established to be a homogenous representation of an area or community with respect to population characteristics, economic status, and living conditions (Census Bureau, 1994). Five census variables (median family income, percent families on AFDC, percent families below poverty level, percent families headed by a single female, and percent persons over 25 years of age with a high school diploma) were used to cluster census tracts and obtain SES groupings in the original data set (English & Wisdom, 2003).

Conventional ACEs. Commonly referred to as “ACEs”, belong to various categories of abuse, neglect, or loss; experienced between the ages of 0–17, and are potentially harmful or traumatic. The categories of ACEs traditionally measured under this construct are: abuse (physical, emotional, sexual), neglect (emotional and physical), and household challenges

(substance use, mental illness, incarcerated household member, and parental separation) (Centers for Disease Control and Prevent [CDC], 2021b).

Expanded ACEs. An emerging list of potentially traumatic experiences, that occur on a systems level, before age 18 (e.g., microsystem– family, mesosystem– community); the defining characteristics vary, as they are population–specific (Cronholm et al., 2015, Finkelhor et al., 2013), capture the experiences of diverse populations, are more prevalent than conventional ACEs in some populations, and appear to capture the experience of diverse populations more accurately than conventional ACEs. Some examples of expanded ACEs are bullying, foster care placement, and experiencing discrimination or community violence (Cronholm et al., 2015).

Community supervision consists of probation and parole, pre–and post–confinement conditions, which can be alternative or additional adjudication forms. Under these conditions, individuals are not confined but remain under the jurisdiction of the local, state, or federal corrections department.

Custody is the physical charge or control executed by state or federal prisons or local jails over an individual (Carson & Mulako–Wangota, 2021).

Jail refers to a confinement facility commonly administered by a local law enforcement agency, used to detain adults adjudicated on sentences, up to one year and those awaiting trial; jails sometimes hold juveniles pre– and post–adjudication. The conditions of these facilities vary by jurisdiction but typically include jails and city or county correctional centers; special facilities, like medical treatment or release centers; halfway houses; work farms; and temporary holding (Carson & Mulako–Wangota, 2021; Merriam–Webster, 2021).

Incarcerated person, commonly referred to as a prisoner, is an individual confined in a correctional facility under the legal authority (jurisdiction) of [local], state, and federal

correctional officials (Carson & Mulako–Wangota, 2021). For this study, incarcerated persons or individuals will refer to individuals under any form of jurisdiction, including probation and parole, and those previously confined.

Locally specific, refers to meaning and behaviors that originate in and are found in one specific place (Lecompte & Schensul, 2010)

Prison, a long–term confinement facility run by a state or the federal government, is used to confine those convicted of felonies or with sentences at least one year in length. Some states combine prisons and jails (Carson & Mulako–Wangota, 2021).

Urban area, a U.S. Census designation referring to densely populated developed areas that include residential, commercial, and other non-residential urban land uses (Census Bureau, 2023).

Trauma

ACEs are considered traumatic experiences because they have the potential to cause significant harm to the victim. The American Psychological Association (2017) Clinical Practice Guideline for the Treatment of Posttraumatic Stress Disorder (PTSD) in Adults, defines trauma as events that pose a significant physical, emotional, or psychological threat to the safety of an individual or someone close to them and are overwhelming and shocking.

Adverse childhood experiences also referred to as child maltreatment or child abuse are associated with an increased risk of many undesirable and harmful life outcomes worldwide and in the United States. Examples of ACEs include experiences of violence in the home or community, abuse, neglect, living with someone with substance use, mental health, and legal problems. These and other types of adverse experiences during childhood are common; cumulative; and have long–lasting and diverse negative impacts in various systems, settings, and

demographic groups; the impacts usually get lost when evaluated individually (Felitti, 2002; Felitti et al., 1998). The impact of individual ACEs may be overlooked due to the complexity of their causes and effects which can differ between individuals and the locally specific nature meanings and behaviors have. This means that although ACE and other trauma experiences are common, not everyone will define each experience as traumatic, have identical responses, or experience similar outcomes.

Furthermore, ACEs occur at a high rate, and associated adverse outcomes may be greater than initially suggested due to the complex nature of this phenomenon. The CDC has reported that, as of 2019, approximately 61 percent of U.S. adults aged 18 or older have experienced at least one ACE, with 17 percent of the same population experiencing four or more ACEs (CDC, 2021c). The complexity and prevalence of ACES with in the U.S. alone raise questions about their interactions with other risk factors for poor social and health outcomes, and what can be done to reduce their negative impact. These experiences have the potential to cause psychological and emotional harm, this risk is contingent on a number of person-specific factors and the mediating and moderating roles of these factors should not be overlooked when discussing the impact and prevention of ACE-associated poor life outcomes like incarceration or arrest history. The theories of the mechanisms by which these environmental factors impact development and behavior are reviewed in the literature. These experiences have the potential to cause psychological and emotional harm, this risk is contingent on a number of person-specific factors.

The relationships between traumatic experiences, the impact they have on bioecological and biopsychosocial functioning, and vis-a-versa have increasingly become of interest in biological, social, and psychological research over the past few decades. I have examined the

literature on how traumatic events come to impact functioning and different areas of a person's life using two integrative models of ecological and sociological functioning.

Trauma through the lens of the Bioecological Model

Bronfenbrenner described the ecological environment as being constructed of the micro–, meso–, exo–, and macrosystems; their interactions with one another; and the interactions of their consequences on an individual's development (Bronfenbrenner, 1981). The microsystem describes everyday life, the mesosystem is the relationship or interaction between microsystems, and the exosystem is where system wide changes like public policy occur. However, the macrosystem relates to society's patterns of cultural and beliefs, serves as a model for the other systems, and is the system in which all the other systems occur. He later expanded this theory into the bioecological model of development which describes how an individual evolves or develops overtime and how this process is influenced by processes, contexts, and time (Bronfenbrenner & Morris, 2007). More specifically, a person develops over time based on proximal processes and the contexts in which changes that directly and indirectly impact the individual and vis–a–versa. Proximal processes related to the micro–level interactions a person has with their environment (i.e., people, places, things, symbols) that orient us to societal norms, understanding, language, and social skills.

As previously stated, the microsystem directly influences changes and learning based on direct interaction with places, family, peers, teachers, cultural symbols, and other social interactions. The mesosystem is composed of two or more settings (microsystems) interacting, which can occur when the beliefs and cultures of home and the workplace interact and can further shape a person's development. In Bronfenbrenner's expansion of his original theory, the description of the exosystem does not change but he does include a discussion, or research that

shows the impact the external environment can have on a person. Additionally, he notes that a person does not have to come into direct contact with a system for it directly impact their development, which is the case for the exosystem (Bronfenbrenner & Morris, 2007). The context of the macrosystem was not discussed in the updated model, this could be due to the concept and context remaining largely unchanged.

The final concept of the bioecological model is time and how the concept of time can influence development and system level interactions at different points in a person's life, during specific interactions, and based on cultural beliefs at a point in history. Bronfenbrenner and Morris (2007) introduced time as critical component of this model because it is dynamic, as are its changes, and its interactions with proximal process and contexts through the lifespan. Similar to the systems, time has a micro–, meso–, and macro–level. Micro–time refers to continuous episodes of proximal processes, while meso–time refers to how episodes of proximal processes occur over periods of time (e.g., days, months). However, macro–time refers to societal changes that happen within and across generations in an individual's lifetime. Based on the nesting construct and the original definition of the macrosystem, it can be concluded that macro–time is also characterized by patterns of thinking and structure that influence the episodes of proximal processes in micro–time and the periodicity of how these processes occur as seen in meso–time.

Based on this model, several conclusions can be drawn about how one's environment, access to resources, skill set, and knowledge base and contribute to incarceration rates. The relationships between these systems can also provide insight into the reasons for higher incarceration rates in marginalized and incarcerated mentally ill populations. First, marginalized communities face a greater lack of resources than the larger population; on a micro–level this can influence what opportunities a family can provide, an individual's or family's belief about what

behaviors are acceptable to meet basic needs, and an individual's worldview. Secondly, on a meso–level, the interactions between the prior home life and work life (e.g., reduce hours, loss of job) may lead to maladaptive coping (e.g., drinking, substance use). Thirdly, on an exo–level, policies and legislation changes made by legislators based on the perception of drug and alcohol use during this same time, will directly increase this individual's chance of being arrested. Additionally, on a macro–level, during the same time period the cultural and societal belief is that a specific drug or increased alcohol consumption is the cause of increased crime and thus incarceration. Some of the results of such an example are further marginalization, decrease in resources and opportunities, and increase of maladaptive coping behaviors as a result of incarceration; all the while, these results continue to influence the processes of each contextual level which further impacts the life of the individual and their family. To summarize, people, objects, and events—including trauma can impact how an individual develops, as well as how they interact with elements of the environment, the environment as whole, and how the environment responds to the individual's development.

Trauma through the lens of the Biopsychosocial Model

While the bioecological model describes how a person's environment and interaction with influences their development; the biopsychosocial model describes how a person's biological, psychological, and social factors interact to determine or create health and illness. The biopsychosocial model was originally developed to describe how these factors interacted and how they could be used to understand health, illness, and the delivery of treatment in the medical field. Additionally, the creators of the model suggested that these factors exist on a hierarchical continuum to control the functions of the body that produce health and illness, each element of the continuum aligned with one of the three primary domains of the model

(University of Rochester Medical Center (URMC), n.d). Specifically, this model explains how the complex interaction between biological, psychological, and social factors can influence disease processes in the body; for example, genes (biological processes), eating habits (psychological beliefs), and exposure to certain chemicals (socio–environmental factors) can produce cancer growth in the body. In return, the development of cancer usually produces psychological symptoms like anxiety (Peterson et al., 2015).

The biopsychosocial model has since been adopted by the psychology field to describe how these factors influence mental illness and mental health and inform treatment; for this reason, I refer to and describe it as a model of functioning as health and illness are both terms that describe the state of functioning of the body and in this case, the mind. When the processes involved in these factors are described, they can vary based on the individual, purpose, or discipline of use, some of these descriptions are as follows: biological domain (e.g., genetic, biochemical, physical processes), social domain (e.g., environmental, family, interpersonal interactions), and psychological domain (e.g., cognition, behavioral, affect/mood processes) (Peterson et al., 2015).

Peterson et al. (2015) detailed the changes that occurred to the model prior to its most recent version in 2009. This version of the model included the disease or illness and moves outward in concentric circles for the update list of domains: physical, behavioral, emotional, cognitive, and environmental. Bi–directional arrows illustrate the domains that interact with one another and with the disease. Furthermore, this model conceptualizes disorders as the result of contributions of varying degrees from each domain that is specific to each individual (Peterson et al., 2015).

Based on this model, the conclusion can be drawn that trauma or traumatic events (i.e., environmental factors) can interact directly with biological processes to produce persistent changes in emotional and cognitive processes that then contribute to a mental illness diagnoses, which can interact with the behavioral domain and produce behaviors that may result in incarceration. Additionally, when we consider the scaffolding effect that occurs when individuals with a mental illness or a disparate number of marginalizing factors meet trauma or other stressful events, it becomes evident the role trauma plays in high rates of mental illness seen within the incarcerated population in the U.S.

It is important to understand that emotional trauma has also been shown to have a direct effect on the dysfunction on multiple biological processes. Studies have shown, trauma and other stressors create structural, connectivity, functional, and volume changes to structures in the brain that respond to stress, control planning, and regulate emotions: the anterior cingulate cortex (ACC), amygdala, hippocampus, and the prefrontal cortex (PFC); these changes have been linked to and in some cases shown to cause functional difficulties in the five domains listed in the biopsychosocial model, and influence the development of mental health behaviors and symptoms (PFC) (Dunn et al, 2017; Lee et al., 2020; Luo et al., 2017; Rokita et al., 2020; Weaver et al., 2020; Woon et al. 2010; Yoon et al. 2016).

Based on what is known about deficits in the above domains of functioning, it can be concluded that deficits in these areas may result in behaviors that are impulsive, aggressive, risky, or disorganized in nature. Additionally, an individual may also experience the following symptoms to debilitating degree: thought disturbances, hallucinations, sadness, and anxiety. Any of these behaviors or symptoms, when not controlled, can either lead to criminal behavior, increase risk of encountering police, and limit one’s ability to aid in their defense if charged with

a crime; all of which are likely to increase the risk of incarceration. For example, consider an individual that experiences a traumatic event, loses their job, comes from a poor economic background, is experiencing anxiety, and has a family history of depression; they may experience more negative outcome, including incarceration because of aggregate effect of all these domains and systems working together creates a system ideal to produce illness and behaviors that are frequently associated with incarceration. Specific examples of these results can be seen in research that links trauma to higher rates of mental illness, externalizing and internalizing symptoms, emotional disturbances, and lower cognitive functioning in children and adults in the general public and incarcerated populations.

ACEs and Adverse Life Outcomes

The complexity of life outcomes for individuals and groups limits scientific and societal ability to pinpoint a singular cause of adverse outcomes and identify large scale–reductions in overall wellness. However, some experiences and factors impact life outcomes and human wellness significantly. ACEs are associated with various adverse life outcomes and increase the odds of many behavioral, social, and health problems and adverse or traumatic experiences. These risks are further exacerbated and result in disparate outcomes for demographic groups that differ from the original ACE study.

Data from the original ACE study found ACEs showed a dose–response with measured outcomes like premature death, serious diseases, substance and alcohol use, smoking, and other risk–behaviors for leading causes of disease and disease in U.S. adults (Anda et al., 1999; Dube et al., 2003; Felitti et al., 1998). In the first analysis of ACE data, the impact of ACEs on premature death was further validated and found significant by comparing the rate of death outcomes for leading causes of death in the ACE and non–ACE groups; individual and

increasing quantities of ACEs significantly increased the risk of premature death in this sample (Felitti et al., 1998). These results illustrated that adverse life outcomes were prevalent and equally concerning for individuals outside of low education, income, and resource demographic groups, which led to the expansion of ACEs exploration in various demographic groups, and settings and with various outcomes. These new studies have started to address the limitations of the original ACE study's primarily white, educated, and economically stable sample. Succeeding studies included diverse populations and evaluated the impact of more health, social, and behavioral outcomes. However, the remainder of this project will focus on social and behavioral outcomes.

As a result of early ACE research and some of its limitations, newer studies have emphasized the importance of understanding the impacts of ACEs concerning diverse demographic characteristics (e.g., age, socioeconomic status (SES), gender identities, various settings, and education levels). While many of these studies replicated the primary findings of Felitti et al. (1998), some demographic characteristics, experiences, and factors increase or decrease the negative impact of ACEs. In a sample of Karamonjong, Uganda adolescents (n= 18, girls= 10, M=13.33 years), Eggum–Wilens et al. (2017) identified many conventional ACEs (e.g., abuse, hunger, and substance use) and high rates of environment–specific adverse events (e.g., illness, inability to attend school and close familial death). For example, participants experienced more than 50% one of the 16 adverse life events (NLE), and at least two children experienced each of the NLEs. Again, the consistent nature of ACEs emerges; but in this ethnically, financially, and systems diverse sample of children, different types of adversities are also on display.

Additionally, the number of NLE positively correlated with internalizing adjustment problems (e.g., depression, anxiety, and social withdrawal) (Eggum–Wilens et al., 2017). Although many conventional ACEs occur in this sample, the experiences of these adolescents go beyond the items used in the initial measure. Based on this, the original ACE measure would have missed many of the adversities caused by historical and political traumas endured by the Karamojong people. Furthermore, the outcomes seen in this sample of adolescents may differ from those in a different setting, country, or tribe; the pathways of interactions for ACEs are dynamic, and their relationships with outcomes depend on the person and environment–specific factors. For example, in a clinical sample of U.S. adolescents (n= 158, average= 15.5 years, bipolar (BP)–I= 81, catatonic syndrome= 77), risks for the early onset of psychiatric disorders were high for those with severe ACEs (i.e., physical/emotional neglect or sexual/physical/ emotional abuse), compared to adolescents with no major ACEs (Benarous et al., 2016). Similar to other ACE research, ACEs occurred at high rates in both ACE groups (i.e., BPD=58% and catatonic syndrome= 57%); one–fourth of all participants experienced severe ACEs (i.e., physical neglect or sexual/physical/emotional abuse); and males, low SES, and younger participants experienced more major–ACEs (Benarous et al., 2016). Despite the resilient nature of children, they are not immune to the negative influences of ACEs. Furthermore, like the sample of Karamojong children, ACEs influenced outcomes in this sample to varying degrees based on environmental and personal factors.

Considering the results of initial ACE research, the impacts of ACEs on adult life outcomes are well–documented and newer studies have continued to expand this knowledge by expanding the diversity in studies' outcomes, samples, and settings. Rehan et al. (2019) found that one exposure to some ACEs (i.e., sexual and emotional abuse) increased the risk of

experiencing psychopathology symptoms in a community sample of Finnish twin–groups (n=10,000, males=3,766, and females= 7, 214). However, repeated occurrences of any abuse further increased the risk of psychopathology compared to the risk produced by a single ACE exposure (Rehan et al., 2019). The primary characteristic of this study (twin groups) helps increase the validity of the calculated risk because it helps control genetic factors and can help identify environmental factors associated with high rates of psychopathology.

Understanding the impact of ACEs on mental health outcomes in this context allows researchers to retrospectively evaluate past data and provide a new baseline to evaluate further the impacts of different classes of ACEs on life outcomes. Curran et al. (2016) found exposure to multiple adversities predicted three classes of severity (i.e., low adversity, global adversities, and domestic emotional/physical abuse), which described the severity of experiences, this allowed researchers to evaluate the relationship between severity and adverse life outcomes in a nationally representative sample of U.S. adults. Unlike most ACE studies which compare outcomes in non–ACE groups to the ACE group, this study compared outcomes and prevalence rates between the ACE severity classes—the observation (control) group was low adversities class. Individuals in each class comprised 60%, 14%, and 26% of the sample—low adversities (low or no abuse), global adversities (all types of abuse), and domestic emotional and physical abuse (emotional and physical abuse), respectively; notably, despite the low prevalence of global adversities individuals in the sample, a higher probability for childhood domestic violence and sexual abuse (74% and 36%) was reported than in the domestic emotional and physical abuse class (11% and 10%) (Curran et al., 2016).

Individuals who experience various types of ACEs may be at greater risk for experiencing certain types of violent ACEs than those who only experience violence–related

ACEs—another example of the inter–correlated nature of ACEs. If researchers had only compared the ACE groups to a non–ACE group, they would have missed these associations. Additionally, participants in the global adversities group were more likely to be male, middle–aged, from racial–ethnic minority (REM) groups, and had lived with someone with alcohol abuse and judicial system problems as children; the presence of internalizing and externalizing psychopathology significantly and reliably predicated exposure to ACEs in the two experimental severity classes, with the relationship between internalizing symptoms and global adversities being the most significant (Curran et al., 2016). Results such as these continue to verify that ACEs significantly contribute to undesirable life outcomes, and ignoring demographic characteristics can limit the knowledge and research that informs interventions and resource allocation. However, this understanding is not limited to participants; emerging research reveals the need to expand the definition of ACEs to best capture the scope of adverse experiences in diverse populations.

Over the last decade, more research has expanded the definition of adversity to include adversities that occur within systems (i.e., families and communities) to evaluate how these experiences influence life outcomes in children and adults. Depending on the study design, participants, and measured outcomes, this concept is defined differently. However, "expanded ACEs" is a term that seems to encompass the measured experiences accurately. Cronholm et al. (2015) described expanded ACEs as exposures and events that occur outside of the home and on the family level. The development and use of questionnaires that measure these experiences have amplified the need for more ACE definitions and diverse study populations. Cronholm et al. (2015) tested conventional and expanded ACEs against demographic characteristics in a large community sample previously involved in a community hearth survey in Southern Pennsylvania

(n= 1,784, age ≥ 18). Participants endorsed exposure to conventional ACEs: no experience (31.7%), 1–3 ACEs (47.6%), and ≥ 4 ACEs (20.7%); (Cronholm et al., 2015) highlighted that despite their exclusion of divorce in this study, participants reported more conventional ACES than participants from the original ACE study. For expanded ACEs, participants reported no experience (36.6%), 1–2 ACEs (50%), and ≥ 3 ACEs (13.4%); 13% of participants had only experienced expanded ACEs.

In addition to missing the opportunity to collect data for participants with no experience of conventional ACES, the lack of data about expanded ACEs can produce a gap in research and clinical understanding about symptoms presentation and outcome risks in individuals with similar demographic characteristics. However, it is worth noting that this information is unlikely to be missed in the clinical setting (e.g., structured interviews and therapy), but compiling client data for this purpose would be an enormous undertaking that could face limitations (e.g., consistency in collection methods, patient confidentiality, and scale of data collection and synthesis). Furthermore, expanded ACEs were also high in this sample. 40.5% witnessed community violence, 34.5% experienced racial discrimination, 27.3 felt their neighborhoods were not safe, and 1 in 10 reported bullying; notably, almost half of the sample participants experienced both types of ACES (Cronholm at al., 2015). Understanding the types of ACEs, breadth of ACE experiences, and identifying their various interactions with demographic factors, can help identify populations with unique risks for adversity, increased risk for adverse outcomes, and protective and other risk factors that can attenuate or influence the pathways that contribute to how ACEs impact life outcomes in adults.

Like ACEs themselves, the pathway that governs their course can be complex and involves various interactions between biological, psychological, and environmental factors; the

most recent version expands these domains. The biopsychosocial model conceptualizes disorders and outcomes as the result of contributions of varying degrees from each domain (i.e., physical, behavioral, emotional, cognitive, and environmental) specific to individuals (Peterson et al., 2015). It explains how these domains can influence health, mental health, and behavioral outcomes; furthermore, it explains the interconnectedness and interactions between the factors, processes, and outcomes and their dependence on the individual. While versions of the model have changed, terms are usually individual–, purpose–, or discipline–specific, for example, biological domain (e.g., genetic, biochemical, and physical processes), social domain (e.g., environmental, family, and interpersonal interactions), and psychological domain (e.g., cognition, behavioral, and affect/mood processes) (Peterson et al., 2015).

The integrative nature of the biopsychosocial model means it can explain the development of disease or presence of a behavior/outcome in a group of individuals who share environmental factors but can also explain interactions and factors that may worsen or improve the prognosis for specific individuals. Illustrations of possible pathways show movement from the disease/illness outward in concentric circles for the identified domains, while bi–directional arrows illustrate the domains that interact with one another and with the disease (Peterson et al., 2015). The pathway from ACEs to adverse outcomes (e.g., incarceration) results from exposure to environmental factors (i.e., conventional and expanded ACEs) interacting directly with biological processes (i.e., increase in stress hormone production). Next, the activation of unstable biological processes activates emotional and cognitive processes (e.g., changes in affective states and distortions of processed data) within the body, which produces maladaptive functioning in the behavioral domain (e.g., development of unsafe coping); this process and interactions between these domains can further contribute to conditions that increase incarceration risk,

especially for individuals in demographic groups that already experience disproportionate risk for incarceration.

Overview of Incarceration in the United States

In the one–hundred–year period after the U.S. Civil War (1865–1965), the U.S. prison population saw an exponential increase, due in large part to policy changes that ended social programs and removed resources from formally enslaved communities (Hinton, 2016). This increase continued in conjunction with the enactment of laws criminalizing social issues like drug use and providing more federal support to law enforcement efforts. The U.S. prison population experienced a more than 130% increase between the passing of the 1965 Law Enforcement Assistance Act in 1986, five years into the War on Drugs launched by President Reagan (Hinton, 2020; Patrick et al., 1988). Essentially transforming local crime reduction into a federal issue, these two events saw the implementation of mandatory minimum sentencing for all drug offenses, increased certain citizens' contact with law enforcement, and began a period of U.S. political history that would be filled with crime related phrases like the *War on Crime* and *super–predators*.

The six years following the enactment of the Violent Crime Control and Law Enforcement Act of 1994, also known as the 1994 Crime Bill, saw exponential growth in prison populations throughout the United States, especially in drug related offenses (Schoenfeld, 2012). Over the 2000s and into the 21st century, U.S. incarceration rates continued to grow so rapidly and steadily that the term *mass incarceration* was coined to describe the increase, as compared to incarceration rates of similar countries (Cahalan, 1979; Ewert et al., 2014; Harzke & Pruitt, 2018; Travis et al., 2014). A U.S. Department of Justice (DOJ) report showed that in 2017 and 2018, more than 2.1 million Americans were incarcerated across all three government levels of

incarceration—local jails, state prisons, and federal prisons and jails. This figure did not include the more than 4.3 million individuals under community supervision during the same two years (Marusschak & Minton, 2020). From 2016 to 2018, the two nations whose populations are most similar to the United States had much smaller prison populations; Indonesia's incarceration population was approximately 83,718 and increasing, while Pakistan's was approximately 256,051 and decreasing (World Prison Brief, n.d.). Despite the increase in Indonesia's incarcerated population, numbers in 2018 still remained almost 90 percent lower than the U.S.'s prison population that year.

In addition to incarceration rates from similar counties, one should also consider the types of crimes and the demographics of individuals that are contributing to the phenomenon of mass incarceration in the U.S. and why it is considered so aberrant that it would warrant the name—*mass incarceration*. Based on the most recent DOJ reports, in 2018 and 2019 state and federal prisons in the U.S. admitted 596,407 and 576, 956 individuals respectively, making the total individuals housed for those same years 1,464,400 and 1,430,800 (Carson, 2020). According to that same report, in 2019, 435,000 of incarcerated individuals were Black; 301,700 were Hispanic or Latinx; 374,900 were White; and 167,400 were classified as Other. The U.S. Census Bureau (2019) estimated that the U.S. population was about 13 percent Black, 60 percent White, 18 percent Hispanic or Latin, and 10 percent Other in July of 2019, showing a disproportionate rate of ethnic minorities housed in prison compared to their make–up of the U.S. population.

Additionally, as of December 2019, of the 175,116 individuals under federal corrections jurisdiction, 51,416 did not receive a high school diploma or equivalency prior to incarceration and only 3,355 were obtained during incarceration (Carson et. al, 2021). Furthermore, factors like race/ethnicity, education, and income have not only been associated with high levels of

incarceration, but also with mental health disorders and risk factors for mental health disorders. Matiullah et al. (2021) found that young people age 18–24 were more likely to exhibit physiological distress when they did not have a high school diploma, were unemployed, resided in disadvantaged or densely populated neighborhoods, and made less than $20,000 a year. Additionally, women, single, parents, and those with multiple physical ailments were also more likely to exhibit psychological distress.

Factors related to low socio–economic status like housing environment, maladaptive coping skills, and the interacting effects of both have been linked to reduced coping in both adults and adolescents. According to Musa (2021), adolescents living in any type of subsidized housing were more likely to experience internalizing and externalizing symptoms than those who did not residing in subsidized housing. This is notable, because in addition to parental involvement level and parents' involvement in the criminal system (Musa 2021), socioeconomic status, and other home related factors, Musa also shared evidence from Evans (2003) which linked physical and mental distress to characteristics (e.g., noise level, safety, and quality of housing). Historically and based on current observations, many subsidized housing projects are characterized as loud, overcrowded, poor funded, and in varying status of deterioration. Another study demonstrated how impulsivity mediated the relationship between childhood sexual assault and juvenile incarceration for African American women who at the time of the study were classified as being from a low socioeconomic status (Harris, et al., 2021). This showed that the women in this sample who scored less impulsive on the assessment measure, were the least likely to experience juvenile incarceration following a childhood sexual assault. This indicates that one's risk of incarceration can be reduced with appropriate interventions, despite social factors and are not solely dependent one's social environment.

Current U.S. Incarcerated Population

The most recent U.S. incarceration census shows the population consists of 6,344,000 adults who are confined or supervised in a jail, prison, or the community on probation or parole (Minton et al., 2021). This number is a significant portion of the U.S.'s population. The number of people the U.S. incarcerated saw significant growth in the late 2000s and steadily increased throughout the 21st Century. Wildeman and Western (2010) reported, the number of U.S. incarcerations increased from around 100– to around 500– per 100,000 citizens in the thirty–five years leading up to 2010—400% increase, based on calculations. Based on individuals incarcerated per capita, there is a consensus that the rate of increase and the number of incarcerated individuals impacted are both disparate and alarming (Cahalan, 1979; Ewert et al., 2014; Harzke & Pruitt, 2018; & Travis, et al., 2014). Despite the large number of individuals who come into this system each year, recent federal reports emphasize small changes in the population. The most recent reporting of the population has shown decreases ranging from 1–3%; the majority were released from community supervision and not confinement (Kaeble & Cowhig, 2018; Kaeble & Glaze, 2016; Maruschak & Minton, 2020, & Minton et al., 2021). Therefore, if the maximum percentage of the decrease occurred during any thirty years since late–2000, the total decrease would not be comparable to the yearly or cumulative population increase during this period.

A significant implication of mass incarceration is that many individuals, mostly from minority and disenfranchised communities, will face the negative stigma and consequences experienced from incarceration. Notably, the most significant population decrease occurred within the last two years due to the novel coronavirus, or COVID–19. COVID–19, first discovered in Wuhan, China, in 2019, is a dangerous disease that is easily and quickly spread

through droplets that get dispersed by a contaminated person (CDC, 2021a). The CDC (2021a) reports three main ways the virus spreads:

1. Breathing in droplets from an infected person (i.e., from talking
2. Droplets splashing into one's eyes, nose, mouth (i.e., sneezing or coughing)
3. An individual touch their eyes, nose, or mouth with contaminated hands (i.e., touching doors or other high–volume touch areas)

The virus has mutated multiple times in the past two years. As of October 2021, the Delta Variant is the most recent version of COVID–19; it is more dangerous, spreads quicker, and may cause more severe symptoms and illness than the previous versions of the disease (CDC, 2021a). Although this disease is highly contagious and spreads quickly in large groups and close quarters, the CDC did not include prisons, jails, and halfway houses on the list in the " People at Increased Risk" section on the COVID–19 information page. Some of those now archived pages include "Caregivers of People Living with Dementia," People Experiencing Homelessness," and Rural Communities." This exclusion is notable because prisons are routinely overcrowded, and individuals live in sometimes windowless cells with very little distance between them and their cellmates.

Population Characteristics

The U.S. Bureau of Justice Statistics (BJS) publishes reports each year that describe the population's demographic characteristics. Data from the most recent reports are in this section. In 2019, the total number of individuals incarcerated in U.S. prisons equaled 1,380,427 (state=1,221, 929; federal= 158,498) (Carson, 2020); those under community supervision equaled 4,357,700 (probation= 3,492,900; parole=878,900) (Oudekerk & Kaeble, 2021). The of U.S. local jail census was 734,500 at the mid-point of 2019 (Zeng & Minton, 2021). About 65%

had no conviction— awaiting court proceedings, while only 35% had convictions and were either serving a sentence or waiting for a sentencing determination. Notably, many minority and improvised individuals spend years in local jails awaiting a trial date, leading some to agree to plea deals to expedite their return home.

Age

At the close of 2019, 539 per 100,000 U.S. residents ages 18 or older were incarcerated in state or federal prisons, notably this number is often reported an average "419". The largest age group was between 25-39 years old (Carson, 2020). Additionally, the full report by Carson (2020) indicates this average does not include incarcerated individuals 17 years or younger and housed in local or private facilities.

Racial/Ethnic Group (REG)

REG statistic for incarcerated individuals were as follows at the end of 2019: 422,880 White non–Hispanic, 452,800 Black non–Hispanic, and 320,700 Hispanic individuals (Carson, 2020). Although the populations for the three defined REG are similar, they are not comparable based on the population of these groups within the total U.S. population. For example, per 100,000 residents that make up each of these demographics, their incarceration rates are White=214, Black=1,096, and Hispanic=525 individuals incarcerated per 100,000 White Black and Hispanic individuals in the total U.S. population (Carson, 2020). Meaning despite making up smaller portions of the nation's population, Black and Hispanic citizens experience incarceration at rates that are two and five times greater than White citizens, respectively. Additionally, local jails incarcerated 617 Black, 187 White, and 185 Hispanic persons per 100,000 for each group (Zeng & Minton, 2021). One notable difference between the jail compared to the prison report, the jail report includes demographic statistics for Native (American Indian/Alaskan=420,

Asian=25, and other REGs=33 per 100,000) (Zeng & Minton, 2021). Although efforts suggested changing reporting to reduce these disparities in data collection and reporting by law enforcement agencies and correctional institutions, omissions still occur. They may serve as barriers to allocating resources and adequate representation in research and other societal domains for smaller REGs.

Gender

U.S. prisons housed about 1,279,079 males and 101,348 females (Carson, 2020); jails housed about 623,700 males and 110,700 females during 2019—the data for jails only includes individuals housed to the mid–year point.

As outlined, some demographic groups experience higher incarceration rates than others, similar to how some also experience higher rates of ACEs. Mental illness and the presentation of psychopathology also vary among incarcerated individuals, and outcomes are frequently more severe based on individuals and environments. Furthermore, some reports estimate high prevalence rates of mental illness diagnoses and symptomology among incarcerated groups.

Mental Illness in Incarcerated Populations

To better understand mass incarceration in the U.S., we must also view it from a different perspective to fully understand the scope of the issue. Mass incarceration in the United States is not only characterized by an enormous incarceration rate compared to comparable nations, disproportionate rates of incarceration among minority citizens, or laws that appear to uphold the former (Slavinski & Spencer–Suarez, 2021); it also encompasses the mental and physical condition of those incarcerated. While their statuses change from citizen to incarcerated persons, their mental and emotional states do not see the same dichotomous shift. Moreover, when individuals enter the judicial system, they do not leave their defining characteristics, experiences,

or diagnoses behind; in fact, the experience of incarceration may increase symptomology and maladaptive behaviors (Sindicich et al., 2014). Even in the absence of maladaptive coping and psychopathology in those entering the correctional system, the potential harm caused by this experience alone warrants a closer look at the occurrence of mental illness within this system. An evaluation of how and if research measures the rate of mental illness diagnoses, maladaptive behaviors, and the result of these diagnoses and behaviors among incarcerated individuals is vital to expand clinical and societal knowledge about this population, their needs, and experiences.

Based on the massive number of socially marginalized U.S. citizens incarcerated each year, it is not inconceivable that rates of mental illness diagnoses, and behaviors are vast among the prison population. Additionally, publications that collect, analyze, and produce data that characterize incarcerated persons' mental health are also available in large quantities and varieties, include multiple data collection methods, and exist for various reasons (Harzke & Pruitt, 2018; Hiday & Moloney, 2014; Sindicich et al., 2014; Wildeman & Western, 2010). However, these studies' variable scope and emphasis make it challenging to synthesize data that describe prevalence rates, especially across multiple decades for the population and those at risk for future incarceration. Nevertheless, research does continue to make efforts to expand on the use of incarceration data to identify trends, societal and demographic consequences, risk factors for contact, as well as developing and sustaining factors and beliefs (Cahalan, 1979; Ewert et al., 2014; Travis et al., 2014). The consensus is that incarceration outcomes are multifaceted with various outcomes, which is another reason the research on the role ACEs play in U.S. adults' risk of incarceration should be expanded.

As a result of the variable scope of research related to mental illness among the prison population, a meta–analysis of twenty–five studies that estimated mental disorder prevalence

rates and variability in U.S. prisons will describe rates and variability until 2013. Additional studies discuss, in detail, mental illness prevalence and show the impact of these diagnoses within the incarceration system. According to Prin (2014), a meta–analysis of twenty–five U.S. prison studies revealed various incarcerated populations had higher estimated rates of mental health disorders; prevalence rates of individual diagnoses and behaviors (e.g., obsessive–compulsive disorder, mania, generalized anxiety disorder, and individual severe mental illnesses.); and serious mental illness (i.e., schizophrenia, major depressive disorder, bipolar disorder, etc.) compared to community populations. Notably, the prevalence rates and variability for any mental illness showed the opposite trend. However, Prin explains that community samples did not exclude substance use disorders, which was the case for the chosen prison samples and could have accounted for the polar trend in prevalence rates and variability in this category. As previously stated, the correctional system is composed of many factors. In addition to mass incarceration, mental illness symptoms going unnoticed, and inadequate treatment availability nationwide generally characterizes the experiences of incarcerated individuals in the U.S. correctional system (Fries et al., 2013). Under these circumstances, the presence of psychopathology should be a concern across multiple disciplines, as many of these individuals will return to communities, and a lack of culturally and clinically relative treatment can further impact life outcomes.

Additionally, diagnoses, symptoms rates, and disparities in identification and treatment increase as the diversity factors of individuals increase (Cohen et al., 2020; Gottfried & Christopher, 2017; Pinese et al., 2010; von Dresner et al., 2013) and leave many of those with the most severe mental illness without access to treatment (Forrester et al., 2018). Furthermore, while prison can be stressful and produce internalizing and externalizing symptoms (Vogel et al.,

2014), the persistence and severity of mental illness diagnoses and symptoms while incarcerated may better be explained by experiential, cultural, diversity, and demographic factors that either cannot be changed or went unaddressed before incarceration (Pinese et al., 2010; Vogel et al., 2014). Diversity factors and prior experiences are essential because various life domains regularly intersect and influence a person's development, behaviors, and environment, as described in the biopsychosocial model.

There are many theories about the origins of criminal behavior; however, none can singularly define its etiology, and causes become even more complex when the individual committing the crime has been diagnosed with a mental illness. Ballard and Teasdale (2016) contend that the two main ideas about why individuals with mental illness are more likely to be incarcerated—criminalization and criminality of individuals with mental illnesses—are both the causes of the high prevalence rates of mental illness among incarcerated individuals. The criminalization of mental illness perspective states that the closing of mental asylums and hospitals, the expansion of the criminal justice system, and campaigns like the war on drugs have created a system where individuals with a mental illness or more likely to encounter police officers thereby increasing their risk of incarceration (Ballard & Teasdale, 2016; Dvoskin & McGuire, 2012).

The criminalization of mental illness does not only occur in the context of mentally ill individuals' direct interaction with police officers, as it can occur in the court system and forensic assessment process, where some assessors have unreasonably high thresholds or implicit biases toward individuals of specific ethnic backgrounds (McCallum & Gowensmith, 2019). In contrast, individuals with mental illness criminality refer to the idea that individuals with mental illnesses are more likely to be arrested than individuals without mental illness because they

exhibit more criminal and violent behaviors than the former (Ballard & Teasdale, 2016). It is important to note that Ballard's and Teasdale's study produced equal support for each perspective. However, the criminality perspective does not provide irrefutable evidence that supports the idea that mental illness causes individuals to commit crimes (Hilday & Burns, 2014; Peterson et al., 2014; Vogel, 2014) or produces innate criminal personalities.

In contrast, evidence indicates that substance use and externalizing behaviors and psychotic disorders are more likely to influence violent crimes among individuals with mental illness diagnoses (Roché et al., 2021, Vogel, 2014). Even so, Anda et al. (1999) and Felitti et al. (1998) found that many maladaptive behaviors (e.g., smoking) and other adverse outcomes (e.g., premature death) were significantly correlated with ACEs and were not singularly responsible for adverse life outcomes in adults. Their studies revealed that ACEs significantly correlated with behaviors that increased premature risk of death and risky behaviors, and both increased as reported ACE exposure increased. Thus, the presence of any mental illness does not indicate that someone will be involved in a violent crime or any other type of crime (Vogel, 2014) because the causes of incarceration and incarcerable behaviors vary based on the influence of numerous individual and environmental factors. The results of these and other studies guide this project's primary hypothesis that one such factor that significantly influences incarceration outcomes is ACE exposure.

While there is still no clear answer that explains why the prevalence of mental illness is so high among incarcerated populations or why incarceration rates in the U.S. are so high, the previous sections begin to show a pattern of risk and environmental factors that result in psychological, societal, and environmental circumstances that increase one's odds of being incarcerated. Felitti et al. (1998) observed a similar pattern regarding premature death in adults in

the U.S.; this led to a study that identified childhood trauma (ACEs) as a significant underlying cause of premature death and risk factors in adults, results later replicated by Brown et al. (2009). The significant results of the studies and similar studies, known adverse psychological and social outcomes of ACEs, and reports of ACE and other traumatic experiences among various sub–groups of the U.S. correctional system (e.g., Fazel & Seewald, 2012; Jaggi et al., 2016; Wolff & Shi, 2012) further warrant an empirical investigation of the relation between ACEs and incarceration outcomes. Additionally, the remaining literature in this chapter will use the results of these and other studies as a foundation to describe ACEs and their relationship to incarceration and identify special populations and the consequences of traumatic experiences that result from incarceration and identify and utilize tools to evaluate this relationship on an epidemiological scale.

Trauma Exposure and Incarceration

As previously mentioned, the relationship between trauma exposure and incarceration is complex; furthermore, the consensus among the public is that incarceration results from a decision to engage in an unlawful act. I have heard this sentiment expressed by psychologists, social science professors, and peers in varying degrees. However, unlawful behaviors—e.g., possession of illegal substances likely began as a coping strategy—i.e., substance use—to deal with some unresolved trauma. Felitti (2003) recognized that participants in the original ACE study were not engaging in risky behavior because they were indifferent to the increased risk of premature death. Instead, their risky behaviors served a purpose that generally outweighed their consequences—coping mechanisms to handle the emotional and psychological consequences of unresolved childhood trauma (ACEs). In a nationally representative sample of black Americans, Jaggi et al. (2016) found that trauma exposure usually preceded incarceration, and other

correction system exposure was also prevalent. Also, individuals with an arrest or incarceration history reported high lifetime occurrence of substance and alcohol dependence and major depression; different incarceration categories correlated significantly—i.e., juvenile detention and had been jailed. Similar to other ACE studies, there was a significant dose–wise relationship between the frequency of trauma exposure and all incarceration outcomes; for those who experienced two, three, and four or more traumatic events, odds of arrest were increasingly and significantly greater than those with only one trauma experience (Jaggi et al., 2016). For this sample, trauma exposures preceded initial contact with the correctional system and were pervasive. Furthermore, any encounter with the correctional system predicted substance and alcohol dependence and major depression.

Additionally, childhood trauma exposures (i.e., "beaten…" and "witnessed domestic violence…") significantly correlated with all three incarceration outcomes—i.e., jail, prison, and juvenile incarceration. Moreover, participants with an arrest history experienced trauma at a younger than those with no arrest history, for 9 out of 11 categories whose mean age was significantly different for the two arrest groups (Jaggi et al., 2016). While this study's results are comparable to what is expected for ACE and other trauma studies, limiting the sample to black Americans does reduce its generalizability to this demographic within the U.S. However, the study also controlled for other demographic characteristics like socioeconomic status and education, and the results were significant for incarceration–related outcomes in individuals who experienced trauma.

A similar study of Black Americans (n=5008) found that individuals aged 30–39 experienced prison than the 18–29 age group; 14% had incarceration histories; the majority of which were men. 76% obtained a high school education or lower, and 35% were lower income

(Anderson et al., 2015). Also, individuals with incarceration history experienced significantly more potentially traumatic episodes and were twice as likely to receive a PTSD diagnosis as those with an incarceration history. Anderson et al. (2015) also reported incarceration history significantly correlated with risk for PTSD and other types of potential trauma—e.g., car accidents, sexual assault, combat, and being raped. Also, correlations existed between incarceration history and lower education, having an incarcerated family member, and less than college educational attainment. These results show significant associations between trauma, incarceration history, and other adverse outcomes, indicating cofounding experiences that can lead to incarceration. Notably, many of the relationships remained significant after statistically controlling for demographic factors; this is common among many ACE studies and outcomes.

There are limitations to Anderson et al.'s (2015) study, like the inclusion of only Black Americans, and the underestimation of exposure of potentially traumatic experiences (the measure for PTSD did not measure any other criteria once participants met the minimum criteria for the diagnosis). Compared to the Jaggi et al. (2016) study, this study measures similar traumatic experiences (i.e., childhood abuse, domestic violence, combat experiences). However, there was not an explicit statement about Jaggi et al. (2016) weighting their sample size to match the U.S.'s Black populations; Anderson et al. (2015) stated their sample was weighted for this reason and provided adjusted–odds ratios (AOR) for each outcome based on these weights. Weighting a sample to match the target population is important because it provides a more accurate statistic for comparing outcomes to other demographic groups under the same circumstances. These types of comparisons increase the validity of the data and the reliability of the resulting conclusion.

ACES and Incarceration

While trauma is a broad topic, as outlined by some of the experiences measured in the previous studies, ACEs have conventionally been defined as direct instances of trauma, abuse, or neglect, usually within the home and with the specific purpose of causing pain and injury. Given this conceptualization of ACEs, few studies measure ACE among incarcerated adult populations or include expanded ACEs—traumatic environmental events or characteristics. For example, of 3,151 studies about childhood sexual and physical abuse, only 13 met the quality standards for Dalsklev et al.'s (2019) systematic review. This review found that childhood sexual and physical abuse were high among incarcerated populations; also, studies found higher rates of these two ACEs among individuals who reoffended. Dalsklev et al. (2019) also found that many studies identified childhood physical and sexual abuse as potential predictors of an individual's likelihood to re–offend. Notably, this association was small. While this study is not directly comparable to previous studies due to the different methods and design used, it increases concern regarding the lack of quality studies around the main topics of the current project—ACEs and incarceration. The review of over 3,000 studies on these topics that yields a less than 10% utilization rate illustrates that the relationship between ACEs and incarceration outcomes remains inadequately evaluated and explained.

Despite the lack of recent research, older studies showed interested in the relationship between exposure to ACES and behavioral outcomes related to crimes. One study compared the odds of committing certain types of crimes for those with ACE exposure compared those without ACE exposure. Data collected in a metropolitan area of Washington state detailed arrest outcomes, up to age 24, for 877 adults who were dependents of the state from 1980–1984 and had a history of abuse or neglect. Abused/neglected youth were 4.8 times more likely to be arrested as juveniles and two times more likely to be arrested as adults or at any point in their

lives, and 3.1 times more likely to be arrested for a violent crime than matched controls (English & Wisdom, 2003). Findings related to demographic variables showed, all three ethnic groups of abused/neglected youth had an increased risk for lifetime arrest compared to the matched control, this was significantly higher for Caucasian and African American youth in the subject group. Their initial findings for placement after dependent indicated that youth in the subject group were more likely to be arrested when placed outside of the home (i.e., foster care or kin) compared to subject participants who remained with their primary caregiver or parent at the time of the dependency disposition (English & Wisdom, 2003). The results of English and Wisdom's study align with much of what is currently known about the cumulative effects of ACEs and how they negatively impact social, mental health, and health outcomes. As previously discussed, the findings of this study offer limited information about the relationship between ACES and incarceration outcomes, as it only discusses criminal behavior outcomes as it relates to the ACE versus non–ACE population which does not speak to the predictive nature of ACE exposure. Furthermore, provides support that caring and nurturing relationships can have a moderating effect on different types of negative outcomes in ACE-exposed youth. In a sample of adjudicated youth, strong social bonds reduced recidivism rates for youth with moderate levels of ACE exposure (Craig et al., 2017). Similarly, in a study of ACE exposed adults, individuals who reported high levels of benevolent childhood experiences and moderate or lower ACE exposure had less negative physical and mental health outcomes and higher levels of resiliency (Crandall et al., 2017). While Crouch et al. (2019) found caring and nurturing adult relationships moderated the negative effect of ACEs for individuals with higher than moderate ACE exposure, as they were less likely than their counterparts to report poor health outcomes and mental distress. These results suggest that while ACEs can have long-term negative impacts on physical

and social outcomes, different types of social engagement and support may provide a moderating effect to the impact of ACEs.

This study asserts that despite the high level of co–occurrence between ACEs and incarceration and increased risk of criminal behavior for those with ACE exposure, ACE exposure is not significant predictor of criminal behavior.

Hypotheses

The aim of this research is to fill the research gap related to the correlation between ACEs and incarceration outcomes in urban communities. ACEs and incarceration are prevalent in the US, with higher risks and severity levels among minority and disenfranchised groups. It should be noted that the relationship between ACEs and incarceration is intricate and not completely comprehended. Other factors such as genetics, socio–economic disadvantage, and individual behavior may also contribute to the development of criminal behavior. However, evidence suggests that addressing ACEs could potentially reduce the risk of incarceration and improve the overall health and well–being of individuals. Furthermore, expanding knowledge of this relationship may have implications for policy, treatment, and incarceration outcomes for those at higher risk for incarceration. The study will assess whether the presence of ACEs can predict engagement in certain types of crimes, including delinquent acts, adult crime, and violent crimes versus nonviolent crimes, to enhance our understanding of the impact of ACEs on criminal behavior. The objective of this study is to investigate the relationship between ACEs and criminal behavior by employing multiple regression analysis. Specifically, we aim to test the following hypotheses and expected the following predictions to be true:

- H_0 : There is no significant relationship between ACEs exposure and incarceration among populations of urban adults in the U.S.

- H_a: There is a significant relationship between ACE exposure and incarceration among urban adults in the U.S.
    - P_1: The number of ACEs will not significantly predict the number of arrests for crime and various types of crimes.
    - P_2: The number of ACEs will not significantly predict the number of arrests during adulthood.
    - P_3: The number of ACEs will not significantly predict the likelihood of committing violent crimes compared to nonviolent crime when the likelihood of committing crime is measure by the number of arrests for each crime.

CHAPTER III

Methods

Study Design

This study was conducted with the approval of the Institutional Review Board for the Protection of Human Participants (IRB) for Alliant International University (Appendix A.). This project employed a non–experimental research design to evaluate the relationship between the primary variables of interest: adverse childhood experiences—independent variables (IV) and incarceration outcomes—dependent variables (DV). A non–experimental design is appropriate because of the use of preexisting dataset and no random assignment into groups. Therefore, participants cannot be assigned to ACEs versus non–ACEs groups due to the experiential nature of the variable. This project aims to explore the relationship between ACEs and incarceration outcomes by statistically evaluating ACEs exposure and the number of arrests for adults in an urban U.S. area.

The variables of interest are ACE exposure—independent variables and incarceration outcomes —count of arrests for any crimes, violent crimes, non–violent crimes—dependent variables. Additionally, statistical analysis will control for potential confounding variables used as population descriptors—demographics characteristics identified in research as, potential risk factors for incarceration. Based on the lack of empirical data about ACEs and the association between ACEs exposure and incarceration among U.S. adults, the primary goal of this project is to explore the relationship between the ACEs exposure and incarceration and establish predictions of incarceration for U.S. adults exposed to ACEs in urban areas.

Archival Data Collection

The data for this study will be archival in nature and will be obtained by the researcher through English and Wisdom (2003). This study, also known as the Childhood Victimization and Delinquency, Adult Criminality, and Violent Criminal Behavior in a Large Urban County in the Northwest United States, 1980–1997, or ICPSR 3548. This study was conducted as a part of the National Institute of Justice's Data Resources Program. The process for obtain permission to use this data is outline in Appendix A

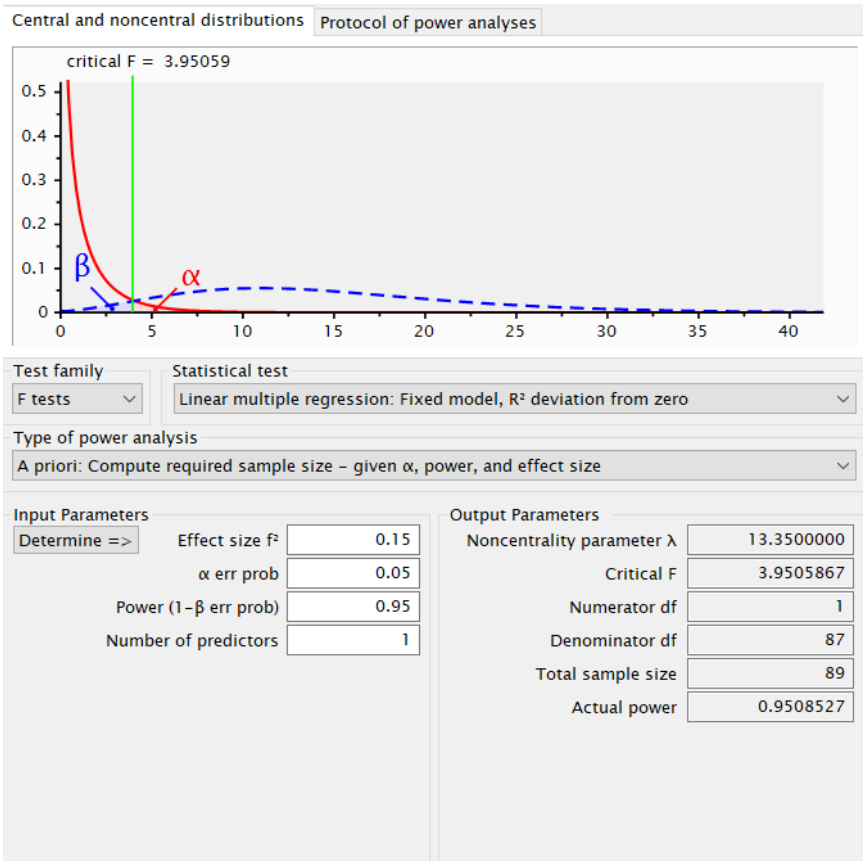
Participants

The target sample population of this study was adults in a metropolitan area in Washington state, who became dependents of the state between the years 1980 and 1984. The data collected followed them from the age of dependency until age 24. This population was be selected from an archival dataset obtained through English and Wisdom (2003); they collected data related to ACEs exposure during childhood and arrest records throughout the individual's lives. A G*Power analysis for a multiple linear regression analysis with one predictor (number of adverse childhood experiences) indicated that the minimum sample size to yield a statistical power of at least .95 with a medium effect size ($f^2 = 0.15$) and an alpha of .05 is 89 people. The total sample size consisted of 1,754 children. See Figure 1 for G*power results.

Figure 1.

Figure 1.

G Power Results for Multiple Regression (Predictor Number of ACEs)*



Instrumentation

The data in this study will be archival in nature and was originally collected and analyzed by English and Wisdom (2003), as a part of ICPSR 3548. This archival dataset consists of a sample of abused and neglected children who became dependents of the Superior Court of a large urban county in the Northwest between 1980 and 1984, as well as a matched control group of children who were not dependents of the state. This dataset contains information on type of placement, length of placement, and types of abuse/mistreatments, as well as data on juvenile arrests and criminal records for each child. Additionally, demographic variables for all subjects include gender, ethnicity, and age.

Childhood Adverse Experiences (ACEs)

The NAJCD (ICPSR 3548) was used to collect data about ACE exposure for the identified subjects. This data use used to compile the ACE categories which includes eight conventional and one expanded ACE category. These categories are adverse childhood experiences include, emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, household drug use, foster care, and domestic violence. These categories were summed to create the continuous IV (number of ACEs). A brief description of these categories of are provided in Appendix C.

Number Arrests

The first dependent variable in this study will be the number of arrests for any offenses. Criminal records for each participant were used to calculate the number of criminal offenses that a person committed while under the age of 18, as well as over the age of 18. Therefore, four different continuous level dependent variables will be assessed (number of arrests, number of adult arrests, and number of arrests for violent crimes, nonviolent crimes, property crimes, obstruction of justice related crimes, public disturbance crimes, crimes with threat of violence, and drug/alcohol related crimes).

Data Analysis Plan

The archival data was uploaded to SPSS version 28 for analysis. To prepare for the analysis, any missing data present within the archival set was removed from the final dataset. Prior to hypothesis testing, summary statistics were calculated for the variables of interest. Means and standard deviations were be calculated for the continuous variables (number of arrests, number of adult arrests, and number of arrests for violent crimes, nonviolent crimes,

property crimes, obstruction of justice related crimes, public disturbance crimes, crimes with threat of violence, and drug/alcohol related crimes), while frequencies and percentages will be calculated for the categorical variables (gender, Census socioeconomic tract, and ethnicity).

To address the three hypotheses, a series of regression analyses were conducted using gender, placement after dependency, and SES tract as controls to determine the relationship between childhood ACEs and incarceration outcomes, as defined by the number of arrests on variables of interest. First a series of multiple linear regressions were conducted to determine if childhood adverse experiences significantly predict the number arrests across the life span, the number of arrests as adults, the number of arrests for violent and non–violent crimes, and the number of arrests for types of non–violent crime (i.e., crimes with threat of violence, obstruction of justice, public disturbance, drug/alcohol related, and property crimes. Multiple linear regressions were chosen to evaluate the predictive relationship between the independent and dependent variables, all of which are continuous in nature. The following regression equations (main effects models) were used: number of arrests = B_1*number of adverse childhood experiences… +B0, where the Bs are the unstandardized beta coefficients.

For each regression, *F*–test was be used to assess whether the set of control variables collectively predicted the dependent variables. Additionally, *R*–squared, the multiple correlation coefficient of determination, was used to determine how much variance in the dependent variable was accounted for by the set of variables. For models with significant results, additional *t*–tests were conducted to determine the significance of each predictor and beta coefficients were used to determine the magnitude of prediction for each control variable.

After each regression analysis, the assumption of normality of residuals was examined with a Q–Q scatterplot of the residuals (Field, 2017; Bates, Mächler, Bolker, & Walker, 2014; DeCarlo, 1997).

CHAPTER IV

Results

The purpose of this study was to examine the relationship between the number of adverse childhood experiences (ACEs) and incarceration outcomes in a sample of U.S. adults. Engagement in criminal behavior was measured using the number of arrests for any crimes, violent crimes, non–violent crimes, and four types of non–violent crimes. The data used was provided by the National Archive of Criminal Justice Data (ICPSR 3548), English et al. (2003) collected from dependency and arrest records from a cohort of adolescents under the supervision of dependency court in a large urban area in Washington state. The records recorded subjects ACEs exposure at the time their case entered dependency court and their local, state, and federal and arrests records level until age 24.

Description of the Sample

Nearly half of the 877 subjects (n=480, 45.27%) in the archived data set were missing a large number of variables of interest. Individuals missing data for more than 24 variables were excluded and the remaining subjects were included in the current study. The majority of the 377 participants for this study were male (n=267, 67.25%), Census socioeconomic status (SES) tract, and remained with their parents after their dependency case was close (n=311, 78.34%). Table 1 displays the frequency distribution and corresponding percentages for the demographic variables.

Table 1

Frequency Table for Demographic Variables

Variable	*n*	*%*
Gender		
Male	267	67.25
Female	130	32.75
Census Tract SES		
1	105	26.45
2	132	33.25
3	8	2.02
4	77	19.40
Placement at Disposition of Dependency		
Placed with parent	311	78.34
Place in foster care	6	1.51
Placed with relative		
Racial Ethnic Group (REG)		
Black/African-American	121	30.48
Native American	31	7.81
White/Caucasian	240	60.45

***Census Tract SES were groupings created by the English and Wisdom to identify matched controls. The descriptions related to income level were not provided in the Codebook and were unavailable through additional exploration.*

Hypothesis Testing

Descriptive Statistics

Independent variables (IV). The number of ACEs was calculated by summing the total number of ACE exposures for each of the 397 subjects. The average number of ACEs observed for each participant was 2.52 (*SD* = 1.31).

Dependent variables (DV). The mean number of adult arrests was 9.24 (SD = 13.82) for all categories of crime and 11.22 (SD = 15.39) for any adult or juvenile arrests. The mean number of property crimes was 3.66 (SD = 6.23), and the mean number of crimes involving a threat of violence was 0.76 (SD = 1.67). The mean number of drug/alcohol–related crimes was 1.84 (SD = 3.14). The mean number of non–violent crimes was 8.69 (SD = 12.40), while the mean number of public disturbance crimes was 0.31 (SD = 0.97), and the mean number of

violent crimes was 1.91 (SD = 2.85). The summary of statistics for IV and DV can be found in Table 2.

Table 1

Summary Statistics Table for Independent and Dependent Variables

Variable	*M*	*SD*
Number of Arrests Adult	9.24	13.82
Any	11.22	15.39
Property Crime	3.66	6.23
Crimes w/ Threat of Violence	0.76	1.67
Drug/Alcohol Crime	1.84	3.14
Number of ACEs	2.52	1.31
Non–Violent Crime	8.69	12.40
Public Disturbance	0.31	0.97
Violent Crime	1.91	2.85
Obstruction of Justice	2.04	4.10

Statistical Analysis

Multiple Regression. Hierarchal multiple regressions were conducted to test the predictions, the independent variables were added using two blocks. The first block for each regression included dummy coded variables for the controls: gender (male, female), ethnicity (Black, Native American, Caucasian), placement at disposition (primary caregiver, kin), and Census tract for socioeconomic status (1, 2, 3, 4, 7) on the IV for each DV. Next, nine separate regressions were conducted that entered the dependent variables for arrest (adult, any, property crime, crimes w/ threat of violence, non–violent crimes, public disturbance, violent crimes, and obstruction of justice related crimes) on the second step. The IV (number of ACEs) did not account for significant additional variability in the analysis of the number of arrests for any crimes across their life span or as adults, property crimes, violent crimes, crimes involving the

threat of violence, non–violent crimes, or drug/alcohol related crimes. The number of ACEs did account for significant additional variability in the analysis of arrests for public disturbance and obstruction of justice related crimes.

The multiple regression model for the two significant relationships are in Table 3 and Table 4.

Table 3
Model Summary Table for Number of Arrests for Public Disturbance Crimes

					Change Statistics		
Model	R	R Squared	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	R Squared
1	.260	0.06	0.081	0.	0.068	3.128	*0.001
2	.284	0.081	0.057	0.057	0.013	5.375	*0.021

p<.05

Table 4
Model Summary Table for Number of Arrests Obstruction of Justice Crimes

					Change Statistics		
Model	R	R Squared	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	R Squared
1	.262	0.069	0.047	4.00	0.069	3.166	*0.001
2	.293	0.086	0.062	3.97	0.017	7.319	*0.007

p<.05

Post–hoc Analysis. The assumption of normality was violated for each regression model, skewness and kurtosis was set at the absolute value of 2. Due to the shape and distribution of the curves, an inverse transformation was deployed to each regression model. Many of the subject were excluded to achieve normality for all regression models except for the regression model for arrests for any crimes. At least 40% of participants were excluded from some models, many of whom scored 30 zeros on variables of interests. For this reason, results were reported for models

that loss than 50% of its participants during transformation and results was statically significant post-transformation. The implications of interpreting the regressions for the inverse variables without these subjects is discussed later.

A second hierarchical multiple regression was conducted using the inverse of the arrests for violent crimes. This regression was followed by a second check of the assumption of normality for residuals; the residuals were normal for the inverse of arrests for any crimes. The results of this model indicated the number of ACEs did not significantly predict the number of times individual were arrested over the course of their lives or the number of times they would be arrested for violent offenses. Some of the control variables significantly predicted the number of arrests for specific demographic populations. Males and Black subjects were more likely to be arrested for any crime and violent crimes than other demographics groups. While individuals placed with parents were slightly more likely to be arrested for any crime than those adjudicated to other placement settings (i.e., foster care, family member) but this result was not statically significant. The regression model summary statistic for the inverse of arrest for any crimes and violent crimes is in Table 5. The coefficient table for the inverse of arrests for any crimes and violent crimes is in Table 6.

Table 5
Model Summary Statistic Table

Inverse of Number of Arrest for Any Crimes							
					Change Statistics		
Model	R	R Squared	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig F Change
1	.38	.142	.12	0.33	0.14	7.11	0.00
2	.38	.145	.12	0.33	0.003	1.49	*0.22
Inverse of Number of Arrests for Violent Crimes							
1	.37	.140	.106	.33	.14	4.12	0.00
2	.37	.140	.102	.33	0	.086	*.769

p<.05

Table 6
Coefficients Table for Model 2:

Inverse of Number of Arrests for Any Crime					
Coefficients	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	*t*	*p*–value
Constant	.50	.07	–	6.9	.01
Gender (Male)	–.17	.04	–.23	–4.8	*.01
Placement (Parent)	.10	.5	.11	1.97	.05
Ethnicity (Black)	–.19	.042	–.24	–4.42	*.000
Inverse of Number of Arrests for Violent Crimes					
Constant	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	*t*	*p*–value
Gender (Male)	-.18	.05	-.24	-3.8	*.000
Ethnicity (Black)	-.11	.05	-.16	-2.18	*.03

$p < .05$

CHAPTER V

Discussion

Main Findings

The primary finding of this study suggests that ACEs—potentially harmful or traumatic events experienced before age 18—do not significantly predict the number of crimes a person commits over the course of their life or the number of violent crimes they commit. These finding support the null hypothesis of this study by indicating an elevated or statically significant risk of arrests or incarceration for those with ACE exposure cannot predict the likelihood that incarceration or arrests will occur. Additionally, secondary predictions (i.e., P_2: The number of ACEs will not significantly predict the number of arrests during adulthood. P_3: The number of ACEs will not significantly predict the likelihood of committing violent crimes compared to nonviolent crime when the likelihood of committing crime is measure by the number of arrests for each crime.) could not evaluated because the normality of residuals was violated, and corrections excluded more than half the sample for many of the regression models. Possible reasons and solutions will be explored later in this Chapter.

Notably, the primary findings differ from the results presented by English and Wisdom (2003) in that they do not indicate a significant relationship between ACEs and arrests/incarceration. However, there is a similarity in the elevated number of arrests for male and Black subjects, which English and Wisdom also found in their earlier analysis of this data. One reason for the difference in results may be related to the complexity of the relationship between environmental factors and how they impact biological and psychological outcomes. Often, complex relationships are not well captured or described when viewed through a singular theoretical or statical lens. In the case of participants in this data, English and Wisdom's (2003)

findings that participants with ACEs exposure are more likely to be arrested and have an elevated risk of arrests, especially for violent crimes, do not take into consideration the interconnected relationship of arrests/incarceration risks and the rate at which they appear in ACE and non-ACE population. Additionally, such results also do not account for protective factors that either reduce or change the course of ACE exposure. Given what is known currently about the relationship between gender and ethnicity and arrests, these results also do not consider the impact social constructs like bias and racism have on social outcome like arrest and incarceration. The similarities in results of this and the study conducted by English and Wisdom (2003) further raise the question about how societal norms and practices impact social outcomes particularly for certain demographic groups.

Taken all together, the results of this project and the study conducted by English et al., (2002) suggest that increased risk and higher odds do not indicate the predictive nature of an experience or group of experiences. Given the use of an odds ratio (OR) in the original analysis of the selected data set and the results of this project, exploring the odds of arrest as determined by the current predictor variable (number of ACEs) could further expound on both sets of results to explore whether the number of ACEs an individual is exposed to significantly predicts arrest outcomes. Further exploration of this and other factors that lead to arrest can help expand the knowledge an application of complex social phenomenon, inform interpretations of limited and complex data, and expand the clinical understanding of risk and protective factors of arrests and incarceration for those with additional risk factors like ACEs which can help inform culturally appropriate and effective interventions to reduce these risks. The use of such knowledge can be seen in how recent research has identified strong social bonds, positive and affirming experiences, and nurturing adult relationships as potential moderators to the harmful effects of

ACEs. The identification of these and other protective factors can serve has a strong foundation for cultural appropriate interventions to reduce incarceration rates in inner city communities.

Implications for Practice in a Multicultural Society

The findings of this study have important implications for practice in a multicultural society. The results suggest that childhood adverse experiences do not significantly predict the number of crimes a person commits over the course of their life. This highlights the need for a holistic approach to understanding the causes of criminal behavior, which considers a wide range of factors beyond just childhood experiences.

However, the finding that being male and Black better predicts the number of times an individual will be arrested over the course of their life is concerning. This finding suggests that individuals who fall into these categories may be at a greater risk of experiencing negative outcomes within the criminal justice system. The complexity of these risks was highlighted by Brame et al. (2014), this study indicated the risk of arrests was disparate for men and even more so for Black men in the U.S. They found that males were more likely to be arrested than female, more than one–quarter of Black males were arrested at least once before age 18 compared to White males, and nearly half had been arrested by age 23. Notably, the archival data file for the current study ends at age 24 and while the predicative nature of ACEs was not significant, the original analysis of this data found similar results to the study conducted by Brame and his colleagues. Suggesting that in more than 20 years not much has changed in the criminal justice system. Berdejó (2018) further heighted the risk and consequences of race and gender biases in criminal justice practice. This study found there were significant disparities in plea–bargaining and adjudication of cases based on race, as white defends with no prior history of convictions was more likely to have their charges reduced. Practitioners working in the criminal justice

system should be aware of this potential bias and work to ensure that their practices are equitable and unbiased.

Additionally, the inconclusive results regarding the predictive nature of childhood adverse experiences on specific types of crimes committed as adults highlight the need for further research in this area. Practitioners working in the criminal justice system should be aware of the limitations of the current research and the need for more nuanced and targeted approaches to understanding the relationship between childhood experiences and criminal behavior.

As outlined in the previous chapter, decreasing crime rates have not been met with a decrease in incarceration rates in the United States. This is especially true in urban communities which has led to character assumptions about groups of individuals based on their demographic factors like ethnicity, gender, and socioeconomic status. As previously discussed, development and life outcomes, such as incarceration/criminal behavior, can be impacted by individual and systematic factors including exposure to household and community dynamics like experiences of violence, exposure to substance use, and changes in environment which are widely recognized as ACES. This experience can be compounded and further influenced by demographic factors, especially in urban communities.

At the time of this study there were limited research findings to answers questions related to how ACE exposure influences incarceration outcomes in the U.S. The archived data used offered the ability to further advance knowledge about this relationship while limiting risk to subjects. Findings from English et al. (2003) showed all three ethnic groups of abused/neglected youth had an increased risk for lifetime arrest compared to the matched control, this was significantly higher for Caucasian and African American youth in the subject group. Their initial findings for placement after dependent indicated that youth in the subject group were more likely

to be arrested when placed outside of the home (i.e., foster care or kin) compared to subject participants who remained with their primary caregiver or parent at the time of the dependency disposition (English et al., 2003). The results of English and Wisdom's study align with much of what is currently known about the cumulative effects of ACEs and how they negatively impact social, mental health, and health outcomes. As previously discussed, the findings of this study offer limited information about the relationship between ACES and incarceration outcomes, as it only discusses criminal behavior outcomes as it relates to the ACE versus non–ACE population which does not speak to the predictive nature of ACE exposure. Which was the basis of the current dissertation project. This study asserted that despite the high level of co–occurrence between ACEs and incarceration and increased risk of criminal behavior for those with ACE exposure, ACEs are not a significant indicator of whether a person will commit an arrestable offense.

The analyses for this study initially supported the hypotheses that the number of ACEs would not significantly predict engagement in criminal behavior, as defined by any arrests, adult arrest, and total number of arrests for violent crime, non–violent crime, and many of the non–violent crime categories (i.e., property crime, crime with threat of violence, and drug/alcohol related crime). The findings indicate, there is some support for this hypothesis. The benefit of this and other studies the use of empirical data to expand scientific knowledge of complex biopsychosocial relationships can better inform community level preventative interventions, identify risk factors, and inform adequate interventions and procedures within the criminal justice system. While these are important for all populations, adequate interventions that address root causes of criminal behavior and confounding variables can help better prepare incarcerated person to return, contribute to, and remain in the community.

Overall, the findings of this study emphasize the importance of taking a comprehensive and culturally sensitive approach to understanding criminal behavior and addressing the needs of individuals within the criminal justice system. This includes addressing potential biases and inequalities in the system and working to provide support and resources to individuals who have been impacted by adverse experiences.

Strengths and Limitations

Strengths

The use of archival data provided access to a large and diverse sample of participants, which can increase the generalizability of the findings when conducting empirical research. Additionally, the use of longitudinal data allowed the benefit of measuring the impact ACES had on arrests during a discrete period of time. Secondly, the data set reduced the costs and time that can be associated with collecting data from larger samples. Furthermore, as research has expanded, new questions asked and old questions re-examined, the potential of harm to subjects should always be taken into consideration as mandated by the ethic's code that guides clinical, human relations, and research practices in the field of psychology. The execution of this study's plan allowed analysis of the proposed hypotheses without incurring additional risks to subjects.

Additionally, multiple linear regressions can identify the relationship between constructs like ACEs and incarceration outcomes, while controlling for potentially confounding variable such as gender, placement after dependency, and SES tract. The ability to control for cofounding variables can help improve scientific knowledge about complex relationships like the one observed between ACEs and arrests/incarceration outcomes. Additionally, if confounding variables are statically significant, the strength of their significance can be tested to evaluate practical significance. Furthermore, he use of multiple linear regressions also allowed the re-

examination for old data which can be used to evaluate why ACE exposure as statistically significant risk factor for arrest/incarceration does not translate into a significant predictor of the same outcome. This is important because understanding the practical significance of a statistic increases the general application of statistical findings. Also, the examination of the assumptions of normality of residuals proved helpful in for ensuring the interpretation of valid results.

Limitations

Although archival data has the benefit of increased sample size and diversity, it may limit further analysis of the data because later researchers have no control of the completeness and quality of the data. In the case of this study, nearly half of the original archived sample was excluded due to missing data points of interest. The loss of these data points may have contributed to non-normal distribution of residuals during post-hoc analyses of the regression models. Secondly, transforming the childhood abuse variables into a continuous variable may not have accurately captured the complexity of the experience and may have resulted in the loss of information about the types and occurrences of specific abuse/neglect experiences and how they impacted the measured outcomes. This one is particularly important due to some studies finding that more severe types of abuse increase the risk of incarceration for specific categories of offenses.

The primary implication of the non–normal residuals in this study was the inability to interpret the inverse transformation for the criterion variables because many of the participants with zero arrests were excluded from the analysis to achieve normality. This is significant because individuals without arrests or no arrests for certain types of crime are important in the discussion on the impact of ACEs, as they may add additional information that can help expand on the utility of protective factors on the medication of protective factors against the negative

impact of ACEs, as discussed in Chapter 2. Another implication of the non–normal residuals was the inability to evaluate the difference in the predicative nature of ACEs on the occurrence of arrest for non–violent versus violent crimes. Notably with additional time, further exploration of this data would have been possible using statistical tests which will be discussed in a later section.

Additionally, while controlling for confounding variables is important, especially as these relate to the development of interventions that aim to reduce or prevent incarceration and other poor social outcomes in urban communities, the variables controlled in this study do not constitute an exhaustive list of variables that could influence the relationship between ACEs and incarceration outcomes. The missing SES Census Tract descriptions limited the ability to analyze the cofounding effect, if any, of SES and racial ethnic identify for this population. Notably, SES and lack of access to resources have are linked to higher arrests and incarceration rates for individuals who are Black, have lower levels of education, and live in specific communities and the missing census tract data may have provided insight into this relationship. For example, if the predictive value of SES Census Tract 1 was higher than that of SES Census Tract for Black subjects, we might be able to draw conclusions regarding how financial resources impacted arrest/incarceration incomes for Black subjects. The lack of these descriptions limited the ability to better understand and analyze additional protective or risk factors for the individuals in this sample.

Lastly, the archival data utilized in this study is old (1980s-1990s), limited to specific geographic area in Washington State, and focuses on a younger age group of adults. Therefore, the findings may not be generalizable to other population or settings, as the sample may not be representative of current trends, other geographical locations, or age groups. Notably trends in

crime reporting has changed since publication of the 2003 study by English and Wisdom. Notably, the Bureau of Justice Statistics changed the name of "personal crimes" to violent crimes. This change also included the removal of specific crime categories including those that attempt or threaten violence, as all such offenses are now reported under the category of "violent crimes". Changes such as these impact how the measured behaviors are categorized and can also impact how this and similar data interpreted and utilized to make decisions about interventions and future research.

Future Directions

In evaluating the predictive nature of the relationship between ACEs and incarceration, future studies might consider evaluating more recent data that can account for current crimes trends and may offer a larger sampling for longitudinal data regarding ACE exposure. Second, applying a logistic regression analysis may allow for continued evaluation of the predictive nature of ACEs on arrests/incarceration outcomes if binary, categorical variables were used in place of continuous variables. This change in analysis might be particularly insightful when evaluating data sets similar to the data provided by English and Wisdom (2003), as it can be used to attempt to replicate the findings of this project and further shed light on the assumption made here, that ACE exposure alone done contribute to incarceration. The transformation of the dependent variable as nominal variables could be used to evaluate the predictive nature of ACEs and the relationship between arrest and arrests for crime categories. Finally, the use of a Bayesian model to assess the residuals of normality may improve the validity of the current research design, as Koten and Gray (2006) found the Bayesian network model used in their study provided a more accurate prediction than the commonly used regression tree model.

References

American Psychological Association. (2017). *Clinical practice guidelines for the treatment of posttraumatic stress disorder (PTSD) in adults*. https://www.apa.org/ptsd-guideline/ptsd.pdf

Anda, R. F., Croft, J. B., Felitti, V. J., Nordenberg, D., Giles, W. H., Williamson, D. F., & Giovino, G. A. (1999). Adverse childhood experiences and smoking during adolescence and adulthood. *JAMA, 282*(17), 1652–1658. https://doi.org/10.1001/jama.282.17.1652

Anderson, R. E., Geier, T. J., & Cahill, S. P. (2015). Epidemiological associations between posttraumatic stress disorder and incarceration in the National Survey of American Life. *Criminal Behaviour and Mental Health, 26*(2), 110–123. https://doi.org/10.1002/cbm.1951

Ballard, E. & Teasdale, B. (2016). Reconsidering the criminalization debate: An examination of the predictors of arrest among people with major mental disorders. *Criminal Justice Policy Review, 27*(1), 22–45. https://doi.org/10.1177/0887403414561255

Ballard Barch, D. M., Belden, A. C., Tillman, R., Whalen, D., & Luby, J. L. (2018). Early childhood adverse experiences, inferior frontal gyrus connectivity, and the trajectory of externalizing psychopathology. *Journal of the American Academy of Child & Adolescent Psychiatry, 57*(3), 183–190. https://doi.org/10.1016/j.jaac.2017.12.011

Benarous, X., Raffin, M., Bodeau, N., Dhossche, D., Cohen, D., & Consoli, A. (2017). Adverse childhood experiences among inpatient youths with severe and early–onset psychiatric disorders: Prevalence and clinical correlates. *Child Psychiatry and Human Development, 48*(2), 248–259. https://doi.org/10.1007/s10578–016–0637–4

Berdejó, C. (2018). Criminalizing race: Racial disparities in plea bargaining. *Boston College Law Review, 59*(4):1189–1249

Brame, R., Bushway, S. D., Paternoster, R., & Turner, M. G. (2014). Demographic patterns of cumulative arrest Prevalence by ages 18 and 23. *Crime & Delinquency*, *60*(3), 471–486. https://doi.org/10.1177/0011128713514801

Brown, D. W., Anda, R. F., Edwards, V. J., Felitti, V. J., Dube, S. R., & Giles, W. H. (2007). Adverse childhood experiences and childhood autobiographical memory disturbance. *Child Abuse & Neglect, 31*(9), 961–969. https://doi.org/10.1016/j.chiabu.2007.02.011

Brown, D. W., Anda, R. F., Tiemeier, H., Felitti, V. J., Edwards, V. J., Croft, J. B., & Giles, W. H. (2009). Adverse childhood experiences and the risk of premature mortality. *American Journal of Preventive Medicine, 37*(5), 389–396. https://doi.org/10.1016/j.amepre.2009.06.021

Cahalan, M. (1979). Trends in incarceration in the United States since 1880: A summary of reported rates and the distribution of offenses. *Crime & Delinquency, 25*(1), 9–41. https://doi.org/10.1177/001112877902500102

Carson, E. A. (2020, October). *Prisoners in 2019* (NCJ 255115). U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. https://www.bjs.gov/content/pub/pdf/p19.pdf

Carson, E. A., & Mulako–Wangota, J. (2021). *Corrections Statistical Analysis Tool (CSAT) – prisoners*. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. https://www.bjs.gov/index.cfm?ty=nps

Cawthorpe, D., Marriott, B., Paget, J., Moulai, I., & Cheung, S. (2018). Relationship Between Adverse Childhood Experience Survey Items and Psychiatric Disorders. *Permanente Journal*, *22*(4), 1–5. https://doi.org/10.7812/TPP/18–001

United States Census Bureau. (2023). *Urban and rural.* https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html

United States Census Bureau. (1994). *Chapter 10- Census tracts and block numbering areas. ("GARM").* U.S. Department of Commerce, Economics and Statistic Administration. Ch10GARM.pdf (census.gov)

Centers for Disease Control and Prevention. (2021a). *About COVID–19*. U.S. Department of Health and Human Services. https://www.cdc.gov/coronavirus/2019–ncov/your–health/about–covid–19.html

Centers for Disease Control and Prevention. (2021b). *Violence prevention: Preventing adverse childhood experiences*. U.S. Department of Health and Human Services https://www.cdc.gov/violenceprevention/aces/fastfact.html

Centers for Disease Control and Prevention. (2021c). Behavioral Risk Factor Behavior System (BRFSS). U.S. Department of Health and Human Services https://www.cdc.gov/brfss/

Cohen, T., Mujica, C., Gardner, M., Hwang, M., & Karmacharya, R. (2020). Mental health units in correctional facilities in the United States. *Harvard Review of Psychiatry*, *28*(4), 255–270. https://doi.org/10.1097/HRP.0000000000000267

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 (2017), pp. 34-45. https://doi.org/ 10.1016/j.jcrimjus.2017.09.005

Crouch, E., Radcliff, E., Strompolis, M., & Srivastav, A. (2018). Safe, Stable, and Nurtured: Protective Factors against Poor Physical and Mental Health Outcomes Following Exposure to Adverse Childhood Experiences (ACEs). *Journal of Child & Adolescent Trauma, 12*(2), 165–173. https://doi.org/10.1007/s40653-018-0217-9

Crandall, A., Miller, J. R., Cheung, A., Novilla, L. K., Glade, R., Novilla, M. L. B., Magnusson, B. M., Leavitt, B. L., Barnes, M. D., & Hanson, C. L. (2019). ACEs and counter-ACEs: How positive and negative childhood experiences influence adult health. *Child abuse & neglect, 96*, 104089. https://doi.org/10.1016/j.chiabu.2019.104089

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

Curran, E., Adamson, G., Stringer, M., Rosato, M., & Leavey, G. (2016). Severity of mental illness as a result of multiple childhood adversities: US National Epidemiologic Survey. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 51*(5), 647–657. https://doi.org/10.1007/s00127–016–1198–3

De Bellis, M. D., & Zisk, A. (2014). The biological effects of childhood trauma. *Child and adolescent psychiatric clinics of North America, 23*(2), 185–vii. https://doi.org/10.1016/j.chc.2014.01.002

Demers, L., Handley, E., Hunt, R., Rogosch, F., Toth, S., Thomas, K., & Cicchetti, D. (2019). Childhood maltreatment disrupts brain–mediated pathways between adolescent maternal

relationship quality and positive adult outcomes. *Child Maltreatment, 24*(4), 424–434. https://doi.org/ 10.1177/1077559519847770

von Dresner, K. S., Underwood, L. A., Suarez, E., & Franklin, T. (2013). Providing counseling for transgendered inmates: A survey of correctional services. *International Journal of Behavioral Consultation & Therapy, 7*(4), 38–44. https://doi.org/10.1037/h0100965

Dube, Shanta & Felitti, Vincent & Dong, Maxia & Chapman, Daniel & Giles, Wayne & Anda, Robert. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug Use: The Adverse Childhood Experiences Study. *Pediatrics. 111*. 564–72. 10.1542/peds.111.3.564.

Dvoskin, J. A., & McGuire, J. (2012). Addressing System Inertia to Effect Change. In *Using Social Science to Reduce Violent Offending* (pp. 265–290). Oxford University Press.

Dye, H. (2018). The impact and long–term effects of childhood trauma. *Journal of Human Behavior in the Social Environment*, *28*(3), 381–392. https://doi.org/10.1080/10911359.2018.1435328

English, D.J. & Wisdom, C.S. (2003). Childhood victimization and delinquency, adult criminality, and violent criminal behavior in a large urban county in the Northwest United States, 1980-1997. [distributor], 2003-05-06. https://doi.org/10.3886/ICPSR03548.v1

Ewert, S., Sykes, B. L., & Pettit, B. (2014). The Degree of Disadvantage: Incarceration and Inequality in Education. *The ANNALS of the American Academy of Political and Social Science, 651*(1), 24–43. https://doi.org/10.1177/0002716213503100

Fazel, S. & Seewald, K. (2012). Severe mental illness in 33, 588 prisoners worldwide: systematic review and metal regression analysis. *The British Journal of Psychiatry, 200*, 364–373. https:// 10.1192/bjp.bp.111.096370

Felitti, V. J. (2002). The relationship of adverse childhood experiences to adult health: Turning gold into lead. *Zeitschrift Fur Psychosomatische Medizin Und Psychotherapie, 48*(4), 359–369. https://doi.org/10.13109/zptm.2002.48.4.359

Felitti, V. J. (2003). The origins of addiction: Evidence from the Adverse Childhood Experience Study. *Praxis Der Kinderpsychologie Und Kinderpsychiatrie, 52*(8), 547–559.

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

Finkelhor, D., Shattuck, A., Turner, H., & Hamby, S. (2013). Improving the Adverse Childhood Experiences Study Scale. *JAMA Pediatr, 167*(1), 70–75. https//doi.org/10.1001/jamapediatrics.2013.420

Forrester, A., Till, A., Simpson, A., & Shaw, J. (2018). Mental illness and the provision of mental health services in prisons. *British Medical Bulletin, 127*(1), 101–109. https://doi.org/10.1093/bmb/ldy027

Fries, B.E., Schmorrow, A., Lang, S.W., Margolis, P.M., Heany, J., Brown, G.P., Barbaree, H.E., & Hirdes, J.P. (2013). Symptoms and treatment of mental illness among prisoners: A study of Michigan state prisons. *International Journal of Law and Psychiatry, 36*, 316–325. http://dx.doi.org/10.1016/j.ijlp.2013.04.008

Gottfried, E.D. & Christopher, S.C. (2017). Mental disorders among criminal offenders: A review of the literature. *Journal of Correctional Health Care, 23*(3), 336–346. https://doi.org/10.1177/1078345817716180

Harzke, A.J. & Pruitt, S.L. (2018). Chronic Medical Conditions in Criminal Justice Involved Populations. *Journal of Health & Human Services Administration, 41*(3), 306–347.

Hays–Grudo, J., & Morris, A. S. (2020). Adverse childhood experiences. In *Adverse and protective childhood experiences: A developmental perspective.* (pp. 3–22). American Psychological Association. https://doi.org/10.1037/0000177–001

Hiday, V.A. and Moloney, M.E. (2014). Mental illness and the criminal justice system. In W.C. Cockerham, R. Dingwall, and S.R. Quah (Eds.), *The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society*. Chicester: Wiley Blackwell. https://doi.org/10.1002/9781118410868.wbehibs513

Jäggi, L. J., Mezuk, B., Watkins, D. C., & Jackson, J. S. (2016). The relationship between trauma, arrest, and incarceration history among Black Americans: Findings from the National Survey of American Life. *Society and Mental Health, 6*(3), 187–206. https://doi.org/10.1177/2156869316641730

Kaeble, D. & Cowhig, M. (2018, April). *Correctional populations in the United States, 2016 (NCJ 251211)*. (2021). Bureau of Justice Statistics. https://bjs.ojp.gov/content/pub/pdf/cpus16.pdf

Kaeble, D. & Glaze, L. (2016, December). *Correctional populations in the United States, 2015 (NCJ 250374).* Bureau of Justice Statistics. https://bjs.ojp.gov/content/pub/pdf/cpus15.pdf

Kazdin, A. E. (2017). *Research design in clinical psychology*, 5th ed. Pearson

Koten, C. van & Gray, A.R. (2006). An application for Bayesian network for predicting object-oriented software maintainability. *Information and Software Technology, 48 (1),* 59–67. https://doi.org/10.1016/j.infsof.2005.03.002

Kwong, T. Y., & Hayes, D. K. (2017). Adverse family experiences and flourishing amongst children ages 6–17 years: 2011/12 National Survey of Children's Health. *Child Abuse & Neglect, 70*, 240–246. https://doi.org/10.1016/j.chiabu.2017.06.016

Maruschak, L.M. & Minton, T.D. (2020, August). *Correctional populations in the United States*, 2017–2018 (NCJ 252157). Bureau of Justice Statistics. https://bjs.ojp.gov/content/pub/pdf/cpus1718.pdf

McCallum, K. & Gowensmith, W. (2019). Tipping the scales of justice: The role of forensic evaluation in the criminalization of mental illness. *CNS Spectrums, 25*(2), 1–7. https://doi.org/ 10.1017/S1092852919001275

Merriam–Webster. (2021). *Custody*. In Merriam–Webster dictionary. Retrieved September 20, 2021, from https://www.merriam–webster.com/dictionary/custody

Merrick, M.T., Ford, D.C., Ports, K.A., & Guinn, A.S. (2018). Prevalence of Adverse Childhood Experiences From the 2011–2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatr, 172*(11), 1038–1044. https://doi.org/10.1001/jamapediatrics.2018.2537

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 US. *Child Abuse & Neglect, 37*(11), 917–925 https://doi.org/10.1016/j.chiabu.2013.07.011

Minton, T. D., Beatty, L. G., & Zeng, Z. (2021, July). *Correctional Populations in the United States, 2019 – Statistical Tables (NCJ 3006552021).* Bureau of Justice Statistics. https://bjs.ojp.gov/sites/g/files/xyckuh236/files/media/document/cpus19st.pdf

Mongan, D., Shannon, C., Hanna, D., Boyd, A., & Mulholland, C. (2019). The association between specific types of childhood adversity and attenuated psychotic symptoms in a community sample. *Early Intervention in Psychiatry*, *13*(2), 281–289. https://doi.org/10.1111/eip.12478

Narayan, A. J., Rivera, L. M., Bernstein, R. E., Harris, W. W., & Lieberman, A. F. (2018). Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood experiences (BCEs) scale. *Child Abuse & Neglect*, *78*, 19–30. https://doi.org/10.1016/j.chiabu.2017.09.022

Inter–university Consortium for Political and Social Research National Institute for Social Research University of Michigan [ICPSR]. (2023). *Terms of Use.* ICPSR. Retrieved January 15, 2023, from https://www.icpsr.umich.edu/cgi–bin/sdaterms

Olsavsky, A. K., Stoddard, J., Erhart, A., Tribble, R., & Kim, P. (2021). Reported maternal childhood maltreatment experiences, amygdala activation and functional connectivity to infant cry. *Social Cognitive & Affective Neuroscience*, *16*(4), 418–427. https://doi.org/10.1093/scan/nsab005

Oudekerk, B. & Kaeble, D. (2021, July). *Probation and Parole in the United States, 2019 (NCJ 256092)*. Bureau of Justice Statistics. https://bjs.ojp.gov/sites/g/files/xyckuh236/files/media/document/ppus19.pdf

Peterson, A.L., Goodie, J.L., & Andrasik, F. (2015). Introduction to biopsychosocial assessment in clinical health psychology. In F. Andrasik, J.L. Goodie, & A.L. Peterson (Eds.), *Biopsychosocial assessment in clinical health psychology* (pp. 3–7). ProQuest Central https://ebookcentral.proquest.com

Pinese, C., Furegato, A., & Santos, J. (2010). Demographic and clinical predictors of depressive symptoms among incarcerated women. *Annals of General Psychiatry, 9(*34). https://doi.org/ 10.1186/1744–859X–9–34

Prin, S.J. (2014). Pravalence of mental illnesses in United States prisons: a systematic review. *Psychiatric Services, 65*(7), 862–872. https://doi:10.1176/appi.ps.201300166

Rauch, S. A. M., & McLean, C. P. (2021). What is prolonged exposure therapy? In Retraining the brain: Applied neuroscience in exposure therapy for PTSD. (pp. 19–38). *American Psychological Association*. https://doi.org/10.1037/0000242–002

Rehan, W., Antfolk, J., Johansson, A., & Santtila, P. (2019). Do single experiences of childhood abuse increase psychopathology symptoms in adulthood? *Journal of Interpersonal Violence, 34*(5), 1021–1038. https://doi.org/10.1177/0886260516647004

Roché, M. W., Boyle, D. J., Cheng, C.–C., Del Pozzo, J., Cherneski, L., Pascarella, J., Lukachko, A., & Silverstein, S. M. (2021). Prevalence and risk of violent ideation and behavior in serious mental illnesses: An analysis of 63,572 patient records. *Journal of Interpersonal Violence, 36*(5–6), 2732–2752. https://doi.org/10.1177/0886260518759976

Saxena, P., & Messina, N. (2021). Trajectories of victimization to violence among incarcerated women. *Health & Justice, 9*(1), 18. https://doi.org/10.1186/s40352–021–00144–8

Scheidell, J. D., Quinn, K., McGorray, S. P., Frueh, B. C., Beharie, N. N., Cottler, L. B., & Khan, M. R. (2018). Childhood traumatic experiences and the association with marijuana and cocaine use in adolescence through adulthood. *Addiction, 113*(1), 44–56. https://doi.org/10.1111/add.13921

Sindicich, N., Mills, K. L., Barrett, E. L., Indig, D., Sunjic, S., Sannibale, C., Rosenfeld, J., & Najavits, L. M. (2014). Offenders as victims: post–traumatic stress disorder and

substance use disorder among male prisoners. *Journal of Forensic Psychiatry & Psychology, 25*(1), 44–60. https://doi.org/10.1080/14789949.2013.877516

Slavinski, I., & Spencer–Suarez, K. (2021). The Price of Poverty: Policy Implications of the Unequal Effects of Monetary Sanctions on the Poor. *Journal of Contemporary Criminal Justice*, *37*(1), 45–65. https://doi.org/10.1177/1043986220971395

Spence, R., Bunn, A., Nunn, S., Hosang, G. M., Kagan, L., Fisher, H. L., Taylor, M., & Bifulco, A. (2015). Measuring life events and their association with clinical disorder: A protocol for development of an online approach. *JMIR Research Protocols*, *4*(3), e83. https://doi.org/10.2196/resprot.4085

Spence, R., Kagan, L., & Bifulco, A. (2019). A contextual approach to trauma experience: Lessons from life events research. *Psychological Medicine, 49*(9), 1409–1413. https://doi.org/10.1017/S0033291719000850

Stephens, M. A.C., & Wand, G. (2012). Stress and the HPA Axis. *Alcohol Research: Current Reviews*, *34*(4), 468–483.

Tatar, Z.B. & Cansız, A. (2019). Childhood physical neglect may impair processing speed in adults with ADHD: A cross–sectional, case–control study. *Psychiatry and Clinical Psychopharmacology*, *29*(4), 624–631. https://doi.org/10.1080/24750573.2018.1522714

Travis, J., Western, B., & Redburn, S. (Eds.). (2014). *The growth of incarceration in the United States: Exploring causes and consequences*. National Academies.

Ünal, E., & Gençöz, T. (2019). Child Abuse/Neglect and Depressive Symptomatology: The Mediating Roles of Early Maladaptive Schemas. *AYNA Clinical Psychology Journal*, *6*(3), 227–243. https://doi.org/10.31682/ayna.562941

Ungar, M. (2013). Resilience, trauma, context, and culture. *Trauma, Violence, & Abuse*, *14*(3), 255–266. https://doi.org/10.1177/1524838013487805

Vogel, M. (2014). Mental illness and criminal behavior. *Sociology Compass, 8*(4), 33–346. https://doi.org/ 10.1111/soc4.12140

Vogel, M., Stephens, K., & Siebels, D. (2014). Mental illness and the criminal justice system. *Sociology Compass, 8*(6), 627–638. https://doi.org/10.1111/soc4.12174

Wieczorek, L. L., Tata, C. S., Penke, L., & Gerlach, T. M. (2020). Online implementation of an event history calendar with formr: A tutorial. *Personal Relationships, 27*(1), 176–208, https://doi.org/10.1111/pere.12305

Wildeman, C., & Western, B. (2010). Incarceration in fragile families. *Future Child, 20*(2), 157–177. https://doi.org/10.1353/foc.2010.0006

Wolff, N., & Shi, J. (2012). Childhood and adult trauma experiences of incarcerated persons and their relationship to adult behavioral health problems and treatment. *International Journal of Environmental Research and Public Health, 9*(5), 1908–1926. https://doi.org/ 10.3390/ijerph9051908

Zhen, Z., & Minton,T. D. (2021, March). *Jail inmates 2019* (NCJ 255608). U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. https://bjs.ojp.gov/content/pub/pdf/ji19.pdf

APPENDIX A

Institutional Review Board Exemption Certificate

Date: April 20, 2023

Principal Investigator: Shanel Perkins

Faculty Supervisor: Kimberly Finney

Department: MA Psychopharmacology, PsyD Los Angeles

Re: Initial - IRB-AY2022-2023-238

Study Title: *Toward Understanding the Relationship Between Adverse Childhood Experiences and Incarceration Risk in U.S. Adults*

The Alliant International University Institutional Review Board d has rendered the decision below for Toward Understanding the Relationship Between Adverse Childhood Experiences and Incarceration Risk in U.S. Adults .

Approval Date: April 20, 2023

Decision: Exempt

Category: *Category 4. Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met:*

(i) The identifiable private information or identifiable biospecimens are publicly available;

(ii) Information, which may include information about biospecimens, is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects;

(iii) The research involves only information collection and analysis involving the investigator's use of identifiable health information when that use is regulated under 45 CFR parts 160 and 164, subparts A and E, for the purposes of "health care operations" or "research" as those terms are defined at 45 CFR 164.501 or for "public health activities and purposes" as described under 45 CFR 164.512(b); or

(iv) The research is conducted by, or on behalf of, a Federal department or agency using government-generated or government-collected information obtained for nonresearch activities, if the research generates identifiable private information that is or will be maintained on information technology that is subject to and in compliance with section 208(b) of the E-Government Act of 2002, 44 U.S.C. 3501 note, if all of the identifiable private information collected, used, or generated as part of the activity will be maintained in systems of records subject to the Privacy Act of 1974, 5 U.S.C. 552a, and, if applicable, the information used in the research was collected subject to the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 et seq.

Any modifications to the approved study must be submitted for review through Alliant IRB. All approval letters and study documents are located within the Study Details in Alliant International University Institutional Review Board.

Sincerely,

Alliant International University Institutional Review Board

APPENDIX B

Permission to Use the Data from ICPSR 3548

Files from ICPSR 3548 are classified as “public–use” are do not require permission to be used.

- The public–use data files in this collection are available for access by the general public. Access does not require affiliation with an ICPSR member institution (English & Wisdom, 2003).

In order to receive access to the data files, I was required to agree to the following terms of use.

Terms of Use

Please read the terms of use below. If you agree to them, click on the "I Agree" button to proceed. If you do not agree, you can click on the "I Do Not Agree" button to return to the home page.

ICPSR adheres to the principles of the CoreTrustSeal Core Trustworthy Data Repositories Requirements, which, in part, require the data consumer to comply with access regulations and applicable licenses imposed both by law and by the data repository, and to conform to codes of conduct that are generally accepted in higher education and scientific research for the exchange and proper use of knowledge and information.

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- To make no use of the identity of any RESEARCH SUBJECT discovered inadvertently, and to advise ICPSR of any such discovery (icpsr–help@umich.edu)

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2. You are collaborating with other AUTHORIZED USERS to analyze the data for research or instructional purposes.

When sharing data or other materials in these approved ways, you must include all accompanying files with the data, including terms of use. More information on permission to redistribute data can be found on the ICPSR Web site.

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Disclaimer

You acknowledge that the original collector of the data, ICPSR, and the relevant funding agency bear no responsibility for use of the data or for interpretations or inferences based upon such uses.

Violations

If ICPSR determines that the terms of this agreement have been violated, ICPSR will act according to our policy on terms of use violations. Sanctions can include:

- ICPSR may revoke the existing agreement, demand the return of the data in question, and deny all future access to ICPSR data.
- The violation may be reported to the Research Integrity Officer, Institutional Review Board, or Human Subjects Review Committee of the user's institution. A range of sanctions are available to institutions including revocation of tenure and termination.
- If the confidentiality of human subjects has been violated, the case may be reported to the Federal Office for Human Research Protections. This may result in an investigation of the user's institution, which can result in institution–wide sanctions including the suspension of all research grants.
- A court may award the payment of damages to any individual(s)/organization(s) harmed by the breach of the agreement.

Definitions

authorized user
: A faculty member, staff member, or student at a member institution

ICPSR
: Inter–university Consortium for Political and Social Research

member institution
: An institutional member of ICPSR

Official/Designated Representative
: An individual appointed to represent a university's interests in ICPSR. This individual is also charged with providing user support to campus users.

promise of confidentiality

> A promise to a respondent or research participant that the information the respondent provides will not be disseminated without the permission of the respondent; that the fact that the respondent participated in the study will not be disclosed; and that disseminated information will include no linkages to the identity of the respondent. Such a promise encompasses traditional notions of both confidentiality and anonymity. Names and other identifying information regarding respondents, proxies, or other persons on whom the respondent or proxy provides information, are presumed to be confidential.

research subject

> A person or organization observed for purposes of research. Also called a respondent. A respondent is generally a survey respondent or informant, experimental or observational subject, focus group participant, or any other person providing information to a study or on whose behalf a proxy provides information.

In addition, the National Archive of Criminal Justice Data stipulates the following conditions:

Federal law and regulations require that research data collected by the U.S. Department of Justice or by its grantees and contractors may only be used for research or statistical purposes. The applicable laws and regulations may be found in the United States Code, 34 USC Section 10231(a), the Code of Federal Regulations, 28 CFR 22, and 62 F.R. 35044 (June 27, 1997) (The Federal Confidentiality Order). Accordingly, any intentional identification or disclosure of a person or establishment may violate federal law as well as the assurances of confidentiality given to the providers of the information. Therefore, users of data collected by or with the support from the U.S. Department of Justice and distributed by NACJD or other ICPSR archives must agree to abide by these regulations and understand that ICPSR may report any potential violation to the U.S. Department of Justice (ICPSR, 2023).

APPENDIX C

Material used for the Identification and Construction of Variables of Interest from Archival Data File

ICPSR prohibits redistribution of data files and their contents for all documents, including data files designated for public–use unless the disturbing party is a member of an ICPSR member institution. The variables for this study were constructed or identified using the following method. The abuse and neglect categories from the archived data set were compiled, dichotomized, and summed to create the independent variable "number of ACEs". The nine categories of ACEs that comprise the IV are as follows:

- Physical abuse– comprised of 9 subcategories based on where the child was hit
- Emotional abuse– comprised of 28 subcategories of emotional abuse including yelling and threats of violence or abandonment
- Sexual abuse– comprised of 6 subcategories based on sexual contact by an adult
- Emotional neglect– comprised 3 subcategories of emotional neglect including instances of abandonment and inadequate supervision
- Physical neglect– comprised of 6 subcategories of neglect to health, safety, and other types of physical well–being
- Household substance use– History of substance use in the home was noted on dependency record
- Household mental illness– History of psychiatric diagnoses were noted on the dependency record
- Household domestic violence– Known history of DV in the home was noted on the dependency record
- Foster care– Foster care placement at the final disposition of dependency court were noted on the dependency record

The dependent variables related to the types and number of arrests were unchanged from the data set. They are as follows:

- Any– sum of juvenile and adult arrests per subject
- Adult– number of arrests after age 18
- Non–violent crimes– number of arrests for non–violent crimes
- Violent crime– number of arrests across 7 violent crime categories where the intention was to harm another person, including criminal attempts
- Public disturbance– a type of nonviolent crime including arrests for public intoxication
- Obstruction of justice– a type of nonviolent crime with that is intended to hinder a police investigation
- Drug/alcohol– a type of non–violent crime including arrests for the distribution of drugs and vehicular homicide
- Property crime– a type of non–violent crime including arrests for threat of property and illegal entry
- Crimes w/ Threat of Violence– a type of non–violent crime including stalking