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POSTTRAUMATIC GROWTH IN INMATES: AN EXPLORATION OF CUMULATIVE ADVERSE
LIFE EXPERIENCES AND ITS RELATIONSHIP TO GROWTH

BY

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Date: 8/1/2023

POSTTRAUMATIC GROWTH IN INMATES: AN EXPLORATION OF
CUMULATIVE ADVERSE LIFE EXPERIENCES AND ITS RELATIONSHIP TO
GROWTH

BY

RACHEL TAYLOR

Submitted to the Faculty of the Graduate School of
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MASTER OF SCIENCE

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ABSTRACT

Trauma is pervasive among incarcerated populations and revictimization is common. Trauma can ripple out, affecting other areas of life—for many inmates, trauma is related to mental health issues and substance abuse, both of which can contribute to increased likelihood of recidivism. This study evaluated cumulative trauma using the Adverse Childhood Experiences survey (ACEs) and the Trauma History Questionnaire (THQ) to find the effect of cumulative trauma on posttraumatic growth, the positive psychological change that may develop following a traumatic experience. Against the hypotheses and previous research, the results showed a negative relationship between cumulative trauma and posttraumatic growth, a negative relationship between both childhood and adulthood trauma and posttraumatic growth, and no difference in amount of growth experienced within any of the five facets of posttraumatic growth during incarceration. These results, while unexpected, may be due to a number of factors, including small sample size or an extraneous variable that was not taken into account in this study

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I. Introduction

Incarceration affects millions of people in the United States annually. The Prison Policy Initiative reports that 1.9 million people are actively incarcerated as of 2022, one in five of whom is incarcerated for a drug-related offense. The problem, however, is significantly more pervasive than it appears at first glance: while only 1.9 million Americans are actually incarcerated in a prison or jail, 4.9 million were formerly incarcerated, 19 million have been convicted of a felony, and 79 million or more have a criminal record (Prison Policy Initiative, 2022). This involvement with the criminal justice system, which is often concentrated in lower socioeconomic status and minority neighborhoods, disrupts communities, families, and the lives of individuals, who now may not be able to vote, own a firearm, or find work due to their criminal record. 113 million Americans have an immediate family member who has been to prison or jail, and in Kentucky, specifically, 13% of children have incarcerated parents, one of the highest rates in the country (Prison Policy Initiative, 2022).

Clearly, incarceration is pervasive in the United States, touching the lives of millions. However, incarceration does not affect everyone equally. Demographically, Whites are overrepresented with Black, Latino, and Native populations overrepresented (Prison Policy Initiative, 2022). Additionally, the majority of those incarcerated are poor, with the poorest of those in prison being women and people of color. Thus, those most affected by incarceration and the criminal justice system are those most likely to be at a disadvantage to begin with.

Against this backdrop, the U.S. criminal justice system has seen significant changes in a number of states as programs have been introduced to shift the correctional focus from penalization to rehabilitation. It was in this context that I entered the correctional system as a case manager for incarcerated women with substance abuse issues. The focus of many forensic

rehabilitation programs, including mine, is to prevent recidivism, encourage sobriety from alcohol and other illicit substances, and teach positive social and emotion regulation skills. These goals are often hindered by a number of issues: treatment is not generally entered by choice, trust can be difficult to earn in a prison setting, and there are often more exigent circumstances to deal with, such as substance abuse. At the root of many issues faced by forensic treatment providers is trauma, which is near-universal in the correctional system.

Among inmates, trauma is often pervasive, multifaceted, and layered. Many have experienced multiple types of trauma, such as childhood physical, emotional, or sexual abuse, rape, homelessness, being the victim of a crime, suicide, and domestic violence. These traumatic events can be heavily taxing on the mental resources of incarcerated individuals—and they often coexist with other serious problems that put inmates at a further disadvantage, including mental illness, traumatic brain injury, and substance use. The rate of mental illness is 3 to 12 times higher in incarcerated settings than in the general population (Weill Cornell Medicine), and approximately 60% of inmates meet DSM criterion for substance dependence (National Institute of Corrections). In the criminal justice system, 50-80% of inmates have at least one traumatic brain injury, and these numbers can be even higher among incarcerated females, almost all of whom have been exposed to some kind of domestic violence (Gorgens, 2019).

All of this trauma, and its associated issues, create a very chaotic life among inmates. For many, prison is the first place where they can slow down and process their trauma with some level of mental health care and without easy access to substances to use as an escape from their trauma. Many therapeutic groups in prison are trauma informed, and encourage positive

behavioral and cognitive change. Because of this, prison is actually a place with a lot of potential for posttraumatic growth.

The present study aims to investigate the role of cumulative trauma in posttraumatic growth during incarceration. Unlike previous studies in this area, which generally rely on qualitative methods and analysis of a single traumatic event, this study uses quantitative methods to evaluate trauma history and posttraumatic growth during incarceration. By measuring trauma history and posttraumatic growth amongst currently incarcerated inmates, this study will examine the impact of varying amounts of cumulative trauma on current posttraumatic growth. Precious little research has focused on posttraumatic growth in inmates, despite their heavy levels of trauma; this study hopes to facilitate increased interest in this niche area of research.

This study will look at three questions: Does experiencing multiple traumatic events impact experienced posttraumatic growth during incarceration? Is childhood or adult trauma more impactful to posttraumatic growth? Are the different areas of posttraumatic growth impacted differently by cumulative trauma?

In Chapter II, I will review the literature surrounding cumulative trauma and posttraumatic growth, both in general and as it pertains to inmates. In Chapter III, I will go over the methods and procedures used in this study, followed by the results in Chapter IV. Chapter V includes a discussion of the results, conclusions, and future directions for research.

II. Literature Review

Trauma in Incarcerated Populations

Trauma is an experience that can touch many facets of life. But trauma is an experience that is unique to each individual. Traumatic events differ in terms of perceived severity, type of trauma, and the way that the event is viewed in the context of an individual's self-concept. The effects of trauma, especially prolonged trauma, can ripple out into other areas of an individual's life, continuing the fallout from the trauma well beyond the trauma's initial emotional or physical impact (Widom, 1989; Ravello et al., 2008; Wolff & Shi, 2012).

In incarcerated populations, trauma is nearly ubiquitous, especially when compared with the general population. Many inmates report some form of trauma, whether that is child abuse, being witness to or the victim of violence, sexual assault, experiencing a natural disaster, or some other form of trauma. Research into the subject has found, however, that not all incarcerated populations have the same rates of trauma (Altintas & Bilici, 2018; Cantürk et al., 2021; Courtney & Maschi, 2012; Grella et al., 2013; Stensrud et al., 2018). Stensrud et al. (2018) evaluated childhood trauma amongst a diverse sample of currently or recently formerly incarcerated individuals. While incarcerated women and males convicted of sexual offenses reported the highest levels of trauma, the majority of participants in the overall study reported high levels of childhood trauma, significantly higher than that reported in the general population. These findings are supported by a number of other studies who also recorded an increased presence of trauma in incarcerated populations (Altintas & Bilici, 2018; Cantürk et al., 2021; Courtney & Maschi, 2012; Grella et al., 2013). Overall, while incarcerated people are more likely to report trauma histories than those in the general population, and within the

incarcerated populations, incarcerated women in particular are more likely to report traumatic experiences and more extensive trauma histories.

Trauma and Criminal Behavior

Trauma has been linked to both criminal and violent behavior in a number of studies. Moloney et al. (2009) identified a strong relationship between trauma history and criminal behavior. Cantürk et al. (2021) went a step further and studied criminal and violent behavior in inmates in Turkey. As in Stensrud et al., inmates in their sample had higher rates of physical and sexual abuse than in the general population, but their results also showed a connection between childhood trauma and criminal behavior, as well as childhood trauma and violent tendencies. Other studies have found this same connection while studying violence as well (Dalsklev et al., 2021).

Similarly, Ravello et al. (2008) interviewed incarcerated American Indian/Alaska Native women to explore the connection between scores on the Adverse Childhood Experiences survey (ACEs) and outcomes in adulthood. In their sample, high ACEs scores were associated with both criminal and mental health outcomes, including lifetime suicide attempts, arrests for violent offenses, and being the victim of intimate partner violence.

Some studies investigating this area also evaluate different types of trauma for an effect on offending. For instance, Dalsklev et al. (2019) investigated childhood trauma in offenders serving a life sentence in Northern Ireland to find whether childhood trauma was associated with violent offending patterns. They found not only the connection between childhood trauma and violent offending, they also found connections between certain types of trauma and offending patterns, with age and conflict-related trauma emerging as significant predictors of

both general and violent offending, while childhood physical abuse increases the odds of violent offending.

Altintas and Bilici (2018) surveyed 200 prison inmates to evaluate the relationship between childhood trauma and criminal behavior. Total childhood trauma and sexual abuse scores were higher among female inmates convicted of violent offenses, while childhood trauma scores were similar for other forms of crime. Childhood trauma scores were also associated with age of first offense. However, despite the idea that violent early childhood abuse predicts violent behavior in later life, the males in the cohort (who experienced on average more violent childhood abuse than female participants) committed fewer violent offenses than their female counterparts.

These studies suggest that not only does trauma increase the likelihood of engaging in criminal behavior, but inmates with a trauma history are more likely to commit violent offenses than those without a trauma history.

Trauma and Cooccurring Issues

The literature heavily supports the connection between trauma and cooccurring issues, in particular substance abuse and mental illness. Substance is a major problem in prisons as drug crimes are on the rise and drug use continues to be an issue within prisons. Cuomo et al. (2008) evaluated the connection between trauma and substance abuse. They recruited almost a thousand inmates, both with and without substance abuse issues, and collected information through semistructured interviews and psychometric test batteries. They found that those in the substance abuse group had higher childhood trauma scores as well as other negative outcomes, such as a higher number of incarcerations, more juvenile convictions, more suicide attempts, and negative psychological outcomes.

A similar study by Martin et al. (2015) studied data collected from more than 5,000 inmates in Canada to determine the relationships between mental health, trauma, substance abuse, and juvenile delinquency. The majority of inmates with backgrounds involving childhood maltreatment also has cooccurring mental health issues, substance abuse, and/or juvenile charges. These results support the idea that trauma can make the development of mental health issues more likely, as well as substance abuse, particularly if the individual engages in substance use coping.

Substance use coping is an idea in this area of research that people with trauma histories use substances as a method of coping with the past trauma and subsequent negative mental health outcomes, which can then exacerbate their mental illnesses. This type of coping is often reported among inmates with substance abuse issues (Asberg and Renk, 2012), and has been found in multiple studies with survivors of different types of trauma (Berg et al., 2017; Bujarski et al., 2012; Ullman et al., 2013). Many of these studies also investigate mental health outcomes of individuals engaging in substance use coping and point to a major issue: substance abuse exacerbates mental illness (Gove et al., 1979).

There are a number of mental illnesses connected with childhood trauma (Altintas & Bilici, 2018), notably Attention-Deficit Hyperactivity Disorder (ADHD) and Posttraumatic Stress Disorder (PTSD). In general, childhood trauma has an impact on overall mental health. Kim et al. (2016) investigated the links between childhood maltreatment and subsequent mental health problems and in probationers in South Korea. They found that mental illness was significantly higher in the probationers who had experienced childhood maltreatment than those who had not. Similarly, Wolff and Shi (2012) investigated trauma and mental health in a sample of incarcerated males. They hypothesized that (1) a history of trauma

exposure would increase the reported psychological symptoms/problems, (2) childhood trauma exposure will impact adulthood psychopathology more than adulthood trauma exposure, and (3) different types of trauma will impact adult psychopathology differently. The results indicated that trauma exposure is related to psychological symptoms and problems, childhood trauma was strongly predictive of later psychological problems, and different types of trauma did have different effects on psychological well-being and psychopathology.

Many studies looked specifically at certain types of mental health symptoms or mental illnesses. For instance, in a study of older male inmates, Skarupski et al. (2016) found that childhood trauma is associated with negative mental health outcomes later in life, particularly depressive symptoms, which impact quality of life.

Boland et al. (2020) evaluated the connection between trauma and personality development by surveying inmates in a U.S. county jail about experienced childhood trauma and subsequent arrest history and personality characteristics. The data supported associations between childhood trauma and adult criminal behavior and maladaptive personality domains. Additionally, the relationship between childhood trauma and adult criminal behavior is mediated by maladaptive personality traits, lending some support to the idea that childhood maltreatment can make the development of a personality disorder more likely.

ADHD is thought to be relatively common in inmates, possibly contributing to criminal activity via impulse control issues. Capuzzi et al. (2022) evaluated inmates in Italy for the presence of ADHD symptomology. They found that of 108 inmates, 35 had significant symptomology of ADHD upon screening and could receive a diagnosis. The results also suggested that there was a significant relationship between childhood maltreatment, substance use, and ADHD. The relationship between childhood trauma and ADHD was confirmed by

Barra et al. (2022), who found that ACEs were related to ADHD in a sample of inmates. Given that González et al. (2019) found in their study that increased exposure to childhood maltreatment can lead to persistence of ADHD symptoms and Fletcher and Wolfe (2009) found that children with ADHD face a substantially increased risk of engaging in criminal activity later in life, it would not be unreasonable to view ADHD as a risk factor for recidivism, particularly when paired with childhood maltreatment, which can exacerbate ADHD symptomology.

Researchers have observed elevated rates of PTSD in incarcerated populations. Goff et al. (2007) explored this in a systematic review of the literature surrounding PTSD rates in inmates. Their sample (only four papers met the inclusion criteria) indicated a PTSD rate of 4% to 21% among inmates, with female inmates being disproportionately affected. Briere et al. (2016) also explored this area of research as they evaluated the comparative rates of trauma and PTSD among inmates and the general population. While PTSD was found in only 4% of their general population sample, they found the rate of PTSD among their inmate sample to be 48%. In the general population, participants with only one type of trauma had a 0% likelihood of current PTSD, while those with six or more types of trauma had a 12% likelihood of current PTSD; these rates were significantly higher in the incarcerated population, with inmates with only one type of trauma having a 17% likelihood of current PTSD, and those with six or more types of trauma having a 64% likelihood of current PTSD. Briere et al. concluded that cumulative trauma predicts development of PTSD, and that it develops generally due to exposure to multiple interpersonal traumas, as compared to a singular traumatic event.

In terms of what the relationship between cumulative trauma and PTSD actually looks like, Konecky and Lynch (2019) evaluate factors that mediate the relationship between the two.

They identified emotion regulation as a mechanism contributing to the relationship between cumulative trauma and PTSD. Using structural equation modeling, researchers identified significant relationships between cumulative trauma and emotion regulation difficulties and PTSD symptom severity respectively, as well as a significant indirect effect of emotion regulation on the relationship between cumulative trauma and PTSD severity. This adds to the limited body of research identifying emotion regulation as a mediator for cumulative trauma and PTSD severity.

But cumulative trauma is not the only thing related to increased susceptibility to develop PTSD. Karatzias et al. (2017) evaluated women in a Scottish prison for trauma history and mental health symptoms, hypothesizing that PTSD and emotional dysregulation would mediate the relationship between childhood maltreatment and criminal behavior. They found that 91% of participants reported both childhood and adulthood trauma and that 58% met criteria for a diagnosis of PTSD, in line with Briere et al. Additionally, multiple traumatic experiences were significantly related to the seriousness of the offense for which they were incarcerated, though only trauma experienced in adulthood mediated the relationship between childhood maltreatment and criminal behavior, implying that revictimization may make criminal behavior more likely.

The type of trauma and the way the victim perceives the trauma has some influence over development of PTSD, as well. Molina-Coloma et al. (2021) observed cumulative trauma leading to PTSD and other mental health issues in an inmate sample from a prison in Ecuador. Additionally, however, the experience of traumatic events had a strong relationship with hostility, general aggression, and physical aggression, in line with Moloney et al. (2009), discussed in a previous section. The researchers also make a distinction between intentional and

unintentional traumas in this study: intentional traumas, such as childhood abuse, sexual assault, and military combat, are associated with more affective symptoms than are unintentional traumas, such as natural disasters and accidents. This seems to advocate for the idea that the way in which an individual conceives of certain aspects of the trauma, such as intentionality, may hold some influence over how the individual reacts to it.

Revictimization

Revictimization refers to the increased likelihood that an individual who has experienced trauma—especially childhood trauma—will be more likely to experience trauma again later in life (Widom et al., 2008). Statistics in this area show that revictimization is a significant problem. Messman-Moore & Long (2000) studied college age women for evidence of revictimization in individuals with a history of childhood abuse. As it turns out, they found a connection between prior abuse, particularly childhood sexual abuse (CSA), and being revictimized in adulthood, with CSA survivors having higher rates of rape by acquaintances and those with authority. Not only that, but survivors of CSA in the sample experienced more instances of physical and psychological abuse in adulthood than those who had not experienced CSA.

This is true in inmate populations as well, with their higher than average trauma rates. Mejia et al. (2015) explored revictimization in inmates by surveying female inmates receiving substance abuse treatment. By recording the child and adult trauma experiences of inmates entering the substance abuse treatment program, the researchers were able to determine the scope of revictimization rates of their sample. The results showed that revictimization rates were very high for the women in the sample, with sexual abuse revictimization rates sitting at 78% and physical abuse revictimization rates at 82%.

While revictimization clearly happens, why it happens is not as well understood. There have been some attempts to make sense of revictimization, many based in more Freudian psychology, often involving the individual desiring to regain some control over their trauma or experiencing a posttraumatic phenomenon known as inescapable shock (Chu, 1992). Recent work, however, suggests that revictimization is a function of several factors that may work independently or in concert to increase risk of revictimization: (1) the search for meaning and mastery, (2) dysfunctional learning, and (3) dissociation and coping strategies/cognitive defenses (Sandberg et al., 1994; Lynn et al., 2004).

Another area somewhat related to revictimization worth discussing here is the perpetuation of generational trauma. The Cycle-of-Violence hypothesis (not to be confused with the cycle of abuse) suggest that a history of physical abuse in childhood predisposes an individual to violence later in life (U.S. Department of Justice, 1992). Neglect has since been acknowledged as a factor potentially predisposing people to violence.

A study conducted by Widom (1989) evaluated the Cycle-of-Violence hypothesis by comparing physical and sexual abuse cases to a control group to determine the role of childhood maltreatment on later delinquency and adult criminal behavior, as well as to examine the myth that abused children will grow up to become the perpetrators of abuse. The findings supported some aspects of the Cycle-of-Violence hypothesis while contradicting others, making it likely that the Cycle-of-Violence hypothesis overestimates the importance of childhood abuse or neglect as a predictor of criminality. While children who have been abused or neglected are more likely to be arrested for a criminal offense in adulthood, the difference is not very large (29% to the control group's 21%). Children who were abused or neglected did have higher rates of violent crime than their counterparts in the control group, though this

relationship was stronger among males in the study. On the other hand, those who had been abused or neglected as children were no more likely to be arrested for child abuse or neglect in adulthood than those in the control group.

Widom and Osborn (2021) continued their investigation of the Cycle-of-Violence hypothesis by expanding their research questions and shifting their focus to women. Using similar methodology to Widom's 1989 study, Widom and Osborn investigated four areas of interest about abused and neglected women: the rarity of criminal behavior, increased risk of violent offending, the affect of childhood maltreatment on criminal career trajectories, and whether maltreated girls are more likely to mistreat their own children. First, they found that maltreated women are twice as likely to be arrested as juveniles and twice as likely to be arrested in adulthood at the three age intervals they evaluated (ages 26, 32, and 47). Second, the evidence did support increased externalization and violent offending in abused girls when compared to their controls. Third, childhood maltreatment does affect criminal trajectory in abused women, leading to longer chronicity, later onset, and higher levels of offending. Finally, women with a history of child abuse were more likely to report having had an open CPS case involving their own offspring and were more likely to neglect or hit their children. Additionally, offspring of the sample of abused and neglected women were more likely to report having been sexually abused. This does provide some support for the Cycle-of-Violence hypothesis as the intergenerational transmission of trauma may be perpetrated by abused women who become mothers.

It is important to understand revictimization and the implications of revictimization to trauma as a whole. Inmates often experience trauma repeatedly throughout their lives, exacerbating substance use and mental health issues. Oftentimes this trauma is experienced

within the family and reflects a broader abusive or neglectful trend, which the family is unprepared to help the individual cope with.

Trauma and Recidivism

Recidivism is a heavily researched topic, as many groups are interested in preventing those incarcerated from reoffending after their release. Many have recognized the impacts of certain factors in increasing the likelihood one will reoffend, like mental illness and substance abuse. Less recognized, however, is the role trauma can play in recidivism.

Dalsklev et al. (2019), mentioned earlier in the discussion of trauma and violent offending, also investigated childhood trauma specifically stemming from conflict (“The Troubles”) in the region and its distinct impact on recidivism. Conflict-based trauma (like that experienced from having lived through “The Troubles”) predicts both general and violent recidivism in Irish inmates. Another study by Dalsklev et al. (2021) synthesized research on childhood physical and sexual abuse and the impact this abuse may have on recidivism. They found that physical and sexual abuse rates are high among inmates in general, and even higher among those who reoffend. A number of studies in the analysis found that physical and sexual abuse actually positively predict reoffending.

While studies have linked trauma history and recidivism, it is unclear what form this relationship actually takes. Recent research suggests that mental illness and substance abuse, which has already been established as at increased rates in inmates, may play a mediating role between trauma and recidivism (Craig et al., 2019). Both mental illness and substance abuse have been found in a number of studies to be highly correlated with both trauma and recidivism.

Scharlepp (2020) researched these connections, specifically between trauma and recidivism, substance abuse, and mental illness. She found that inmates with a history of childhood abuse are more likely to reoffend more quickly than those without a history of childhood abuse. Not only that, but she also found associations between substance use and mental illness and faster recidivism than those without substance use problems or diagnoses of mental illness, both of which are associated with having a history of trauma.

As discussed previously, the type of trauma can impact its perception and thus how damaging it is (Molina-Coloma et al., 2021). To see if different types of trauma impact mental health and likelihood to recidivate, Kim et al. (2016) evaluated the independent contribution of different types of maltreatment and subsequent mental health problems to recidivism. Both mental illness and childhood maltreatment significantly impacted the likelihood of reoffending, though among mental health factors, only the presence of a psychological disorder was associated with recidivism.

While trauma may not necessarily directly impact recidivism, it may do so indirectly through substance use and mental illness. It is not uncommon for substance use issues to be funded via illicit activity, and mental health issues can make sound decision making very difficult. Incarcerated people can often struggle with executive functioning and impulse control, making criminal or violent behavior more likely than in the general population, who may not struggle with these issues.

Preventing recidivism is an important goal for the criminal justice system. But recidivism is impacted by so many external factors, including trauma, mental illness, and substance abuse. The rise in rehabilitation programs in prisons is meant to address these issues

to prevent inmates from recidivating so that they may remain with their families as productive members of society.

Posttraumatic Growth

Posttraumatic growth (PTG) is the experience of positive change in response to a challenging life event, such as an accident, loss of a loved one, or other traumatic experience (Tedeschi & Calhoun, 2004). There are five domains of posttraumatic growth: Relating to Others, New Possibilities, Personal Strength, Spiritual and Existential Change, and Appreciation of Life. Research on posttraumatic growth has been conducted in numerous populations, including, increasingly, in prisons. Most posttraumatic growth research focuses on one specific traumatic event or type of traumatic event, such as studying posttraumatic growth in soldiers after experiencing combat (Tedeschi, 2011) or in survivors of the 2004 tsunami in Norway (Hafstad et al., 2011). Other studies, however, evaluate posttraumatic growth across types of trauma to see if people are more likely to experience posttraumatic growth in response to certain types of trauma.

Jirek (2011) is an example of this. In her dissertation, Jirek explored the construct of posttraumatic growth among a group of young adults who had “successfully” gone through the process of posttraumatic growth. After surveying participants with several different surveys, the results showed that the only types of trauma that impact level of posttraumatic growth were sexual trauma (associated with higher PTG) and witnessing interpersonal violence (associated with lower PTG). Narrative cohesion was positively associated with posttraumatic growth, consistent with other research showing that narrative is indispensable in developing posttraumatic growth.

Kira et al. (2013) also parsed out the different types of trauma and their relationships with posttraumatic growth to determine the effects of different types of trauma on the development of posttraumatic growth in a Palestinian sample. They took this one step further, however, by also evaluating the effect of cumulative trauma on posttraumatic growth as well. They found that cumulative trauma was positively associated with posttraumatic growth, and individual traumas were separated into three categories: personal identity traumas (e.g., physical or sexual abuse) and attachment trauma (e.g., abandonment by one or both parents), which were not significantly related to posttraumatic growth; collective identity traumas (e.g., discrimination and poverty), which was negatively associated with posttraumatic growth; survival, uprootedness, and secondary trauma, which were positively associated with posttraumatic growth.

The differences in posttraumatic growth between types of trauma may have something to do with the intentionality factor described previously by Molina-Coloma (2021): participants may have a more difficult time experiencing posttraumatic growth following trauma they perceive as having been intentionally inflicted upon them, such as sexual abuse, compared to a trauma that may be perceived as unintentional or random, like a natural disaster or car accident. Conversely, however, intentional traumas may contribute to posttraumatic growth in that they may be more likely to shatter the individual's preconceptions of the world, thus encouraging the kind of self-reflection and rebuilding that can lead to posttraumatic growth.

While Kira et al. found that cumulative trauma was positively associated with posttraumatic growth, Fraus et al. (2021) were interested in the possibility that cumulative trauma could catalyze specific facets of posttraumatic growth. To evaluate if this was indeed the case, Fraus et al. (2021) surveyed adolescent participants for posttraumatic growth,

posttraumatic stress symptoms, and trauma history with a modified version of the Traumatic Event Survey for children. The results showed that while most participants still attributed their posttraumatic growth to a single event, posttraumatic growth related to finding a new path, changed priorities in life, and increased self-reliance were related to the total number of experienced traumatic events. Overall, the number of traumatic events seems to be inconsequential to the development of posttraumatic growth; rather, it is the severity of the traumatic events that really matters. When a traumatic event is severe enough, it causes the worldview shift necessary for the development of posttraumatic growth.

A number of studies in this area are at odds with this (Jirek, 2011; Jirek & Saunders, 2018; Kira et al., 2013). However, the study by Fraus et al. seems to suggest that while cumulative trauma is not important for the initial development of posttraumatic growth, it does encourage additional posttraumatic growth in certain areas.

Vanhooren et al. have written prolifically about posttraumatic growth specifically in prisons. In a 2017 study, they interviewed ten participants for a qualitative study of posttraumatic growth in offenders. Each described the ways in which they had been changed by their incarceration, as well as the feelings of loss, guilt, and shame they experienced in their journey. Many participants identified social and emotional support as instrumental to their coping in prison, and their search for new meaning in life. They reported a number of areas of growth during incarceration, including higher levels of self-worth, new relational skills, and newfound strengths.

In a similar study, Vanhooren et al. (2017) investigated posttraumatic growth in formerly incarcerated sex offenders in ongoing outpatient therapy. The results showed a negative correlation between posttraumatic growth and psychological stress, indicating that the

experience of posttraumatic growth is beneficial to the individual. Participants also gave qualitative feedback about their posttraumatic growth experiences by way of anonymous questionnaire at the end of the study. Many of the participants were able to list ways that they felt that incarceration and the subsequent therapy group had helped them to grow as people. Participants identified feelings of hope, relief, and the belief that their lives had not been wasted after all; participants who were in therapy while incarcerated often acknowledge that therapy helped them to view their incarceration as a meaningful experience, reducing the stress they felt while in prison. In fact, prison was often viewed as a turning point in life among those who experienced posttraumatic growth.

Among this sample of inmates, then, posttraumatic growth seems to have reframed experienced previously perceived as negative into more positive events. Vanhooren et al. (2018) examined coping strategies in inmates that could explain some of these changes. They identified seeking emotional support, searching for meaning, and religious coping as strategies that predicted meaningful posttraumatic growth. Making use of therapeutic and religious services in prison also predicted posttraumatic growth.

In another study, Vanhooren et al. (2017) studied posttraumatic growth in prisons from another angle—loss of meaning. Upon incarceration, many are met with the sudden realization that their life as they understood it no longer makes sense to them. Vanhooren et al. explored this phenomenon quantitatively by surveying nearly 400 prisoners, confirming that loss of meaning positively predicts distress in prison. This relationship is impacted by unsentenced incarceration, which, though it has not direct relationship to distress itself, does amplify the relationship between loss of meaning and distress. It may be that unsentenced prisoners may experience this amplified relationship due to the precariousness of their situation—by being

stuck in limbo, they are unable to accept their situation, as it is not clearly defined. Notably, loss of meaning is not affected by psychotherapeutic or religious support during incarceration, making it much more difficult to target by advocates in the prison system.

Posttraumatic growth can be incredibly beneficial to those who experience it, and within the prison system, inmates often report experiences of growth similar to those who are not incarcerated. Many experience prison as a turning point at which they may regain control of their lives. However, posttraumatic growth is not the only outcome from trauma. Maia et al. (2021) evaluated the idea that individuals can experience both positive and negative outcomes from trauma. Whereas Cann et al. looked at growth and depreciation as two sides of the same coin, both stemming from traumatic events, Maia et al. took a slightly different approach, instead evaluating the relationship between posttraumatic stress disorder and posttraumatic growth. Their results actually supported the idea that posttraumatic stress disorder and posttraumatic growth can coexist simultaneously, as they found a positive linear relationship between PTSD symptomology and posttraumatic growth. Another study by Cengiz et al. (2019) found a relationship between PTSD and posttraumatic growth—participants with PTSD had higher rates of posttraumatic growth. Given the high rate of PTSD among inmates (Briere et al., 2016), it is possible that some inmates may have increased posttraumatic growth in areas affected by the relationship with PTSD—relating to others and spirituality (Cengiz et al., 2019).

A lot of posttraumatic growth research is qualitative in nature, and it is fairly common to see studies of posttraumatic growth built around interviews. This type of research is particularly advantageous to the study of posttraumatic growth because it allows for the researchers to get personal perspectives on the development of posttraumatic growth and to draw out themes that are useful for discussing posttraumatic growth in a more detailed manner.

Brooks et al. (2021) sought to understand what posttraumatic growth looks like when it is not limited to one traumatic incident. Having conducted semistructured interviews, Brooks et al. used thematic analysis to derive two main themes from the interviews: outcomes of trauma and processing trauma. Processing trauma explores the factors participants believed influenced whether they reported more or less positive changes, with three subthemes: trauma-related thoughts, control perceptions, and social support and disclosure. Some participants felt that thinking about their trauma was a barrier to growth, while others viewed thinking about their trauma as a vehicle for growth. Similarly, some participants responded better to the out-of-control feeling that can accompany trauma than others and the way they perceived feeling out of control predicted their posttraumatic growth. The other main theme, outcomes of trauma, describes participants' positive and negative change after trauma, with three subthemes: managing subsequent traumas, changes in identity, and cooccurring positive and negative changes as outcomes of growth. These subthemes correspond to participants' expressions of feeling that both good and bad things have come from their trauma—a phenomenon studied by Cann et al. in 2010—and that they are more prepared for subsequent trauma—as in the Psychological Preparedness model proposed by Janoff-Bulman (2004).

The Psychological Preparedness Model proposed by Janoff-Bulman is similar to inoculation. Having experienced and successfully coped with a traumatic experience, the individual is more likely to be better prepared for future traumatic events and less likely to be traumatized by them. Because coping with a traumatic event involves rebuilding the previously shattered assumptive world, the change experienced provides an extra layer of psychological protection from future adversity. This model, while clearly beneficial, and as such could be considered to be a form of posttraumatic growth, is not in line with any of the five factors of

posttraumatic growth. Instead, the Psychological Preparedness Model is more representative of the individual's status following successful coping, rather than a perception or self-report of their growth after trauma.

Another study based on interviews was conducted by van Ginneken (2016). She studied posttraumatic growth narratives among incarcerated women by analyzing interviews conducted as part of a previous study on psychological adjustment in prison. Incarceration is intrusive and disruptive, associated with lack of control and unpredictability, especially in the initial phases, and can be considered adverse and traumatic for those entering prison. In her paper, van Ginneken describes imprisonment not as a discrete traumatic event, but as part of a cumulative history of trauma due to the ubiquitous trauma histories found in inmate populations. Carlton and Seagrave (2011) make this argument as well: "We argue that it is a mistake to conceive prison as a discrete traumatic episode because it constitutes an extension rather than a focal point of the trauma that pervades the lives of imprisoned and formerly imprisoned women." For many experiencing incarceration, a sentence to jail or prison can disrupt their assumptive world as many have to come to terms with receiving harsher sentences than expected or not receiving help they had anticipated receiving through the criminal justice system. Inmates in van Ginneken's sample expressed this sense of betrayal as part of the reason they struggled with adjustment on their entrance into prison. Not only that, but adjustment to incarceration is also often accompanied by pain from the separation from friends and family, which can be especially complicated for women, like the ones in van Ginneken's sample, as they grapple with separation from their children. While these themes may be disheartening for mental health outcomes during incarceration, many emphasized silver linings, typical for those experiencing posttraumatic growth. Many of the women in van Ginneken's sample emphasized that prison

was an opportunity for them to break away from the toxic and destructive lifestyles they previously led to make a fresh start, much like the participants in Vanhooren et al. (2017). While many women had experienced significant trauma in their lives prior to prison, which may have contributed to the mental health and substance abuse issues they were dealing with, most never receive services to address these issues prior to prison; the women in the study identified the resources they had received while in prison as instrumental to the growth they were now beginning to see. Not only that, but many of the women van Ginneken interviewed were using their prison sentence as an opportunity for personal development in various areas, including coming to terms with past trauma and working on coping skills to ensure different outcomes in the future after release.

Posttraumatic growth has significant implications for the well-being and outcomes of inmates. While trauma can be destructive to a person's worldview and inner-life, the growth following trauma helps to rebuild stronger. Many people find meaning in this process and feel that they are better off for having experienced trauma. This can be especially important for inmates, who often find themselves removed from their lives and without purpose. Having the capacity to deal with past trauma to begin coping and developing posttraumatic growth is essential for giving inmates the positive outcomes that come from growth so that they may lead more positive lives outside of prison.

Trauma is the catalyst from which a number of problems can develop, including substance use and mental illness, which impact not only the quality of life that people experience, but increases the likelihood of criminal or violent behavior, and of recidivating and remaining trapped in the criminal justice system. Giving inmates the space in forensic settings

to deal with trauma and mental illness and learn to cope can go a long way in increasing inmates' well-being, life satisfaction, and posttraumatic growth, all of which offer positive benefits to potentially reduce the risk of recidivism.

III. Method

Participants

For this study, participants were 37 adult male inmates currently incarcerated at the Blackburn Correctional Complex in Lexington, Kentucky. However, six of these participants were excluded due to incomplete data, leaving a total of 31 participants (see Table 1). Participants ranged in age from 22 to 74, with a mean age of 39. The majority of participants were White (58%), while the rest identified as either Black (22.6%) or Other (19.4%). The largest percentage of participants graduated from high school or obtained their GED (45%).

Participants were all given the opportunity to self-report the charge(s) they are currently incarcerated for—77.4% of participants' charges fell under one type of crime, while 22.6% reported charges that fell into two different categories. The most commonly reported type of charge was drug crime (45%), followed by violent crime (32%), firearm crime (19%), and property crime (16%). Please keep in mind that some participants reported multiple types of charges and so will be represented in more than one of the aforementioned percentages.

Additionally, one participant reported parole violations as the charge for his current incarceration, and another participant chose not to specify the type of charges, only the number. The number of times each participant reported having been incarcerated had a wide range, from one incarceration to more than fifty-six. The average number of incarcerations experienced by participants in this study was 9.8 (the median was 3), though to reach this figure the researcher had to make some small changes to the reported information, such as altering responses that said “more than _____ times” to just the number estimated and altering ranges given (such as 10-12) to reflect the lowest number reported (see Figure 2). The average age of first incarceration was 21 years old, and the median was 18.

Table 1
Demographics

		<i>N</i>	<i>%</i>
Race			
	White	18	58.06
	Black	7	22.58
	Other	6	19.35
Education			
	Less Than High School	4	12.90
	High School/GED	14	45.16
	Trade School	1	3.23
	Associate's	1	3.23
	Bachelor's	9	29.03
	Graduate School	2	6.45
Relationship Status			
	Single	19	61.29
	Married	4	12.90
	In a Relationship	1	3.23
	Divorced	5	16.13
	Widowed	2	6.45
Military Service			
	No	29	93.55
	Yes	2	6.45

Table 2

Incarceration Statistics

	<i>Mean</i>	<i>Median</i>
Number of Incarcerations	9.8	3
Age of First Incarceration	21	18

Participants also answered questions about mental illness, traumatic brain injury, and substance abuse. Traumatic brain injury was not uncommon, with 33% of participants having experienced at least one. Mental illness was not as common, with only 6 in 31 participants (19%) indicating that they received a diagnosis, though several participants stated that they had never had an opportunity to receive a diagnosis. The vast majority of participants indicated that they had experienced a previous issue with substances (97%).

Recruitment

Participants were recruited by the researcher with the assistance of an employee of the Blackburn Correctional Complex (BCC), an all-male minimum security correctional institution focused on preparation for re-entry to the community. Participants were presented with information about the study in dorm groups—inmates at the BCC live in dormitories with a more open concept than traditional cells would provide. The participants stood at the end of their bunks and were read a recruitment script, at which point they were encouraged to ask any questions they may have about the research and study. Participants who agreed to participate wrote their names on a paper brought by the prison employee.

Measures

This study utilized four measures: the Trauma History Questionnaire (THQ), the Adverse Childhood Experiences (ACE) questionnaire, the Posttraumatic Growth Inventory—Expanded (PTGI-X), and a Demographic and Self-Report Survey created by the researcher (Felitti et al., 1998; Hooper et al., 2011; Tedeschi et al., 2017).

The Demographic and Self-Report Survey was created for this study—it includes demographic questions as well as questions about histories of the following: substance use,

mental illness, traumatic brain injury, criminal behavior, suicidal thoughts and behaviors, and losses due to suicide. Many of these variables are comorbid with trauma and incarceration.

The ACEs are a ten-item self-report survey measuring traumatic events that took place prior to the participant's eighteenth birthday. Scored with a number from one to ten that corresponds with the number of types of traumatic events experienced, higher scores are associated with a number of negative outcomes, such as substance use, chronic disease, and depression and posttraumatic stress disorder (Chang et al., 2019). For each of the ten questions, participants check either yes or no as to whether they have experienced each type of traumatic event.

The Trauma History Questionnaire is a respected 24-item self-report survey developed in 1996. It samples a wide variety of trauma types, including natural disasters, criminal victimization, and physical or sexual abuse. But it does not just measure the number of different types of traumas an individual may have experienced, it also measures the frequency each type of trauma was experienced and the ages at which each trauma was experienced. When filling out the questionnaire, participants can circle yes or no next to each type of trauma to indicate that they have experienced it, and there are write-in boxes for age and frequency next to each question.

The PTGI-X is a 25-item measure developed by Tedeschi et al. in 2019, a revision of the original Posttraumatic Growth Inventory, which contained fewer questions regarding spiritual growth. It measures the five domains of posttraumatic growth: Relating to Others, New Possibilities, Personal Strength, Spiritual and Existential Change, and Appreciation of Life. Participants indicate on a scale from 0-5 the degree to which they experienced the change described in each item, with 0 being low and 5 being high. The scores attributed to each factor

of posttraumatic growth are then averaged for a single score for each domain; these five scores are then averaged again to find an overall posttraumatic growth score.

Procedure

The list of participants who agreed to participate was brought back to the Procedures Department office. Participants were called to the office through security in groups of four or five to ensure privacy by giving ample room for participants to spread out and fill out the surveys. Upon arrival, the researcher went through the two informed consent forms and were given the opportunity to ask questions.

Once the consent forms were signed, each participant received the four surveys in the following order: the Demographic and Self-Report Survey, the ACEs, the THQ, and the PTGI-X. The participants were allowed to spread out around the office so as to have some privacy from other participants; participants were encouraged to ask any questions about the surveys at any point, and due to common confusion regarding the PTGI-X, the researcher explained the purpose and how to complete it prior to each participant's beginning the surveys. When each participant completed the surveys, they turned them in to the researcher, who set them aside away from any other participants.

IV. Results

The Expanded Posttraumatic Growth Inventory (PTGI-X) was used to measure overall posttraumatic growth outcomes (Overall PTG) in the inmate participant population. Scores on the PTGI-X range from 0 to 5.0 and come from the averaged scores attributed to each of the five factors of posttraumatic growth measured on the scale. The mean score ($M = 3.25$) and standard deviation ($SD = 1.21$) indicate a large range in reported posttraumatic growth.

The variable Cumulative Traumatic Events was measured by combining the number of reported traumatic events in both childhood (reported on the ACEs survey) and adulthood (reported on the Trauma History Questionnaire). The mean and standard deviation for reported traumatic events are as follows: Cumulative Traumatic Events ($M = 11.8$, $SD = 6.63$), ACEs ($M = 4.23$, $SD = 3$), THQ ($M = 7.58$, $SD = 4.6$).

The first question this study sought to answer was whether the amount of traumatic events experienced affects the amount of experienced posttraumatic growth. First, a correlation was drawn between the overall experienced posttraumatic growth during incarceration and the lifetime cumulative traumatic events. The correlation between cumulative traumatic events and posttraumatic growth is moderate-strong and statistically significant, $r = -.403$, 95% CI $[-.663, -.057]$, $p < .05$. However, the correlation was negative, against prediction and inconsistent with previous research in posttraumatic growth (see Figure 1).

Cumulative Traumatic Events was then separated into traumatic events experienced during childhood (ACEs) and adulthood (THQ). The correlation between ACEs and overall posttraumatic growth is moderate but not statistically significant, $r = -.335$, 95% CI $[-.616, .022]$, $p < .10$ (see Figure 2). On the other hand, the correlation between adulthood

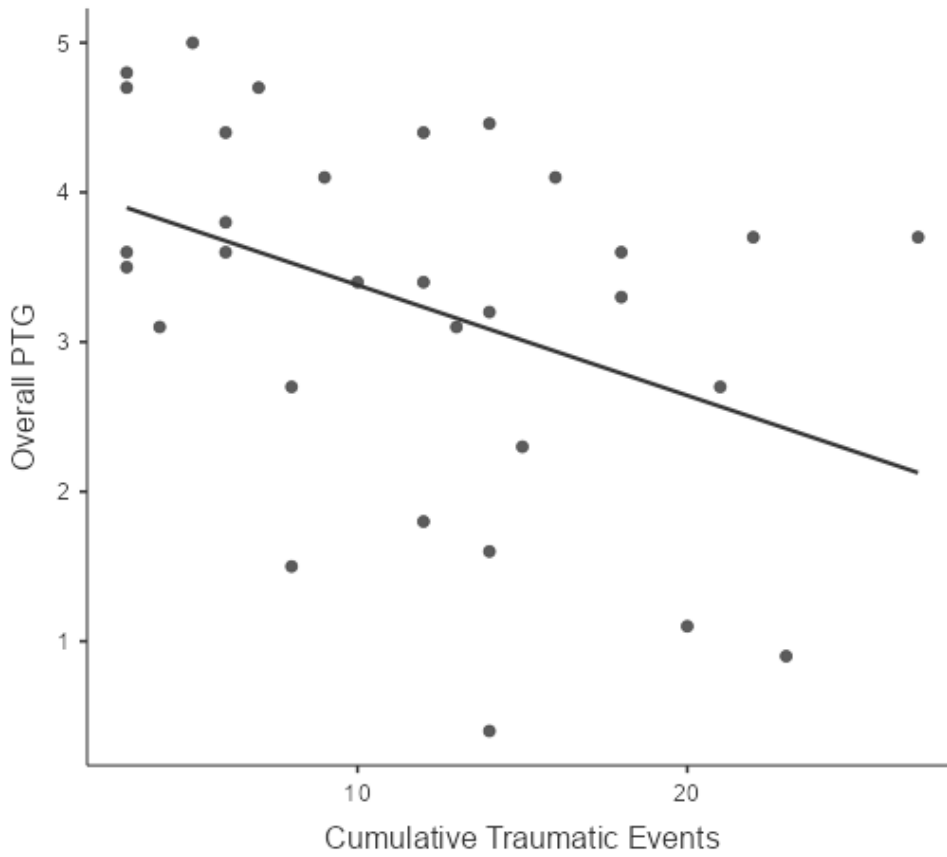


Figure 1

Correlation Between Overall Posttraumatic Growth (PTG) and Cumulative Trauma

Note. This figure describes the relationship between Overall Posttraumatic Growth and Cumulative Traumatic Events.

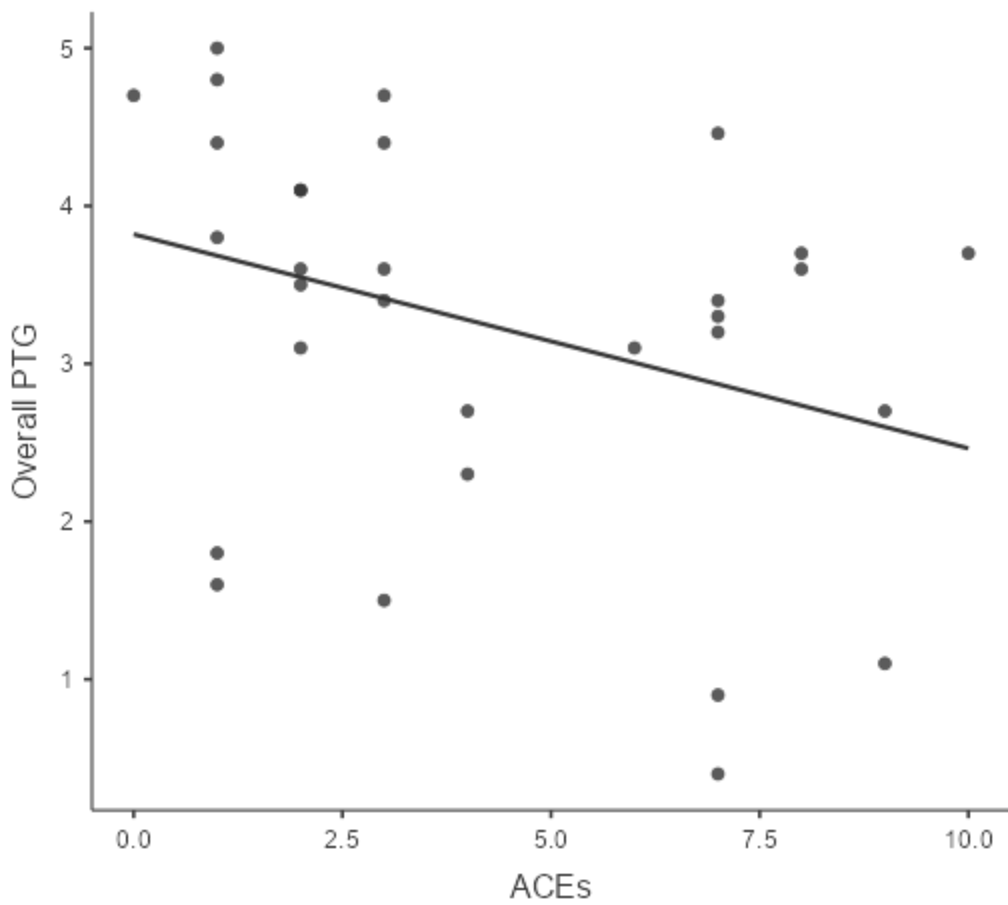


Figure 2

Correlation Between ACEs and Overall Posttraumatic Growth (PTG)

Note. This figure describes the correlation between Overall Posttraumatic Growth and the ACEs score specifically.

traumatic events (THQ) and overall posttraumatic growth is moderate and statistically significant, $r = -.363$, 95% CI $[-.636, -.010]$, $p < .05$ (see Figure 3).

The second question posed in this study was whether childhood or adult trauma might be more impactful to posttraumatic growth. To begin answering this question, the data were analyzed using multiple regression. In this analysis, the criterion variable is overall posttraumatic growth and the predictor variables are childhood traumatic events (ACEs) and adulthood traumatic events (THQ).

The results show that the linear combination of predictor variables accounts for 16.3% of the variance in overall posttraumatic growth, a moderate effect, $R^2 = .163$, $F(2, 28) = 2.73$, $p < .10$. The standardized multiple regression coefficient for ACEs is $\beta = -.204$, $p = .316$. The standardized multiple regression coefficient for THQ is $\beta = -.261$, $p = .203$. The sign of the multiple regression coefficients for each predictor variable were against prediction and both were not statistically significant.

The final question this study sought to answer was whether the different factors of posttraumatic growth are differently impacted by cumulative trauma. The data were analyzed using a MANOVA in which the predictor variable was Cumulative Traumatic Events and the criterion variables were the five factors of posttraumatic growth: Relating to Others, New Possibilities, Personal Strength, Spiritual and Existential Change, and Appreciation of Life. Wilks' lambda was the multivariate test statistic used in this analysis. The F value for Wilks' lambda is significant, $\Lambda = .000167$, $F(90, 38) = 2.14$, $p = .005$ (see Table 3).

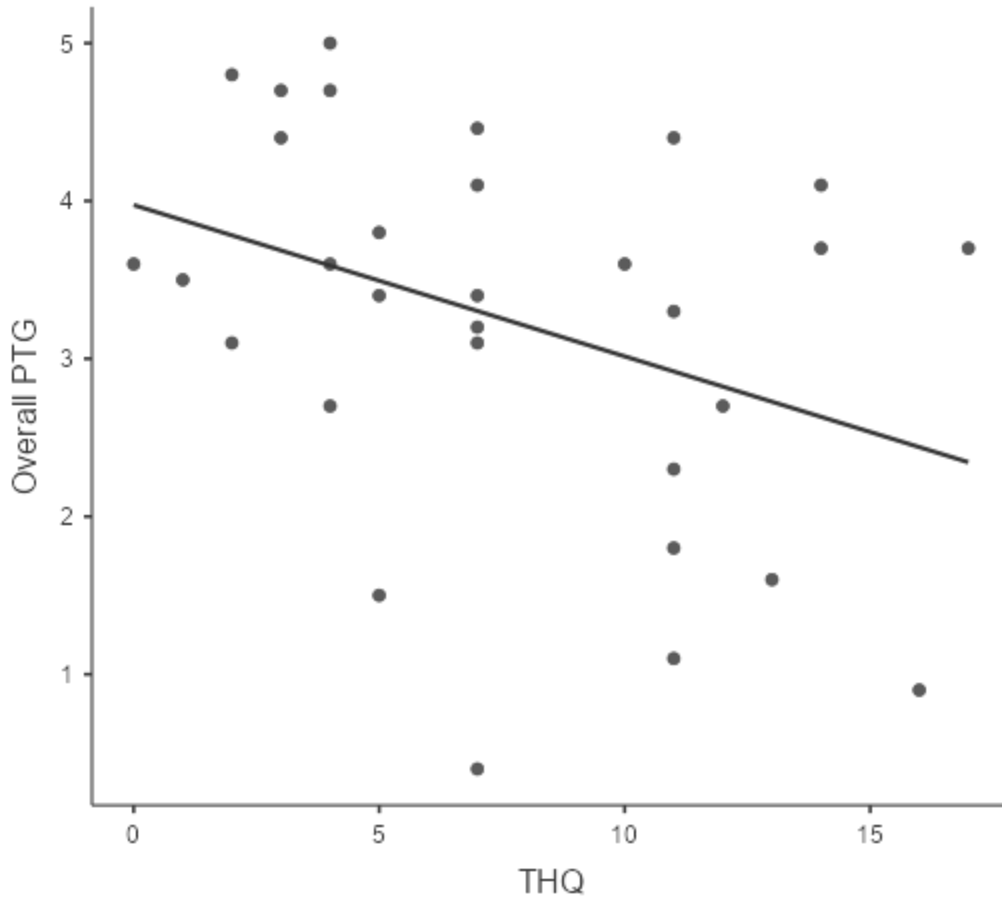


Figure 3

Correlation Between THQ and Overall Posttraumatic Growth (PTG)

Note. This figure describes the relationship between Overall Posttraumatic Growth and the THQ score specifically.

Table 3*MANOVA—Cumulative Traumatic Events and the Five Posttraumatic Growth Factors*

		Value	F	df1	df2	p
Cumulative Traumatic Events	Pillai's Trace	3.72	1.77	90	55	0.012
	Wilks' Lambda	1.67E-04	2.14	90	38	0.005
	Hotelling's Trace	43.4	2.61	90	27	0.003
	Roy's Largest Root	30.4	18.6	18	11	<.001

Five univariate ANOVAs were performed, one for each of the five criterion variables. None of the five factors analyzed in the univariate ANOVAs were significant (see Table 4).

Table 4*Univariate Analyses for the Five Posttraumatic Growth Factors*

	Dependent Variable	Sum of Squares	df	Mean Square	F	p
Cumulative Traumatic Events	Relating to Others	41.6	18	2.31	1.666	0.195
	New Possibilities	40.8	18	2.27	1.489	0.253
	Personal Strength	30.5	18	1.69	1.297	0.336
	Spiritual and Existential Change	56.7	18	3.15	1.316	0.327
	Appreciation of Life	29.9	18	1.66	0.933	0.567
Residuals	Relating to Others	15.3	11	1.39		
	New Possibilities	16.8	11	1.52		
	Personal Strength	14.4	11	1.31		
	Spiritual and Existential Change	26.3	11	2.39		
	Appreciation of Life	19.6	11	1.78		

V. Discussion

In short, none of the hypotheses were supported in this study. While rates of trauma were in line with previous research, posttraumatic growth rates were more varied. Previous research has indicated a generally positive relationship between trauma and posttraumatic growth. Against previous research and the hypothesis of this study, the data produced a negative relationship between trauma and posttraumatic growth (see Figure 1). However, Figure 1 also shows more variance in posttraumatic growth scores as cumulative trauma experiences collect. The negative relationship, while unexpected, may have something to do with the overall high number of incarcerations experienced by many inmates. It may be that inmates who have more issues with cognitive skills, such as executive functioning, are more likely to struggle with engaging in prosocial behaviors rather than crime and the self-reflection necessary for developing posttraumatic growth.

There was a negative relationship between both childhood trauma and adulthood trauma and posttraumatic growth, again contradictory to both previous research and the hypothesis. Childhood growth was still slightly more associated with posttraumatic growth than adulthood trauma.

In comparing the different facets of posttraumatic growth to find if any were more associated with cumulative trauma, no facets were significantly associated with cumulative trauma more than any other. This was against the hypothesis that new possibilities, personal strength, and appreciation of life would be represented more highly in this study.

There are a number of potential explanations for these findings being against previous research. Many of the participants in this study were incarcerated for crimes related to substance use—either directly or indirectly—and depending on the type of sentence the participant was incarcerated for, they may have felt that they should not have gone to prison, but rather been given the opportunity to receive treatment for their substance use, which may have impeded any sense of posttraumatic growth they may have developed during their incarceration. Similarly, some participants may not have found any sense of meaning in their incarceration, rather just feeling punished for their crime; this may be especially true for those incarcerated for drug-related offenses, particularly as public opinion is beginning to shift towards the decriminalization of illicit substances. Additionally, many of the participants in this study were repeat offenders, so it is possible that offenders who are more likely to experience posttraumatic growth during their incarceration may be less likely to reoffend, making them underrepresented in our sample.

This study expanded upon previous research in incarcerated populations by taking a more directly quantitative approach, whereas many studies in incarcerated populations evaluating posttraumatic growth are more in-depth qualitative interview-based studies. This study was, however, limited by several factors. First, the sample size was small. While sample sizes in prison populations are often rather small, it still limits the reliability of the results. Second, the study sample was not particularly diverse, limiting how applicable the results would be to other populations not represented, such as female inmates. Another limitation involved the specificity of the research. While the research attempted to get a wider view of trauma and posttraumatic growth during incarceration, the results suggest something may not have been taken into account which could have explained the results found. Were this project

not limited by time, more variables could have been taken into account and more analyses conducted.

Future research could fill the gaps left by this study—taking into account the type of trauma (Kira et al., 2013) or intentionality of trauma (Molina-Coloma, 2021), for instance—to better understand the ways that trauma impacts posttraumatic growth in prison, and how the effects of trauma can ripple out into other areas, like substance abuse. The results of this study may be more in line with the results from Fraus et al. (2021)—cumulative trauma is not so important as the severity of specific traumas for the development of posttraumatic growth. The relationship in this sample between posttraumatic growth and cumulative trauma is negative—perhaps because in measuring the accumulation of trauma, the perceived severity of specific traumas was left out, affecting the reported posttraumatic growth.

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