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THE CUMLATIVE AND INDIVIDUAL EFFECTS OF NEGATIVE LIFE EVENTS ON DEPRESSION, BIPOLAR DISORDER, AND PTSD IN A POPULATION OF INCARCERATED WOMEN

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A DISSERTATION APPROVED FOR THE
DEPARTMENT OF SOCIOLOGY

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Chapter 1: Introduction

Over the past three decades there have been studies conducted to confirm negative life outcomes for individuals who have experienced a history of physical and/or sexual abuse. Many women with a history of physical and/or sexual abuse cope with their pain through a variety of addictions and abuses such as alcohol, drugs and food. In addition, women who are in physically abusive relationships are known to have more health problems than women who are not abused (Coker, Smith, McKeown, & King, 2000). Addiction and health problems may be indicative of depressive symptoms and anxiety. Several studies have reported an association between childhood physical and sexual abuse and mental health issues such as depression, anxiety and PTSD (Augoustinos, 1987; Beitchman, Zucker, Hood, daCosta, & Akman, 1991; Kaufman, 1991; National Research Council, 1993; Wolfe, 1987). Most research supports cumulative effects of childhood stress on mental health outside of specific life events or trauma (Turner & Butler, 2003; Turner & Loyd, 1995), but little has been done to examine the individual effects of a single negative childhood event. This study will include an analysis of single adverse childhood experiences to see if a single traumatic event influences mental health in adulthood.

Female prisoners have a much higher rate of mental health problems than male prisoners. An estimated 73 percent of females and 55 percent of males in state prisons, 61 percent in federal prisons (males - 44 percent), and 75 percent of females in local jails versus 63 percent of males have a mental health problem (James & Glaze, 2006). Furthermore, evidence is accumulating that suggests that there is a strong link between childhood trauma and mental health problems in incarcerated women. Research

suggests that these women use drugs to self-medicate their mental illnesses. Since drug crimes and crimes related to addiction are the reason that the majority of women prisoners have been incarcerated, it is imperative that we learn more about the relationships between adverse childhood experiences and mental illness in this population. Not only can this information be used to provide appropriate treatment to women in prison, but ultimately it may be used to create diversionary treatment programs, thus reducing both crime and the overall incarceration rate. This study does not examine drug or alcohol abuse but poor mental health and substance abuse are so tightly intertwined it is impossible not to mention it. Health care professional have found substance abuse to be a flag for an undiagnosed mental health problem. Fifty percent of the mentally ill abused substances **(**Hatfield, 1996**)** because drugs and alcohol ease the suffering from a mental disorder (Bizzarri et at., 2007).

In the current study, I examine the relationship between negative or adverse childhood experiences as defined by Felitti et al. (1998) and negative outcomes, in this case defined as mental health issues, in a population of incarcerated women. The ACE (Adverse Childhood Experiences) study examined the adult effects of adverse experiences that occurred in childhood. A few of the manifestations in adulthood from childhood adverse experiences include smoking, abuse of drugs and/or alcohol, weight problems and mental health issues. Although the ACE Study argues that it is the cumulative impact of multiple adverse experiences that is most important in predicting negative outcomes (Felitti et al., 1998), other research suggests that specific stressors are linked to specific problems, especially mental health issues. Therefore, each stressor will be examined both separately and cumulatively. This research is timely and

important. By determining which adverse experiences are linked to mental illness, the findings can be used to inform policy recommendations for treating the specific needs of these women in order to reduce the financial, social, and emotional cost of incarceration to both inmates and society and to improve the quality of life for these individuals.

This study defines mental health problems by self-report diagnosis prior to incarceration. Johnson (2006) lists several negative life events that have been associated with having a mental health problem. These negative life events include sexual and emotional abuse, prescription drug use, drug dependency, and concurrent drug and alcohol dependency. Johnson (2006) also identifies other effects of negative life events such as the association between drug dependency and the involvement in crime, exposure to drug problems in the home, previous adult incarceration and, particularly relevant to this study, mental health problems.

It is important to note that having a mental disorder and being diagnosed are not the same. Individuals may suffer from a mental disorder but have never been diagnosed. The rates of mental illness for the homeless, incarcerated and children in foster care are much higher than for the general population and there is an overrepresentation of these minority groups in these vulnerable populations who do not have access to mental health care (US Department of Human Services, 2001; Anglin et al., 2006; Corrigan & Watson, 2007).

The aim of this study is to examine the correlation of negative childhood events with mental health diagnosis and whether these events are cumulative or a single negative event can affect mental health. More specifically, this study focuses on how

negative childhood events are linked to mental health diagnoses and whether mental health problems can be explained by cumulative events or by a single traumatic event. Previous research has focused on cumulative events that lead to mental health issues but little has been done examining a single traumatic event. This study examines relationships between adverse childhood experiences with three mental health diagnoses: depression, bipolar disorder, and post-traumatic stress disorder (PTSD). This analysis will be done by examining the cumulative effects of adverse childhood experiences as well as by examining the individual effects of an adverse childhood experience on depression, bipolar disorder and PTSD. Two control variables will be used in this study – educational attainment and race.

Importance of the Issue

A few of the social implications of having large numbers of individuals who are living with a mental illness and ending up in jail or prison include victimization, cost, the impact on families, termination of benefits, housing issues, being stigmatized, unemployability after release and sometimes longer sentences.

Victimization in our nation's prisons and jails is particularly important to examine because jails have become the largest provider of mental health services in the United States. Additionally, mental disorders are linked to continuing victimization. Wolf, Blitz, and Shi (2007) compared rates of sexual victimization between inmates with a mental disorder and those without a mental disorder. They found higher rates of victimization among inmates with a mental disorder compared to those without a mental disorder. About 25 percent of their sample reported prior treatment for a mental health problem such as depression, bipolar disorder, PTSD**.**

Every day, our nation's local jails and prisons face the challenge of dealing with offenders who are suffering from a variety of physical and mental illnesses. The U.S. Department of Justice (Ditton, 1999) has conservatively estimated that 16 percent of the nation's incarcerated are mentally ill and their per-inmate financial cost is twice that of the rest of the jail and prison population, and that is only for security, not treatment (Lamb, Weinberger & Gross, 1999). This is even more pronounced among female inmates. James and Glaze (2006) estimated almost three-fourths of women in state prison had mental health issues compared to just over half of men, and in local jails females presented with three times the rate of inmates with a mental health problem compared to men. Twenty-three percent of females reported that they had been diagnosed with a mental disorder by a mental health professional, where only eight percent of men reported this (James & Glaze, 2006).

Cost is another issue. State spending for treatment of the mentally ill is one-third less today than it was in 1950, and changes in mental health laws have made involuntary commitment more difficult (Bazelon Center for Mental Health Law, 2006). Due to these changes, jails and prisons are housing larger numbers of mentally ill. Females account for a small percentage of the inmate population, but the cost for incarcerating females is more than the cost of incarcerating males (McCoy& Sharp, 2007). Reasons for the higher costs of incarcerating women include poverty, abuse, closing of mental health facilities, increases in arrest and prosecution for drug offenses against women, medical care, and caring for children left behind (McCoy & Sharp, 2007).

State prisons have become one of the primary caregivers for the mentally ill. While nationally, 40 state mental hospitals have closed in the last few years, more than 400 new prisons have opened (Maloney**,** Ward, Jackson & Charles, 2003**)**. Torrey (1995) argues that a few hundred thousand prisoners might be suffering from major depression or have a psychotic illness, possibly both. He estimates that this is twice the number of patients in all American psychiatric hospitals combined.

In addition to financial costs, there are social and emotional costs to the incarceration of women. Incarceration impacts many families due to the large percentage of female inmates who are single parents (Beck & Karberg, 2001). Not only do they face the shock of incarceration, but they must often face the shock of losing contact with their children. More than 65 percent of women in jails have children under the age of 18 (Beck & Karberg, 2001). Two-thirds of these women were living with their children before entering jail (Correctional Association of New York, 2002). When they go to prison, their children are placed with a family member or in state care. Many times siblings are separated from each other and are moved from household to household (Sharp & Marcus-Mendoza, 2001; Sharp, 2004; Sharp, 2005a; Sharp, 2005b; Sharp, 2006a; 2006b; Sharp, 2008a; Sharp, 2008b; Sharp, Hartsfield, Conner, & Wolf; 2007, Sharp & Pain, 2010). Thus, the sanctions imposed on the parents are imposed on the children as well. Not only is this a problem for the families and children, but it is also an added cost for the state to provide care for the children of incarcerated mothers. Reuniting with children after incarceration can be difficult and stressful. Even if the released mother has received psychological and substance abuse treatment in prison, her children probably have received little or no counseling, which can pose difficulties in

reunification, decreasing the likelihood of successful reintegration (Sharp, 2008b). Finally, changes in social policies often penalize individuals with mental health and substance abuse problems who have been incarcerated. Having been incarcerated can result in the termination of Medicaid which leaves an individual with a mental health problem but without resources to receive mental health services or help for substance abuse treatment (Olphen, Eliason, Freudenberg, & Barnes, 2009).

Regardless of the mental health problem, those with a serious mental illness (SMI) are at the top of the most socially excluded members of society. It is estimated that just 21 percent of people, of working age, with mental health problems are employed compared with 81 percent in the general population (Disability Rights Commission, 2006**).** Long-term physical illnesses create additional barriers for employment for those with a SMI. Due to the stigma of having a mental health problem and having been incarcerated, the challenges to finding employment are exacerbated (Disability Rights Commission, 2006).

Women who have been incarcerated may become homeless or lose their housing (Richie, 2001), which can increase their risk for victimization or exploitation (Aidala, Cross, Stall, Harre, & Sumartojo, 2005). Allard (2002) argued that drug felony convictions negatively affect released inmates' abilities to get services such as student aid or losing assistance, which further hinders conventional opportunities for these individuals. Most incarcerated individuals are from poor communities and return to the home of origin after leaving jail or prison. These communities experience high levels of poverty, racism, drugs, and violence, in addition to lacking access to conventional means of obtaining an education or housing (Aidala et al., 2005). Individuals

experiencing the heaviest symptoms of mental health problems also suffered from a variety of poor living conditions. Friestad and Hansen (2006) found that mental health problems were exacerbated by an inmate's prior disadvantaged living conditions.

Incarceration impacts women with children especially hard. Federal bans have been placed on receiving government subsidies for some individuals with a criminal history, which means that released inmates often are unable to obtain food stamps, government help with housing and other benefits (Allard, 2002). Poor women convicted of drug related crimes are particularly affected by these limitations which include access to employment, housing and education after their release (Allard 2002). This is important due to the link between mental health and substance use, because a large number of women are serving time for drug related crimes. James and Glaze (2006) examined state and jail prisoners with mental health problems who reported they used drugs. They found that 37 percent of those in prisons and 26 percent of jail inmates with a mental health problem also used drugs at the time of the offense. Mental health problems, along with drug use and crime, have been identified as areas that need more examination (Willis & Rushforth, 2003).

And finally, sentencing and time served adversely affect inmates with mental health problems. Another mental health related issue James and Glaze (2006) examined was sentence length. They found prison inmates with a mental health problem served an average of 5 months longer than inmates without a mental health issue.

General Strain Theory (GST) is the theoretical framework used in this study to understand the influences strains have on mental health and the response individuals use

to alleviate their negative affective emotions. "GST argues that strains or stressors increase the likelihood of negative emotions like anger and frustration and these emotions create pressure for corrective action" (Agnew, 1992, p. 319). According to GST, strains are external stressors that are created in the environment, such as poverty and abuse. Cognitive strategies are then used to reduce the effects of these strains. As explained by GST, alcohol and drug abuse, crime, and self-injury are a few examples of non-conventional means used to alleviate negative emotions. In addition, gendered studies using GST have found gender differences in responses to strain, with females being more likely to experience mental health problems such as depression. Gendered behavior is influenced by cultural expectations of males and females. Past work on GST has tended to focus on cumulative measures of strain, where measures of economic strain, if they are included, are part of a battery of other negative life events. Agnew (2001, 2006) argues that these cumulative measures of strain mask the effects of the individual forms of strain and suggests that more work is needed to determine the effects of individual types of strain. In this study, I will examine individual as well as cumulative effects of several stressors and their effects on mental health.

Prison populations do not represent a cross-section of the general population. They are overrepresented in lower socio-economic environments and are populated with marginalized individuals. An unusually high number of female inmates have reported experiences of sexual and emotional abuse, prescription drug use, drug dependency, and concurrent drug and alcohol dependency. A longitudal ACE survey supported this. It found that a large percentage of children and adolescents, from lower socioeconomic and minority homes, enter adulthood with a history of adverse childhood events

(Schilling, Aseltine, Gore, 2007). This project adds to the knowledge regarding the impact of negative childhood events on mental health issues that affect female inmates. In addition, it contributes to our increasing knowledge of mental health problems and the impact this has on women. It aids in our understanding of the best methods to approach and focus on the specific needs of these individuals in order to improve their quality of life and the lives of their children. However, because studies of individuals in the general population show that negative childhood experiences are correlated with poor physical and mental health; this information from this study would be pertinent to other populations.

The current study focuses on the effects negative childhood events have on female inmate's mental health. Several issues will be explored. I examine whether negative childhood experiences are linked to depression, bipolar disorder and/or PTSD in adult female state prisoners. Depression, bipolar disorder and PTSD will each be examined separately and the effects of the items on the Adverse Childhood Experience (ACE) scale will be examined individually and cumulatively. Other factors, such as race and educational attainment, will be controlled for the current level of depression, bipolar disorder and PTSD symptomology.

Chapter 2: Review of Literature

Adverse Life Events

Adverse or negative childhood events may be linked to adult mental illness. One study revealed that more than 80 percent of individuals who experienced major depression also experienced a serious negative life event (National Institute of Mental Health-NIMH, 2008)**.** For quite some time, the home environment has been known to be a potential source of adversity for children. Parental alcohol and substance abuse has been associated with depression in childhood and into adulthood (Jacob & Leonard, 1986: Roosa, Sandler, Beals, & Short, 1988). The negative effects of the caregiver's impairment create stressful family contexts and stressful life events (Chassin, Barrera, & Montgomery, 1997). Parents physical or mental illnesses create additional stress in children's lives (Leventhal, Leventhal, & Nguyen, 1985) as does parental unemployment (McLoyd, 1989). These issues are examples of childhood adversity, and, when examined individually, have been associated with poor mental health outcomes (Turner, Finkelhor, & Ormrod, 2005). The age at the time of the adversity is important to note. Before examining childhood adverse events individually, Turner and Loyd (1995) did an earlier study examining the effects of *multiple* traumatic events, and established that traumatic events prior to 18 years of age were the most important predictor of mental disorders in adults.

Several types of negative events are known to be precursors to depression. Silverman et al. (2011) found that negative events such as childhood and adult sexual abuse and male perpetrated violence were common prior to depression. Initial research has suggested that childhood trauma has a greater impact on risk for depression than

trauma occurring when the individual is an adult (Ellis, Nixon, & Williamson, 2009). This research also indicates that women may be more likely than men to experience depression in response to a stressful event. Social factors that have been known to lead to depression include living in violent households, households dealing with poverty or homelessness, households with constant relationship issues, and community troubles (NIMH, 2009).

Brown and Harris (1978) studied women and divided circumstances that can increase the vulnerability of a person developing mental health problems into two kinds of circumstances. The first circumstance they describe is long-term difficulties such as ongoing, stressful situations. This includes things like longstanding difficult relationships that can cause depression and can make the effects of other life events worse (Brown & Harris, 1978). The second set of circumstance Brown and Harris examined were vulnerability factors. Examples of vulnerability factors include events such as having three children under the age of 14 years, not working outside the home, having no one to confide in and loss of one's mother by death or separation before the age of 11 years. They explain that these events can make the effects of life events challenging, although they cannot in themselves cause depression, these factors can be precursors for depression. Female inmates are more prone to the circumstances that increase vulnerability to mental health problems in both categories that Brown and Harris established in the late seventies and this still holds true today.

Gilfus (2002) documents that the majority of imprisoned women have histories of childhood abuse, and few have experienced healthy relationships with men. In fact, she notes that most have experienced violence from their intimate relationships**.**

Negative childhood events, such as sexual abuse, make women particularly vulnerable for mental health problems and abusing substances abusing substances (Gilfus, 2002).

Depression, PTSD, and Bipolar Disorder

My focus in this study is on three common mental health diagnoses in the general population and among female inmates – depression, bipolar disorder and PTSD. Although I am not examining anxiety, it is important to mention anxiety because it is difficult to separate anxiety from depression, bipolar disorder and PTSD. Anxiety disorders such as PTSD often coexist among people with bipolar disorder (Krishnan, 2005), and depression has been found to coexist with anxiety (NIMH, 2009).

Major depression and dysthymia are two mood disorders. Several environmental factors can instigate major or clinical depression but the physiology that occurs is a chemical imbalance in the brain. "Major depression is a mental disorder characterized by an all-encompassing low mood accompanied by low self-esteem, and loss of interest or pleasure in normally enjoyable activities" (NIMH, 2008, p. 1). Dysthymia is a categorization of depression that can last for years, but symptoms are not as intense as those associated with major depression. Although dysthymia is not as severe as major depression, and individuals may go several consecutive days without symptoms, it can still be debilitating.

Young women are particularly vulnerable to mental health problems, such as depression, during childbearing and childrearing years (Blazer, Kessler, McGonagle, & Swartz, 1994; Glied & Kofman, 1995). The Center for Epidemiologic Studies' Depression Scale (Radloff, 1974) evaluated the rates of depression for female inmates and found this population experienced depression twice as often as women in the

general population (Fogel & Martin, 1992). NIMH (2008) supports previous findings that twice as many females as males suffer from major depression. Their research found that over 6 million women compared to just over 3 million men suffered from major depression (NIMH, 2008). In short, not only do females suffer from depression twice as often as men, but female inmates suffer from depression at even higher rates than any other population.

The NIMH (2007) found that women who were molested as children were at higher risk for depression during their life than those who were not molested. Bebbington et al. (2003) examined depression and rape among adult females and found a higher incidence of depression among women who were raped as adults. Since far more women than men were sexually abused as children as well as in adulthood (Kessler, et al., 2005), these findings are relevant. Compared to inmates without a mental disorder, more than twice the percentage of state prisoners with a mental health problem reported abuse in their past. James and Glaze (2006) found that 27 percent of state prisoners with a mental disorder reported physical or sexual abuse, where 10 percent of those without a mental health problem reported abuse. Twenty-four percent of jail inmates with a mental health problem reported being abused compared to only 8 percent without a mental health problem.

Victims of abuse experience social isolation which fosters low self-esteem and helplessness (Calvete & Cardeñoso, 2005). Certainly, there is reason to believe that women prisoners may have higher levels of self-doubt than women in general, exacerbating the problem.

Bipolar disorder is a brain disorder where the individual goes through extreme highs (mania) and extreme lows (depression), and the changes between the highs and lows can be very abrupt. The NIMH (2006, p. 1) defines bipolar disorder as an "illness that affects thoughts, feelings, perceptions and behavior, and can affect how a person feels physically." Common symptoms of bipolar disorder include sadness, tiredness, difficulty with concentration, insomnia and poor appetite (NIMH, 2008). Bipolar disorder is different from the normal ups and downs that everyone goes through from time to time. It affects the lives of sufferers profoundly. Difficulty in holding a job or staying in school and difficulty maintaining relationships, along with suicidal tendencies, are common for those diagnosed with bipolar disorder (Kessler, et al., 2005). Clinically, significant symptoms of bipolar disorder are exceptionally common among female inmates, perhaps owing to the fact that many incarcerated women have experienced prior physical and/or sexual abuse (Kessler, et al., 2005).

It is common for people diagnosed with bipolar disorder to use drugs or alcohol to ease their symptoms. This may trigger, prolong, or exacerbate the symptoms of bipolar disorder and result in the excessive use of alcohol or drugs (Bizzarri et al., 2007). Thirty to 60 percent of patients with bipolar disorder abuse alcohol or drugs, and an estimated 30 percent of these individuals use cocaine (Brady & Sonne, 1995). More generally, substance abuse is often indicative of individuals with mental illness. Fifty percent of the mentally ill also abused substances (Hatfield, 1996) and clinicians have reported that substance abuse among those with mental illness is expected, and they should not be treated independently of each other (Souto, 1996).

Meade (2009) found that patients with bipolar disorder present more mental health problems than the general population. Bipolar disorder produces more disability, or negative repercussions, for working capacity and family and social life. Meade (2009) argues that these negative repercussions can exacerbate depression (Meade, 2009).

Post-Traumatic Stress Disorder is linked to undergoing a traumatic experience. The individual re-experiences the traumatic event and may avoid people or places that bring back the traumatic memory. This experience may interfere with normal functioning such as caring for a family or maintaining employment. NIMH (2008) defines PTSD as "an emotional illness that usually develops as a result of a terribly frightening, life-threatening, or otherwise highly unsafe experience."

People develop PTSD because they are unable to handle the event, and many turn to drugs and alcohol to help them deal with the aftermath. Researchers have shown that up to 50 percent of the individuals who were getting help for a substance abuse problem also had post-traumatic stress disorder (Mills, Teesson, Ross, Darke & Shanahan, 2005). People who suffer from drug or alcohol addiction are more likely to suffer from PTSD. About 15 percent of the individuals with alcoholism, and approximately 30 percent of those with a drug addiction, also suffer from PTSD (Addiction and Substance Abuse, 2008).

Olaya, Ezpeleta Osa, Granero, & Doménech, (2010) examined interparental physical and environmental violence children and adolescents experienced and found an overwhelming 40 percent of children and teens have endured at least one event. Gender differences were also noted. Girls develop PTSD more than twice as often as boys - 15

percent compared to only 6 percent or boys. Research has revealed that about 3 to 6 percent of adolescents who have gone through a disaster have PTSD and 30 to 60 percent of children who have survived a traumatic disaster have PTSD. Specifically pertinent to this study is the percentage of children who have seen a parent killed or who have endured sexual or physical abuse and who developed PTSD. Olaya et al. (2010) found that almost 100 percent of children who experience sexual or physical abuse tend to develop PTSD, and more than one-third of youth who are exposed to community violence will suffer from PTSD. Plumer, Potterat, Muth and Muth (1996) also established an association between PTSD and childhood physical and sexual abuse. They found that the more negative childhood abuses (i.e. sexual and physical) an individual experiences, the greater the severity of PTSD symptomology.

James and Glaze (2006) found that 27 percent of prison inmates with a mental health problem reported abuse, whereas only 10 percent without a mental health problem reported abuse. The rates for jail inmates with a mental health problem who had experienced abuse were slightly lower. They reported that 24 percent of inmates with a mental health problem had reported abuse where only 8 percent without a mental health problem reported abuse.

Jordan, Schlenger, Fairbank, and Caddell (1996) surveyed incarcerated women and found that over 75 percent of the population experienced at least one traumatic event that predisposed them to PTSD. Female inmates have experienced more traumas before going into prison than women who never experience incarceration (Gibson et al., 1999; Kubiak, 2004). These pre-existing traumas may exacerbate mental health problems among this population. Prior to incarceration, female inmates diagnosed with

PTSD reported significantly higher rates of childhood abuse and were more likely to experience major depression and substance abuse (Zlotnick, 1997).

Finally, Krishnan (2005) found that mental disorders such as PTSD and bipolar often overlap. In addition, depression has been found to coexist with other mental health problems such as anxiety and also to coexist with physical health problems such as heart disease, cancer, or thyroid condition (Krishnan, 2005).

Biological, Psychological and Environment Influences on Mental Health

There is no one cause of mental illness. Mental health is a result of the combination of biological, psychological, and environmental factors (Chakraburtty, 2009). Biological factors for mental illness include genetics, infections, brain defects, chemical imbalances in the brain, prenatal damage, substance abuse, poor nutrition and exposure to toxins (Chakrburtty, 2009; Yolken, & Torrey, 1995; Zubin & Spring, 1977). Psychological influences that are believed to affect mental illness include severe psychological trauma suffered as a child (i.e. physical or sexual abuse), an important early loss (i.e. loss of a parent), and neglect (Chakrburtty, 2009; Yolken, & Torrey1995; Zubin & Spring, 1977).

Environmental stressors in conjunction with genetics produce an array of mental disorders. Recently, researchers have found evidence that suggests bipolar disorder has a stronger genetic factor than depression and PTSD (Kieseppa, Partonen, Haukka, Kaprio, & Lonnqvist, 2004). Although there is a stronger genetic component to bipolar disorder than to depression and PTSD, research shows the environment plays a crucial role in the etiology and course of the disorder. Current studies reveal that trauma contributes to the severity of bipolar disorder (Goldberg 2008; Leboyer, Henry,

Paillere-Martinot, & Bellivier, 2005). Throughout an individual's life, a variety of environmental factors such as stressful life events, changes in daily schedules, drug abuse, and medications can trigger the onset of a bipolar episode (Leboyer et al., 2005). If an individual has a genetic predisposition for mental illness, the environment will influence whether the mental disorder will manifest and to what extent. Similarly, if an individual has a genetic propensity for heart disease, it may never be expressed if the individual has healthy habits such as a good diet, exercise, moderate stress and good social support.

Several environmental factors have been found to influence depression, bipolar disorder, and PTSD. The most common influences include death or divorce, dysfunctional family life, poverty, cultural expectations, low self-esteem, and substance abuse by the individual or the individual's parents (Chakraburtty, 2009; Schmidt, 2007; Eisenberg, 2005). Studies have been done examining the environmental and genetic interactions in the etiology of depression. This research has found that a combination of stressful life events and genetics were the strongest predictors of the onset of major depression in women (Kendler, Kessler, Neale, Heath, & Faves, 1993; Kendler, Gardner, &Prescott, 2006). Other research has been done examining the relationship between genetics and the environment, more specifically between genetics and having a history of stressful life events. The genes that hold the secrets to mental health have been discovered. It was established that individuals with specific genetics exhibited more depressive symptoms, diagnosable depression, and suicide than individuals without these traits, but having specific genetic traits, without having stressful life events, was not predictive of depressive symptoms (Caspi et al. 2003; Kendler, Kuhn,

Vittum, Prescott, & Riley, 2005). Kaufman et al. (2004) revealed that individuals with certain genetics, who experienced maltreatment in childhood, were more vulnerable to depression than those who carried the genes for depression. They found that it was the interaction of genetics and environment that determined the risk of depression. Even when the child carried the genes that predisposed them to depression, lower incidents of depression occurred with sufficient social support. These studies show that genetic risk for mental illness can be ameliorated by positive environmental factors. In short, with mediating factors such as social support, individuals with a genetic predisposition were no more likely to develop mental health problems that individuals without a genetic predisposition.

Theoretical Approach

General strain theory (GST) is a theoretical explanation of the study of crime and deviance, and helps identify the individual influences of strain. GST is the theoretical framework used in this study to explain responses to negative childhood events and mental health problems. GST argues that negative emotions such as anger, frustration, and depression are increased due to strains of stressors. Negative emotions create the need to eliminate or ease this state. Alleviation of negative emotions can be done through a variety of strategies. Some of these strategies may involve conventional, legal actions such as shopping, listening to music, or exercising, however, other strategies may involve non-conventional, and sometimes illegal actions such as crime, illicit drug use or alcohol abuse (Agnew, 1992). In brief, according to GST a strain or stressor occurs, negative emotions arise from this strain. A coping mechanism

is then used to alleviate the negative emotions that arise from the strain which leads to deviant behaviors.

In the current study, although I do not examine this, I am suggesting that the negative affective states resulting from strain result in diagnosable mental illness. Incarcerated women are in prison primarily as a result of their drug use, with 64 percent of new receptions in Fiscal Year 2010 assess with a moderate to high need for substance abuse treatment and 63 percent of all women incarnated at the end of that year assessed with a need for substance abuse treatment.

Overview of GST

Agnew (1992) identifies three categories of strain that includes: loss of positive stimuli, the presentation of negative stimuli, and the failure to achieve positively valued goals. One or more of these categories of strain may be the result of negative affective states such as anger, depression, disappointment, fear or frustration. Agnew argues that the intensity and frequency of the strain influence the likelihood of delinquent behavior. Agnew (1992) specifically notes the relevance of anger. He explains that anger is the emotion associated with being wronged, and it creates a desire for revenge.

In 2001, Agnew expanded on GST, adding strains that were more likely to lead to crime. These strains include those seen as unjust, seen as high in magnitude, associated with low social control and strains that create some pressure or incentive to engage in criminal coping.

Agnew (2006, p. 6) states that "not all strains increase crime but suggest that the *magnitude* of the strain will increase the likelihood of criminal coping." In other words, it is the severity of the strain that determines if an individual uses criminal behavior to

cope with strain. Agnew's (2006) characteristics of severe strain include negative emotions, inability to cope with situations legally, low constraint, low social control and the social learning of crime.

Baron (2004) identified different sources of strain that were predictive of delinquency. These sources of strain for youth included problems with parents, teachers, and peers. He includes negative childhood experiences such as victimization as strains that are related to the onset of delinquency. In addition to the strains listed above, other researchers have identified additional strains such as divorce, criminal victimization, abuse, and neighborhood strains to be related to delinquency (Agnew & White 1992; Paternoster & Mazerolle 1994; Piquero & Sealock 2004).

The environmental characteristics that increase the likelihood of criminality include poor coping skills and resources, low levels of conventional social support, low social control, association with criminal others and beliefs favorable to crime and exposure to situations where the costs of criminal coping are low and the benefits are high (Agnew 2006). "…whether a given factor increases the likelihood of criminal coping depends on the level of the other factors" (Agnew 2006, p. 104).

Agnew (2006) suggests that individuals may elicit behavioral, cognitive, and emotional strategies to cope with their strain. He explains that behavioral strategies refer to behaviors designed to protect or retrieve those things they value, or escape from aversive treatment. These cognitive coping strategies individuals use may help to minimize the negative effect of their strains, and emotional coping strategies act directly on the negative emotions created by strains (Agnew, 2006). As previously stated, they may use noncriminal strategies such as exercise or listening to music or they may use

criminal strategies such as drug and alcohol abuse (Agnew, 2006). There are other strategies that are used to negate negative emotions that are neither conventional nor illegal. Examples of these would include behaviors such as cutting or suicide.

Gender differences in response to strain

Anger is manifested differently among males and females. Males are more likely to express their anger towards others, where female's frustration is directed inwardly or self-directed (Broidy & Agnew, 1997). Males' externalized anger is expressed through aggression toward others, and females internalize their anger and blame themselves (Hoffman & Su 1997; Ireland & Widom 1994; Stiles et al. 2000). This internalization explains why females are more likely to experience depression and anxiety (Broidy & Angew 1997) and may resort to nonconventional coping strategies that are self-destructive (Broidy & Agnew, 1997) such as purging (Sharp, Terling-Watt, Atkins, Gilliam & Sanders, 2001) and self-mutilation (Wilkins & Coid, 1991).

Agnew (1992) describes two types of coping mechanisms that lead to different ways of dealing with strain – inner-directed and outer-directed behaviors. Inner and outer-directed behaviors explain individual differences when dealing with strains and negative affective emotions. Individuals who use outer-directed deviant behaviors lash out, and are more likely to commit property and violent crimes. Individuals who use inner-directed behaviors turn their negative emotions inward and become self-destructive. These individuals tend to be depressed and are more likely to be suicidal, cut themselves, or use drugs and alcohol as a means to deal with their negative affective state that resulted from strains. Males tend to cope using outer-directed aggressive behaviors and females are more likely to use inner-directed coping mechanisms (Broidy

& Agnew, 1997). This may explain why drug crimes are the number one reason for female incarceration.

Self-harming behaviors have been linked to a history of sexual or physical abuse both in offender and clinical populations (Bryer, Nelson, Baker Miller, & Krol, 1987; Wilkins & Coid, 1991; Coid, Wilkins, Coid, & Everitt, 1992). Self-harming behaviors are inner-directed responses to negative emotions and are the primary coping mechanism for females. In psychiatric literature, anger has been found to be a central feature in the precipitation of suicidal and other self-harming behaviors in female prisoners (Wilkins & Coid, 1991) and in non-clinical women (Milligan & Waller, 2001). This follows Agnew's (1992) position that anger is a crucial emotion but it is the emotional response to anger that is important to note. Sharp, Brewster and Redhawk-Love (2005) examined gender differences in response to strain and noted that women engage in less criminal behavior but are more likely to engage in self-destructive types of deviance.

Generally, it is believed that the function of self-harming behaviors is to allow the individual to reduce, block or otherwise distract themselves from negative emotions which are perceived both as being intolerable and unavoidable by any other means (Lacey, 1993; Heatherton & Baumeister, 1991). Growing literature suggests the salience of such emotions in adult survivors of abuse (Andrews, 1995, 1997, 1998; Briere & Zaidi, 1989) and the high levels of both childhood abuse and self-injurious behaviors reported by female prisoners (Browne, Miller, & Maguin, 1999).

Milligan and Andrews (2005) investigated contributions of shame, anger, and sexual and physical abuse in childhood to suicidal and self-mutilating behaviors. They

specifically examined the influence the roles of shame and anger may have in the effects of childhood abuse and self-harm. They found that 57 percent of the incarcerated women reported suicidal and/or other self-harming behaviors at some point in their life, with an overwhelming 50 percent of these behaviors occurring just before or during the current sentence. In addition, they found a significant relation between self-harming behaviors and feelings of shame and anger after experiencing sexual and physical abuse (Milligan & Andrews, 2005).

GST and depression

Depressed people feel powerless or unable to alter the disliked state of affairs which is beyond the control of individuals (Agnew, 2006). Agnew (2006) explains that depression reduces the ability to cope in a legal manner by reducing the perceived costs of crime as the misery experienced by depressed people may lead them to feel that they have little to lose by committing a crime. He adds that depression is more likely to result in passive crimes such as substance abuse, which frequently make individuals feel better for a brief period of time (Agnew, 2006). This is relevant to incarcerated women, as drug crimes are the primary reason for incarceration of women. Depression usually results when people have experienced some disliked event, and depressed individuals feel powerless to make the necessary changes to improve their situation (Agnew 2006). Agnew (2006) suggests emotions related to depression include anguish, despair, hopelessness and disappointment. Unlike outer-directed emotions, depressed individuals are more likely to see the situation as beyond their control (Agnew, 2006). Jang and Johnson (2003) results support a gendered response to strain. They found that depression had a much larger effect on drug use and a much smaller effect on fighting.

Some research indicates that low self-control and internalizing problems, such as *depression,* are important mechanisms through which family factors may influence *drug use* (Chapple, Hope, & Whiteford, 2005; Stein, Leslie & Nyamathi, 2002). Negative self-concept, resulting in low self-esteem and lack of self-determination, is another adverse outcome often linked with parental maltreatment and the propensity to *use drugs* (Amaro, Blake, Schwartz, & Flinchbaugh, 2001; Brook et al., 2007; Connor, Poyrazli, Ferrer-Wreder, & Grahame, 2004; Epstein, Griffin, & Botvin, 2008).

GST and victimization

According to GST behavioral strategies are created to cope with negative social interactions such as victimization where the victim will respond in a way to eliminate or ease negative affective emotions (Agnew, 2006). Research has shown that substance abuse has been a common coping technique victims have reported who experienced sexual, physical or emotional abuse use (Burnam, et al., 1988; Finkelhor, 1995; Duncan, Saunders, Kilpatrick, Hanson, & Resnick, 1996; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997; Lo, Kim, & Church, 2008).

GST holds that childhood or adult victimization is a negative stimulus capable of creating a great deal of strain. Victims evaluate and interpret the negative stimulus that elicits negative affective emotions, which leads to behavioral strategies to block them (Agnew 1992, 2002; Elder 1989). If these behavioral strategies are maladaptive, the result may be deviant behavior (Agnew, 1992, 2002; Elder 1989). Stein et al., (2002) found that parental substance use had a strong direct effect on drug and alcohol

problems. They also found other forms of abuse, including physical and sexual abuse, influenced substance use indirectly through lower self-esteem and recent victimization.

Various negative effects may result from experiencing victimization. Research has shown that mental health problems, such as depression and PTSD, are more prevalent in maltreated children (Demaris & Kaukinen, 2005; Silverman, Reinherz, & Giaconia, 1996; Turner et al., 2006; Turner & Lloyd, 1995; Bao Whitbeck, & Hoyt, 2000). Children who have been exposed to violence or had violence directed toward them are more prone to anger and aggression (Baron, 2004; Turner, et al., 2006). Substance abuse is a strategy used to ease the pain and suffering that result from the negative affective state the violence creates (Widom, 2000). A consequence of substance use to ease pain and suffering is that it exacerbates the symptoms of mental health problems from childhood throughout adulthood, putting the individual in a vulnerable position to be revictimized (Caspi, Bem, & Elder, 1989; Clark, Masson, Delucchi, Hall, & Sees, 2001; Wittebrood & Nieuwbeerta, 2000).

Proneness to negative emotions is particularly prevalent in victims of both childhood sexual and physical abuse, many of whom suffer intense reactive feelings to these early victimization experiences (Feiring, Taska, & Lewis, 2002). The emotions of anger and shame appear to be salient in this regard. Studies have shown that event-specific shame and bodily shame act as arbitrators between reported childhood abuse and mental health disorders such as depression, bulimia and PTSD (Andrews, 1995, 1997; Andrews, Brewin, Ross & Kirk, 2000).

Previous research suggests that other potential mediating factors between childhood sexual abuse and self-harm may involve different forms of abuse in the life-

course. For example, Andrews (1995) has demonstrated the powerful effect of abuse in adulthood on chronic and recurrent depression in community women. Furthermore, studies of eating disorders, depression, and anxiety in nonclinical women have suggested that contact forms of trauma may actually have their greatest impact when they involve an emotionally abusive component (Kent & Waller, 1998; Kent, Waller, & Dagnan 1999).

As previously stated, not all strain leads to crime or deviance. However, victims who lack self-control or social control are more likely to use deviant behaviors as coping mechanisms **(**Agnew, 2001, 2002; Agnew, Brezina, Wright, & Cullen, 2002). When individuals lack sufficient self-control, the negative stimuli may be perceived as intolerable, giving negative affective emotions more power (Agnew, 2006).

GSTs application to this study

The way this relates to the current study is whether the stresses of negative childhood events have an effect on mental health problems such as depression, bipolar disorder, and PTSD and, if so, what are the factors associated with these diagnoses? In other words, do negative stimuli such as physical and sexual abuse and verbal insults create the need to use unconventional actions to alleviate negative emotions? GST argues that drug use is a distinct adaptation from delinquency because it is conceptualized as a way of managing (or escaping) negative emotions brought on by strain, rather than reacting to such emotions with volatility (Agnew & White, 1992). According to GST, a strain occurs which creates negative affective emotions. To alleviate negative affective emotions the individual uses coping techniques that may be either outer or inner directed. Individuals who use outer-directed behaviors lash out

where individuals who into inner directed coping techniques develop mental health problems and use self-destructive behaviors to alleviate their pain. A model of this process is shown in Figure 1.

(Figure 1 about here)

Of specific importance to this study is whether some women develop depression, bipolar disorder and/or PTSD that is exacerbated in response to adverse childhood experiences and why they manage this negative emotion with nonconventional methods such as drug and alcohol abuse, self-mutilation and other self-destructive behaviors. If so, it is important to explore what factors might account for those differences.

As previously stated, GST argues that deviant behaviors are used in an attempt to negate negative affective emotions. It explains why criminal, deviant or nonconventional behaviors do not occur in all individuals and the influences and predictors for those who use deviant mechanisms to cope with negative emotions. This makes GST a good fit in explaining mental health disorders. In my study, I examine negative childhood experiences and mental health in adulthood for female inmates. Using GST, gender has been examined establishing there are differences in male and female responses to strains, predisposing females to mental health issues. Although an individual may have a genetic predisposition for mental health issues, the environment is the most influential element in predicting mental health. The environmental influence on mental health supports Agnew's argument that individuals experience strain from the failure to achieve positively valued goals, from the loss of positively valued stimuli or from the presence of negatively valued stimuli – all environmental influences to

nonconventional behaviors. Female inmates have a higher percentage of mental disorders than any other population, and these women experience the high levels of strain (i.e. sexual, physical and emotional abuse, poverty, low academic achievement…) and high rates of alcohol and drug abuse, compared to other populations. As established in gendered studies and in GST, females respond to strain differently than males. Females tend to use inner-directed behaviors to cope with strain which is more likely to lead to depression. Other studies, which will be discussed in this literature review, have been done in the general population confirming the relationship between negative childhood experiences (i.e. environmental influences) and poor mental health. GST supports the effects childhood experiences have on adults' mental and physical health.

GST and race

Another area of concern from a GST perspective is the difference between races. Racial minority groups have reported higher rates of discrimination, violence and poverty which results in higher levels of mental health problems (Preston, 2006). This makes GST particularly relevant for racial minority groups (Agnew, 2002; Preston, 2006). Discrimination, violence and poverty hit African Americans particularly hard. African Americans have fewer resources, making them exceptionally vulnerable to strains; hence, they experience negative affective states and criminal behavior (Agnew, 1999).

The literature on strain between races focuses mainly on Blacks and Whites. Other groups such as Hispanics, Asians and Native Americans have not been studied as much, mainly due to lack of data. Due to the differences in cultural response to strain, it

is imperative to examine these differences among women to gain fuller understanding of how the experiences of women are affected by their social placement.

Turner et al. (2006) found that Blacks reported significantly higher exposure to witnessing family violence that any other racial or ethnic group. This result may be linked to social structure. Compared to higher education and higher income families, lower educational attainment and family incomes below $20,000 were associated with greater exposure to child neglect, maltreatment, abuse, witnessing family violence and other types of violence (Turner et al., 2006).

Blacks are overrepresented in areas with extreme levels of social and economic dislocation (Sampson & Wilson, 1995; Wilson, 1987), which places them in situations where they are more likely to experience negative childhood events. Rennison and Platty's (2003, p. 438) study supported an "economic explanation for criminal victimization and it is the *strain* directly related to monetary resources available to the individual, or a combination of factors such as poverty, drug use, unemployment, single parent family structures, and aggressive policing that is found in these communities."

When looking at the racial outcomes for women, there is a need for a fuller explanation of depression, bipolar disorder, and PTSD resulting from environmental strain for minority and White females. GST addresses the reaction women have to negative life events and the results from these such as anger, depression and hopelessness. Women in prison experience higher levels of poverty, domestic abuse and substance abuse, have less education and are more likely to be single than women in the general population. GST is a helpful perspective in understanding the reactions to these strains in women's lives.

Educational Attainment and Mental Health Issues

Poor mental health negatively affects educational attainment. Depression, like many other illnesses and medical conditions, is overrepresented among adults with lower levels of education. Most prison inmates have a history as school dropouts or are educationally disadvantaged, and the vast majority of inmates enter prison without basic literacy skills or job training (Linton, 2004). This makes educational attainment for prison inmates a significant concern since it is far lower than for the general population.

Harlow's (2003) analysis revealed that only about 14 percent of state prisoners have an eighth grade education or less as their educational attainment, compared to 72 percent of the general population which has attained at least an eighth grade education or higher. The discrepancy for high school attainment is not as steep but still significant. Thirty-three percent of the general population has successfully completed high school compared to only 20 percent of those in prison (Harlow, 2003). Almost 50 percent of the inmates surveyed from Oklahoma's four female correctional institutions had not completed high school or obtained a GED prior to incarceration (Sharp & Pain, 2010). The disparity between college degree attainment is even more profound between state prisoners and the general population. Members of the general population have completed college almost ten times more often than the prison population - about 22 percent compared to a mere 2.4 percent (Harlow, 2003). Freistad and Hansen (2005) found only 10% of the inmates, in their study, had any education beyond secondary school and 47 percent had attained an educational level of elementary or less. In addition, they found 59 percent of the inmates with an elementary school or lower level educational attainment also had drug and mental health problems.

Lower educational attainment affects access to employment and other resources, making it more difficult to cope with stress (Turner & Lloyd, 1995), and there is little reason to expect these disadvantages and their mental health problems will change. The main reason these disadvantages will persist has to do with lack of opportunities and options. Individuals with higher education have more resources to deal with stressors and have healthier lifestyles which have continuing beneficial effects on health with increasing age (Ross & Wu 1996).

As previously noted, female inmates are more likely to be exposed to violence and abuse. Mazaik and Asfar (2003) found an association between physical abuse and education. Their study suggests that individuals who experienced physically abuse during childhood had decreased cognitive abilities and poor education preparation. Inter-related problems of poverty, abuse, and education are prevalent in female inmates (Turner & Lloyd, 1995). Lack of education and skills contribute to inmates' choices of illegal means of seeking income and it increased their continued reliance on abusive relationships (Mazaik & Asfar, 2003).

Race and Mental Health

Not only are there gender differences but race also factors into mental health, domestic abuse, physical health, and substance abuse disorders. One study looked at socioeconomic risk factors for depression and found that socioeconomic risk factors were higher for African American women than for White women (McGrath, Keita, Stickland, & Russo, 1990). A few of the risk factors African American women are more likely to encounter are racial/ethnic discrimination, lower educational attainment, low income levels, segregation into low status and high-stress jobs, unemployment,

poor health, larger families, divorce or separation, and being a single parent (McGrath et al., 1990).

Compared to Whites, African American women are more at risk for substance abuse and mental health problems resulting from their histories of abuse (African Voices Against Violence, 2002). IPV and low-socioeconomic status are both pervasive social problems for African American women (Taft, Bryant-Davis, Woodward, Tillman, & Torres, 2009), and these women encounter abuse that is life threatening at rates substantially higher than other races (Campbell, Sharps, Gary, Campbell & Lopez, 2002). These experiences predispose them to higher levels of depression, hopelessness and negative childhood events which in turn, cast them into the high risk category for PTSD and suicide (Kaslow et al., 1998).

There is a consensus among mental health experts that the stressful effects of racism and social undervaluing have deep seated effects on the victims' self-esteem (Lewis-Hall, 2008). Karb, Gilster & Woolley (2008) conducted a survey examining racial discrimination among African Americans and mental health and found that racial discrimination was significantly associated with poorer mental health. Lewis-Hall (2008) argued that African Americans' low levels of self-esteem caused by the stress of racism are believed to influence depression rates.

ACE Study

The Adverse Childhood Experiences (ACE) Study has helped illuminate the relationship between childhood adversity and mental health issues among adults. The ACE study analyzed the relationship between a variety of negative childhood events and health issues in adulthood. **"**Adverse experiences include: recurrent physical abuse,

emotional abuse, contact sexual abuse, an alcoholic/drug abuser in the household, an incarcerated household member, someone who is chronically depressed, mentally ill, institutionalized, or suicidal, mother is treated violently, one or no parents, and emotional or physical neglect" (Felitti et al. 1998, p.1).

The ACE study examined the prevalence of various combinations of negative childhood events among adult members of a health maintenance organization (HMO) and examined a possible relationship between adult mental health and negative childhood events in the childhood home (Felitti et al., 1998). The ACE study revealed that the experiences one has as a child influence emotional, physical and mental health as an adult and time does not change the effects of negative childhood experiences even into middle-age.

The subjects in my study are female inmates. Many of these females reported one or more of the adverse experiences mentioned. Because female inmates report high incidents of negative childhood experiences, it could be argued that the information obtained from my study would not be useful for understanding the effects of negative childhood experiences on physical and mental health as well as other outcomes in life for the general population. However, the ACE study examined individuals in the general population with and without health issues and concluded that adverse experiences were correlated with poor physical and mental health. Although an unusually high number of women in this study have reported adverse experiences, these findings can be applicable in the general population.

The ACE study showed childhood victimization, such as sexual and physical abuse, is linked to adult mental health issues (Felitti et al., 1998). But, other forms of

negative events often occur simultaneously with family adversity, such as parental alcohol or drug abuse, parental marital discord or divorce, having had a parent imprisoned, witnessing family violence, homelessness, poverty, and living with a family member with mental illness. When these adversities co-exist, there is an accumulation of negative events over the child's life, predisposing the child for mental health issues (Turner et al., 2006). Even when these events are examined individually, they have been associated with negative mental health outcomes. Turner et al., (2006) noted that different forms of victimization frequently co-occur, but each makes a unique contribution toward increased risk for mental health problems. They found the strongest independent association with depression and anger occurred with child physical abuse or neglect by a caregiver. A main focus of the current research is whether it is the cumulative impact of adverse events or individual contributions of specific adverse events that best explain mental health issues in incarcerated women. Turner and Lloyd (1995) listed a number of non-victimization adversities in childhood such as homelessness, poverty, parental alcohol and substance abuse, witnessing parental violence and other violence, experiencing parental violence, family members with a mental or physical illness and death of a close family member. These researchers found that a *single* negative childhood event was associated with poor mental health in adulthood but the number of traumatic events occurring prior to 18 years of age was the strongest predictor for poor mental health and substance abuse in adulthood.

The ACE study found that mental health problems were associated with the number of abuse categories the patient reported. The higher the number of abuse categories reported, the more likely the patient was to develop mental health problems

(Felitti, 2002). A physically abusive home environment intertwined with an emotionally abusive home and various maltreatment types revealed a significant effect on mental health scores (Felitti, 2002). When an individual experiences one of the 8 ACEs, they are likely to experience others because they are intertwined and do not occur independently of each other. In other words, the effects of adverse experiences in childhood are cumulative, and adverse experiences tend to occur in clusters (Felitti et al., 1998).

In support of the ACE study, Sharp and Pain (2010) found almost 66 percent of the female inmates in their study reported growing up with someone in the home having a drinking problem and almost 50 percent reported growing up with someone with a drug problem. This same study also found that almost half reported having someone with a mental illness in their childhood home. This study supports other research showing that women in a household with family members who abuse drugs or alcohol were more likely to develop a mental health problem. James and Glaze (2006) revealed that inmates who had a family member who abused drugs or alcohol were at a higher risk of developing a mental health problem. More specifically, they found that 39 percent of state prisoners with a mental health problem grew up with a family member who abused drugs and /or alcohol. One analysis compared individuals who reported at least two ACEs to those who had not experienced any of the ACEs. They found that those with the ACEs were more likely to develop alcohol dependence (Pilowsky, Keyes & Hasin, 2009).

A longitudinal community study showed that positive early family processes, such as parental support and bonding, predicted less problematic alcohol use in

adulthood (Galaif, Hser, Grella & Joshi, 2001). One analysis compared individuals who reported at least two ACEs to those who had not experienced any of the ACEs. They found that those with the ACEs were more likely to develop alcohol dependence (Pilowsky et al., 2009).

Several studies have been done supporting the effect negative childhood experiences play on a broad spectrum of mental health issues, including anxiety, eating disorders, substance abuse, depression, PTSD and many others (Read, Agar, Argyle, ÔC Aderhold, 2003; Read, van Os, Morrison, & Ross, 2005; Ande et al., 2002). McCauley et al. (1997) conducted a study with a large group of females who were being seen in primary care practices. They found that childhood physical and/or sexual abuse was associated with a wide range of adult physical and mental health problems.

Friestad and Hansen (2005) investigated how the accumulation of welfare deficiencies affects inmates' symptoms of mental distress, and if this relationship was influenced by perceived self-efficacy. Welfare deficiencies were defined as lack of education, housing problems, employment problems, economic problems, health problems, and lack of social contact. They found that inmates who were both drug users and had a mental health issue experienced more welfare deficiencies than inmates who were not drug users or did not have a mental health issue. This same study examined childhood stressors by drug use and mental health. They discovered that 24 percent of the inmates reported they had not experienced any of the childhood stressors, but 52 percent experienced two or more (Friestad & Hansen, 2005).

The previously mentioned studies show that stressful events are cumulative. In addition, Teicher et al. (2003, p. 39) argues that an early stressful experience "during

critical sensitive stages leads to altered brain functioning by allowing adaptation to high stress situations by activating intense fight-flight responses." This suggests that an early severe trauma *or* cumulative experiences can both influence brain functioning. Either way, most of the patients, in Friestad and Hansen's (2005) study with mental health problems, who had experienced significant trauma and deprivation in childhood also showed evidence of intense fight-flight responses when challenged.

Disentangling negative childhood events to examine the individual effects can be challenging. One study found "chronic multiple victimization" among high risk adolescents (Menard & Huizinga, 2001). Finkelhor et al. (2005) argue that a child, who experiences any victimization, is likely to experiences multiple types of victimizations.

Focus of this Study

In order to explore the impact of negative childhood events and how they relate to mental health diagnosis, this research will focus on a group of female offenders from a study conducted by Sharp (2010), who self-identified as either White, African American, or American Indian. The dependent variables for this study are depression, bipolar disorder and PTSD diagnoses. I will compare the effects of adverse childhood experiences (emotional abuse, sexual abuse, physical abuse, someone in the household with an alcohol or drug problem, someone in the household with a mental illness, someone in the household who went to prison, one biological parent absent from the household, and growing up with a mother who was treated violently) on depression, bipolar disorder, and PTSD diagnosis and then evaluate the impact negative childhood events have on mental health. Using the ACE scale, the effects of negative childhood events will be examined cumulatively and then separately on depression, bipolar

disorder, and PTSD. The ACE Study (Felitti, 1998) argues that it is the cumulative impact of negative experiences that leads to negative outcomes such as poor mental health. However, Agnew (2006) suggests that we may lose important information when we use a combined scale. Individual negative experiences may be related to specific negative outcomes. Research suggests that this is valid (Sharp, Brewster & Love, 2005). Thus, I will test three sets of competing hypotheses.

From the literature review on mental health problems and negative childhood events, drug/alcohol abuse, and domestic abuse are important for mental health evaluations. The relationship between negative childhood events and mental health has been implicated in recent studies as significant in determining the possible responses to negative emotions such as alcohol and drug abuse as well as long term health.

Three hypotheses and three competing hypothesis will be tested in the current research:

H1a: The effect of adverse childhood experiences is cumulative: higher scores on the ACE scale are positively and significantly related to a past diagnosis of depression, controlling for race and education.

H2a: The effect of adverse childhood experiences is cumulative: higher scores on the ACE scale are positively and significantly related to a past diagnosis of bipolar disorder, controlling for race and education.

H3a: The effect of adverse childhood experiences is cumulative: higher scores on the ACE scale are positively and significantly related to higher scores on a measure of post-traumatic stress disorder (PTSD) symptomology, controlling for race and education.

H1b: The effects of adverse childhood experience is singular: individual adverse childhood experiences (ACEs) are positively and significantly related to a past diagnosis of depression controlling for race and education.

H2b: The effect of adverse childhood experiences is singular: individual adverse childhood experiences (ACEs) are positively and significantly related to a past diagnosis of bipolar disorder, controlling for race and education.

H3b: The effect of adverse childhood experiences is singular: individual adverse childhood experiences (ACEs) are positively and significantly related to a past diagnosis of post-traumatic stress disorder (PTSD) symptomology, controlling for race and education.

Chapter 3: Methodology

Sample

The data for the current study come from a study conducted by Dr. Susan Sharp in 2009. The data were made available for this study by Dr. Sharp and came from four women's correctional facilities in Oklahoma: Kate Bernard Community Correctional Center (KBCCC), Hillside Community Correctional Center (HCCC), Eddie Warrior Correctional Center (EWCC), and Mabel Bassett Correctional Center (MBCC). The Oklahoma Department of Corrections provided a stratified sample of 500 individuals who represented the distribution of women prisoners in Oklahoma based on three variables: security level, race, and time in the system. These strata were chosen in order to adequately reflect the female inmate population in Oklahoma. None of the inmates for this sample had participated in the 2008 survey conducted by Dr. Sharp. Of the 500 women chosen to participate in the survey, 199 of the women either chose not to participate, were not available on the survey date, were sick, or at work. Thus, the response rate for the original study was reduced to 301 completed surveys, or 60.2 percent. The distribution rate and response rate from each facility is shown in Table 1.

(Table 1 about here)

For this study, one survey was eliminated from MBCC due to missing information on the questionnaire. There were an additional 4 questionnaires that had missing information on race, and those were also eliminated. The categories "other" (n=15) and Hispanics (n=10) had small numbers and therefore were eliminated, leaving a final sample size of 271.

With the assistance of research personnel, a self-administered survey was given to the selected subjects at each facility to obtain information about inmates' demographics, criminal history, abuse, previous life experiences, and mental health issues. As described by Sharp and Pain (2010, p. 3), the survey was "administered to large groups in the facility visitation rooms. Research personnel were on hand during the survey to help answer questions about words on the survey, etc."

Sample Demographics

My study is focusing on African Americans, Whites, and Native Americans. To determine the race of the respondent, the inmates were asked to self-identify by answering: "What racial or ethnic group do you consider yourself? Check all that apply." Response choices were African American, White, Native American, Asian, and Other (specify). Thirty-seven individuals checked Native-American only, and 30 more checked both White and Native-American. I recoded those who checked both white and Native American as Native American because self-identification with a disadvantaged group seemed important to incorporate into the study.

To see if race has an impact on depression, post-traumatic stress disorder, and bipolar disorder, a series of dummy variables was created. *White* was the first variable, where *White* was coded as 1 and all others were coded as 0. The second variable *Black* was coded as 1 and all other races were coded as 0. The third dummy variable, *Native American* was coded as 1 and all other races were coded as 0. The sample included 271 individuals. The majority of the participants were White (n = 146, 52%), followed by Native American (n = 67, 23.8%), and African American (n = 58, 20.6%). The sample's racial composition is shown in Table 2.

(Table 2 about here)

Additionally, respondents' were asked their level of educational attainment. This was operationalized by the respondents answer to the question, "What is the highest grade of school you completed prior to your incarceration?" The possible response choices were: 8th grade or less, 9-11th grade, High School graduate or GED, Vo-Tech school, up to 2 years of college (no degree) or associate's degree (2 years), more than 2 years of college but no degree, 4 years of college (degree), or Post-graduate school. For this study, a new variable was created, *Education*, by collapsing several of these response categories. If the respondent had less than a High School education, the variable was given a value of 1. A value of 2 was given to all respondents with a High School education or GED and a value of 3 if she had education beyond High School. The respondents educational attainments were: 46.8 percent (n=131) had less than a High School education, 29.3 percent (n=82) had completed High School or obtained a GED, and 23.9 percent (n=67) had education beyond High School. There was one case missing data on the educational attainment question. The sample's educational attainment is shown in Table 3.

(Table 3 about here)

Age was operationalized by respondents' answer to the question: "Your current age is _____." Age ranged from 20 years to 67 years of age with a mean of 36.70.

Adverse Childhood Experiences (ACE) Scale

The ACE Scale was derived from a series of questions relating to the respondents' home life before 18 years of age. The following questions were used in the scale.

- “During your first 18 years of life, did your parents ever separate or divorce?",
- "During your first 18 years of life, was anyone in your household depressed or mentally ill?",
- "During your first 18 years of life, did anyone in your household go to prison?”

Each of these questions had response choices of either “yes” or “no,” with yes coded 1 and no coded 0. Then, in order to analyze the impact of each of the adverse experiences on the dependent variables, I created a variable from each question. This allowed me to determine if any of the individual adverse experiences was different in its impact on the dependent variables than the others. The variables were created from the questions *Lived with someone with a mental illness*, had *Divorced parents*, and had a *Family member who went to prison.* The distribution of positive responses to these questions was: *Lived with someone with a mental illness*, 46.3 percent (n=130); *Family member who went to prison*, 26.0 percent (n=73); and *Divorced parents*, 61.9 percent (n=174). The percentages of ACE’s for the total sample are reflected in my study group.

To create the variable *Lived with someone with an alcohol or drug problem*, participants were asked,

- “During your first 18 years of life, did you live with anyone who was a problem drinker or alcoholic?”
- “During your first 18 years of life, did you live with anyone who was had a drug problem”

To evaluate the total number of individuals who lived with someone with either an alcohol or drug problem a new variable was created. The variable *Lived with someone*

with an alcohol or drug problem was created by coding 1 for those who had lived with someone with either an alcohol or drug problem and coding those who had not lived with a household member with an alcohol or drug problem 0. Almost 70 percent, of the sample, (69.8), (n=196) reported living with someone with an alcohol or drug problem. *Lived with someone with an alcohol or drug problem* had no missing data.

The variables for the last four questions were *Childhood sexual abuse, Childhood physical abuse, Childhood emotional abuse* and *Father abused mom*. For the item *Childhood sexual abuse and Childhood physical abuse,* respondents were asked,

- "When you were a child (under age 18), were you ever sexually abused by anyone that was at least five years older than you?"
- "When you were a child, were you ever physically abused by anyone? That is, were you ever hit with a fist, slapped, kicked or hit in any way which left marks on you? We are not referring to regular spankings where no injury occurred or no mark was left."

The response options were either yes or no, with "yes" coded 1 and "no" coded 0. For the variable *Childhood sexual abuse*, 54.4 percent of the sample (n=153) responded that they had experienced childhood sexual abuse. The variable, *Childhood physical abuse*, was created with responses that indicated that someone had or had not physically abused the respondent. Any response that physical abuse had occurred was coded 1 and responses that did not include any physical abuse were coded 0. In the sample reported 48.4 percent (n=136) reported having experienced childhood physical abuse.

Emotional Abuse was measured by asking,

- "While you were growing up (during your first 18 years of life), did people in your family call you names like "lazy" or "ugly?"

A series of potential answers were provided that included "never", "rarely", "sometimes", "often", "very often", or "don't know." *Emotional abuse (called names*), was created with response options "never" and "don't know" coded as 0 and any other response as 1. In the sample, 38.4 percent (n=108) responded in the affirmative.

The final item measured was whether the subject saw her father abuse her mother. This item was measured the question,

- "When you were a child, was your father ever violent around your family?"

Possible responses were either yes or no. If they responded yes, they were to check all the options that applied. The available response categories were "Me", "my mother or step-mother," "my brother," "my sister," "other (specify)." For this variable, I only wanted to examine if the respondent had witnessed the father abusing the mother, in accordance with the ACE studies (Felitti, et al., 1998; Dietz et al., 1999; Dube et al., 2001; Dube, Anda, Felitti, Edwards, & Williamson, 2002; Anda et al., 2002; Dong, Anda, Dube, Giles &, Felitti, 2003; Dube et al., 2003), so a variable was created, *Father abused mom*. *Father abused mom* was coded 1 for any response indicating the father had been violent towards "mom or step-mother," and all others were coded 0. The data revealed that for *Father abused mom*, 34.2 percent (n=96) of the sample had observed their father abuse their mother or step-mother. The score for the variable was summed responses to these questions. The scores ranged from 0 to 7 with a mean of 3.55. A

description of the ACE variables created, total N, and percentage for my sample are described in Table 4.

(Table 4 about here)

Depression, Bipolar Disorder, and PTSD

The dependent variables in this study are depression, bipolar disorder, and PTSD. Respondents' mental health diagnosis, prior to incarceration, was measured by a self-disclosure question, "If you have been diagnosed with a mental health problem, what was the diagnosis?" Table 5 presents the percentage of individuals who were diagnosed with depression or bipolar disorder. As can be seen from this table, 24.6 percent (n=68) of the individuals in the sample were diagnosed depression, and 16.1 percent (n=45) were diagnosed with bipolar disorder.

(Table 5 about here)

PTSD symptomology was measured by a variety of items. The survey question stated, "Below is a list of problems that people sometimes have in response to stressful experiences. "How much have you been bothered by:" followed by 13 items. The available responses were "Not at all," coded 0, "A little bit," coded 1, "Moderately," coded 2, "Quite a bit," coded as 3, and "Extremely" coded 4. Thus, respondents could receive a score between 0 and 52 on the PTSD scale. The 13 items were drawn from the PTSD Checklist – Civilian Version (PCL-C) (Weathers, Litz, Herman, Huska, & Keane, 1993). The Weathers et al. (1993) version contained 17 items but 4 items from the PCL-C were dropped as it was felt they would be less meaningful in an incarcerated population. For example, the item "Avoid activities or situations because they remind you of a stressful experience from the past" has less applicability to prisoners, who have limited choices in their actions.

The Cronbach's alpha for the scale summing the scores for these 13 items was .929 (N=272) suggesting that these items have high internal consistency. The original PTSD scale of 17 items developed by Weathers et al. (1993) had an internal consistency of .97. Weathers et al. (1993) also found a strong correlation between the individual items of the scale, meaning there is high internal reliability. The reliability scores of the 13 item scale indicate that the current item scale should be adequate for measuring PTSD in an inmate population. Though there has not been an effort in this study to determine concurrent validity with other PTSD scales, Weathers' et al. (1993) did show a strong correlation between the 17 item scale and the Mississippi Scale (.85).

A higher score, ranging from 0 to 52, on the 13 item PTSD scale indicates a higher degree of self-reported PTSD symptomology. Weathers' et al. (1993) indicated that a score of 50 on the 17 item scale (Ranging from 0 to 68) was a good predictor for PTSD. It is difficult to accurately say at what point along the current 52 point scale (13 items) a diagnosis of PTSD would be warranted, but for purposes of this study a diagnosis of PTSD is not seen as necessary.

Table 6 presents descriptive statistics (minimum, maximum, mean and standard deviation) on the ACE and PTSD scales. As can be seen from this table, the average PTSD score was 29.23 (*SD* = 11.92), and the average ACE score was 3.55 **(***SD* = 2.04)

(Table 6 about here)

Analysis of Data

SPSS version 18 was used to analyze the data and to examine the frequencies of the sample. The study utilized regression to determine the relationship between Adverse Childhood Experiences and the dependent variables of reported depression, bipolar

disorder, and PTSD. Since the dependent variables depression and bipolar were dichotomous, logistic regression analyses were run to determine the relationship between Adverse Childhood Experiences and depression and bipolar disorder (Allison, 1999). Ordinary least squares linear regression was used to determine the relationship between Adverse Childhood Experiences and the dependent variable PTSD. Since PTSD is being measured as a variable with a range of scores from 0 to 52, a linear regression model is appropriate in analyzing the relationship between these two variables. Two sets of analyses were run for each dependent variable; one with the scale and one with each variable entered separately.

Chapter Four: Results

Plan of Analysis

For purposes of this study, six regression analyses were run. The first four were logistic regression analyses based upon the model that the ACE scores would be a significant predictor of prior diagnoses of depression and bipolar disorder. The final two analyses were OLS regressions examining the relationship between ACE scores (both individually and as a composite score) and scores on the post-traumatic stress disorder (PTSD) scale.

Frequency tables were also run to determine the number of respondents who responded positively to having a prior depression and bipolar diagnoses. Also, frequencies were computed on the "race" and "education" variables. Additionally, descriptive statistics were conducted on ACE scores.

Hypothesis 1a

The first hypothesis stated that "The effect of adverse childhood experiences is cumulative: higher scores on the ACE scale are positively and significantly related to a past diagnosis of depression, controlling for race and education." In order to test this hypothesis, a binary logistic regression analysis was conducted. The dependent variable in this analysis was "prior depression diagnosis" (coded as 1 for "yes" and 0 for "no"), and the independent variables were: ACE scale, race and education. Given that race and education were categorical variables, they were dummy-coded, using "white" and "less than high school" as reference categories. The results of the analysis are presented in table 7.

(Table 7 about here)

As can be seen from this table, none of the independent variables were significant, because their associated *p* values were higher than 0.05 in all cases. Therefore, these findings do not provide support for the hypothesis that higher ACE scores are associated with a prior diagnosis of depression.

Hypothesis 1b

The previous analysis was then repeated, using the individual ACE items instead of the overall ACE score. The results are presented in table 8.

(Table 8 about here)

As can be gleaned from these results, there were three ACE items that were significantly related with the likelihood of having a prior depression diagnosis: "Lived with someone with mental illness" (OR = 4.172, $p < 0.001$), "Parents Divorced" (OR = 0.434, $p = 0.013$), and "Family member went to prison" (OR = 0.290, $p = 0.003$). These findings suggest three conclusions. The odds of individuals who lived with someone with a mental illness during childhood being diagnosed with depression were 4.172 times the odds for individuals who did not live with someone with a mental illness. The odds of individuals whose parents were divorced reporting a prior depression diagnosis were .43 times the odds of those whose parents were not divorced. And finally, the odds of individuals who had a family member who went to prison were .29 times the odds of those who did not have a family member who went to prison.

Hypothesis 2a

The second hypothesis stated that "The effect of adverse childhood experiences is cumulative: higher scores on the ACE scale are positively and significantly related to

a past diagnosis of bipolar disorder, controlling for race and education." In order to test this hypothesis, a binary logistic regression analysis was conducted. The dependent variable in this analysis was "prior depression diagnosis" (coded as 1 for "yes" and 0 for "no"), and the independent variables were: ACE scale, race and education. The race and education variables were dummy-coded as described previously. The results of the analysis are presented in table 9.

(Table 9 about here)

The ACE score approached a significant relationship with the likelihood of having a prior bipolar disorder diagnosis ($p<.10$). The only significant variables were "Black" (OR = 0.132, p = 0.007), and "Native American" (OR = 0.343, p = 0.018). These findings suggest that Black and Native American individuals were far less likely to have a prior bipolar disorder diagnosis than White individuals. However, given that the ACE score was not significant at p< .05; these findings did not provide support for Hypothesis 2.

Hypothesis 2b

The previous analysis was then repeated, using the individual ACE items instead of the overall ACE score. The results are presented in table 10.

(Table 10 about here)

Consistent with the previous results, the findings from this analysis suggest that the odds of Blacks reporting a prior bipolar disorder diagnosis were only .19 times the odds of Whites reporting a prior bipolar diagnosis (OR = 0.186, p = 0.030). Similarly, the odds of Native Americans reporting a prior bipolar disorder diagnosis were .37 times of the odds of Whites reporting a prior diagnosis (OR = 0.371, p = 0.035).

Additionally, the odds of individuals who lived with someone with mental illness were 3.334 times the odds for individuals who did not have a prior depression diagnosis, (OR = 3.334, $p = 0.004$). Finally, the odds of individuals whose parents went to prison reporting a prior bipolar disorder diagnosis were only .41 times the odds of those whose parents were not divorced (OR = 0.410, $p < 0.05$).

Hypothesis 3a

The third hypothesis stated that "The effect of adverse childhood experiences is cumulative: higher scores on the ACE scale are positively and significantly related to higher scores on a measure of post-traumatic stress disorder (PTSD) symptomology, controlling for age, race and education." In order to test this hypothesis, a multiple linear regression analysis was conducted. The dependent variable in this analysis was the PTSD score, and the independent variables were: ACE scale, race and education. The race and education variables were dummy-coded as described previously.

The results of the analysis are presented in the following table. As can be seen from these results, the ACE score ($b = 1.010$, $p < 0.001$) was a significant predictor of PTSD score. Specifically, each one-point increase in ACE score was associated with a 1.01-point increase in the PTSD score. It should be noted, however, that the predictor variables explained a very small proportion ($R^2 = 0.040$) of the variability in the dependent variable. This result provided support for the third hypothesis is reported in table 11.

(Table 11 about here)

Hypothesis 3b

The previous analysis was then repeated, using the individual ACE items instead of the overall ACE score. The results are presented in table 12.

(Table 12 about here)

As can be gleaned from these results, when using the individual ACE items, the proportion of explained variance of the dependent variable increased to 13.6 percent. There were three ACE items that were significantly and positively related with PTSD scores: *Lived with someone with mental illness* ($b = 4.346$, $p = 0.006$), and *Childhood Sex Abuse* ($b = 5.859$, $p < 0.001$). Specifically, living with someone with mental illness was associated with a 4.346-point increase in PTSD scores, and experiencing childhood sex abuse was associated with a 5.859-point increase in PTSD scores.

Summary of Results

The purpose of this study was to examine the relationship between adverse childhood experiences and depression, bipolar disorder, and PTSD symptomatology, after controlling for race and education. Logistic and linear regression analyses were used to examine that relationship. It was found that the overall ACE scale was significantly associated only with PTSD: a larger number of adverse childhood experiences were associated with higher PTSD scores.

However, some individual ACE items were significantly related with the dependent variables. Living with someone with mental illness was associated with an increase in the likelihood of having a diagnosis of depression and bipolar disorder, and with an increase in PTSD symptomatology. Childhood sex abuse was also associated with a significant increase in PTSD symptomatology. Additionally, individuals who had a family member who went to prison had a lower likelihood of being diagnosed with

depression or bipolar disorder than other individuals. This relationship was unexpected and in the opposite direction of what the ACE studies suggest (Felitti et al., 1998). These findings suggest the importance of looking at adverse experiences individually.

Chapter 5: Discussion and Conclusion

The first purpose of this study was to investigate the relationship of negative childhood events with a mental health diagnosis. Second, I sought to determine whether the influence was cumulative or if single, specific, negative events influenced mental health. This study also controlled for sociodemographic factors of female offenders.

Findings and Interpretations

The most significant finding is that the cumulative ACE scale is not as predictive of these conditions as certain individual items. This study found that higher cumulative ACE scores were not associated with a prior diagnosis of depression and bipolar disorder, although higher scores on the ACE scale were associated with higher levels of PTSD symptomatology. Even with PTSD, however, a greater portion of the variation was explained when the individual adverse childhood experiences were used individually.

Felitti et al. (1998) argued that the effects of adverse experiences are cumulative, and that adverse experiences tend to occur in clusters. Individuals in lower socioeconomic strata are more likely to experience a combination of factors such as poverty, homelessness, parental alcohol and substance abuse, parental violence, family members with a mental illness and a death of a close family member (Turner & Lloyd, 1995). These individuals' adverse experiences are thus more likely to be cumulative and occur in clusters. But, individuals who are outside these parameters may experience a single traumatic event and develop a mental health issue. Turner and Lloyd (1995) found that a single negative childhood event was associated with poor

mental health. They explained that the age at the time of the traumatic event was a predictor for poor mental health and substance abuse in adulthood. This is in keeping with Agnew's perspective. Although several previous examinations of GST have focused on cumulative measures of strain, Agnew (2001, 2006) has argued that cumulative measures of strain mask the effects of the individual forms of strain.

When analyzing the individual ACE items, I found 3 items that were significantly related with the likelihood of having a prior depression diagnosis: *Lived with someone with mental illness*, *Parents divorced*, and *Family member went to prison*. These findings suggest three conclusions. First, individuals who lived with someone with a mental illness were significantly more likely to have a prior depression diagnosis than individuals who did not live with someone with a mental illness.

The first result is congruent with the findings of Leventhal et al. (1985) who reported that parents with severe mental illnesses create additional stress in children's lives. Other research has reported that negative effects of the caregiver's impairment created stressful family contexts and stressful life events (Chassin et al., 1997). Furthermore, there is evidence of a genetic relationship as well as an environmental one. When examining genetics and environment, researchers found that individuals with specific genetics that predispose them for depression exhibited more depressive symptoms than individuals without these traits (Caspi et al. 2003; Kendler et al., 2005). They noted that it was the interaction of genetics and environment that determined the risk of depression. Children of parents who are depressed are living in a stressful family environment. This combined with the possibility they may have inherited a genetic

predisposition towards depression may have created the genetic/environment interaction in their depression diagnosis.

The second significant finding revealed that individuals whose parents were divorced were less likely to have a prior depression diagnosis compared to individuals whose parents were not divorced. This finding opposes other literature.

Additionally, individuals who had a family member who went to prison were less likely to have a prior diagnosis for depression than individuals who did not have a family member that went to prison. This finding also does not follow the literature, as children whose parents go to prison experience many life changes that are likely to induce a variety of stressors. This result may be due to the fact that *depression* is operationalized as a *prior* diagnosis. This does not mean these individuals were not depressed when their parents divorced or went to prison. It means that they were not *diagnosed* with depression.

Another possibility these two findings did not follow the literature is that having divorcing parents or having a family member who went to prison may have reduced strife in the home. Previous research on individuals who have divorced parents or a family member who went to prison focused on suicidal tendencies, depression, and/or anxiety due to a reduction in income, change in housing, absence of a parent as well as therapeutic methods to reduce the negative effects of divorce. Another possibility is the age the individual was at the time their parents divorced. Focusing strictly on negative perspectives are myopic and an examination should be expanded to the positive effects of divorce or a family member going to prison and look possible reasons this occurs. This may benefit therapeutic insight in treating depression.

Additionally, my findings indicated that Blacks and Native Americans were less likely than whites to report a prior depression diagnosis. Ethnic and racial minorities may be less likely to seek treatment for mental illness. When compared to Whites, minorities attach more negative stigma to mental health care (Anglin et al., 2006; Corrigan & Watson, 2007). This stigma may prevent them from seeking out mental health treatment. Another obstacle to mental health care is financial resources. Compared to Whites, minorities are more likely to lack the resources for help (U.S. Department of Human Services, 1999). The rates of mental illness for the homeless, the incarcerated and children in foster care are much higher than for the general population and there is an overrepresentation of these minority groups in these vulnerable populations (US Department of Human Services, 2001; Anglin et al., 2006; Corrigan & Watson, 2007). And finally, there are very few minority mental health care providers and minorities tend to mistrust White heath care providers (U.S. Department of Human Services, 2003).

Turning to my second dependent variable, bipolar diagnosis, I found there was no significant relationship between the likelihood of having a prior bipolar disorder diagnosis and the ACE scale. In the model with the cumulative scale, the only significant variables were Blacks and Native Americans. Once again, not having a bipolar disorder *diagnosis* prior to incarceration does not mean these individuals did not have bipolar disorder before going to prison. It simply means that they were not *diagnosed* with bipolar disorder before going to prison. As noted above, mental health

stigma, mistrust of the white community and lack of resources are obstacles to mental health treatment for Blacks and Native Americans.

There was a relationship between bipolar disorder diagnosis and one of the individual ACE items. When examining the individual ACE items and bipolar disorder diagnosis, I found that individuals who lived with someone with a mental disorder were significantly more likely to have a prior bipolar disorder diagnosis than individuals who did not live with someone with a mental disorder. Evidence suggests that bipolar disorder, albeit small, has a stronger genetic factor than depression and PTSD (Kieseppa et al., 2004). This could account for the finding that an individual who lived with someone who had mental illness was over 2 times more likely to have a prior bipolar disorder diagnosis. They have the genetic predisposition along with the environmental influences. However, my findings are somewhat contradictory to those of Kieseppa et al. (2004) in that the relationship between living with someone with a mental illness and prior diagnosis was stronger for depression than for bipolar disorder. Research has shown that trauma contributes to the role of bipolar disorder (Goldberg, 2008; Leboyer et al., 2005) and female inmates have disproportionately reported experiencing traumatic events (James & Glaze, 2006). Another finding revealed that individuals who had a family member who went to prison were less likely to have a prior bipolar disorder diagnosis than individuals whose parents did not go to prison. This may be due to an undiagnosed bipolar disorder and issues in minority communities, as previously stated.

The ACE scale was found to be a significant predictor of PTSD score. However, the predictor variables explained a very small proportion of the variability in

the dependent variable. Nevertheless, this finding provides statistical evidence to support the hypothesis that higher scores on the ACE scale are positively and significantly related to higher scores on a measure of post-traumatic stress disorder (PTSD) symptomology, controlling for race and education.

The analysis with individual ACE items and PTSD found that there were two ACE items that were significantly and positively related with PTSD scores. The first was *Lived with someone with mental illness*. As previously stated, Leventhal et al. (1985) found that parents with at least one severe mental illness created additional stressors in children's lives. Having parents with a mental illness is indicative of additional problems such as unemployment (McLoyd, 1989). Turner and Loyd (1995) examined childhood adversity and found it was associated with poor mental health outcomes. Once again, the negative effects of the caregiver's impairment create stressful family contexts and stressful life events (Chassin et al., 1997).

The second significant finding was *Childhood Sex Abuse*. Plumer et al. (1996) documented an association between PTSD and childhood physical and sexual abuse. They found that the more negative childhood abuses (i.e. sexual and physical) an individual experiences, the greater the severity of PTSD. Olaya et al. (2010) found that almost 100 percent of children who experience sexual or physical abuse tend to develop PTSD symptomology. Particularly pertinent to this study, Zlotnick (1997) found that prior to incarceration female inmates, diagnosed with PTSD, reported significantly higher rates of childhood abuse. And, Wolf et al., (2007) study found higher rates of victimization among inmates with a mental disorder compared to those without a mental disorder. A large study investigating physical and/or sexual abuse in females found a

wide range of physical and mental health problems in women who had experienced abuse (McCauley et al., 1997).

Furthermore, James and Glaze (2006) study revealed study that 27 percent of prison inmates with a mental health problem reported abuse, where only 10 percent without a mental health problem reported abuse. The rates for jail inmates with a mental health problem who had experienced abuse were similar to prison inmates. They reported that 24 percent more inmates with a mental health problem had reported abuse where only 8 percent of inmates without a mental health problem reported abuse.

GST argues that childhood or adult victimization is a negative stimulus capable of creating a great deal of strain. This theory purports that victims evaluate and interpret the negative stimulus that elicits negative affective emotions, which leads to behavioral strategies to block the negative affective emotions (Agnew 1992, 2002; Elder 1989). If these behavioral strategies are maladaptive, the result may be deviant or nonconventional behavior (Agnew, 1992, 2002; Elder 1989).

Implications

The findings of the study may help deal with issues that affect mental health problems as well as provide clinicians and policymakers with an accurate description of what factors are important to address in mental health programs. This study may provide guidance to those interested in the effects negative childhood events have on mental and physical health and how best to develop a plan to meet the needs of these individuals in order to increase their quality of life.

Social support has been shown to be beneficial for mental health. Since social support buffers the effects of depression, anxiety and PTSD (Brewin, Andrews, &

Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003), a modified, therapeutic program may be beneficial to incarcerated women when they are released. Social support would benefit children of incarcerated mothers as well. Although the research shows that social support alone is insufficient to protect a child against *acute* trauma, it still provides protective measures against depression (Ellis et al., (2009). Kaufman et al. (2004) noted when children, with a genetic propensity towards depression, received social support they had lower incidents of depression. Since more than 65 percent of incarcerated women have children under the age of 18 (Beck & Karlberg, 2001) expanding support services for inmates' children is something that needs to be explored. Sharp (2008b) noted that children of incarcerated mothers receive little or no counseling. One suggestion that may help aid in the reunification of mothers and their children as well as support services for these children would be a mentor that is the child's sex and race/ethnicity.

Fifty percent of the mentally ill abuse substances **(**Hatfield, 1996**)** and these individuals tend to use drugs or alcohol to ease their symptoms (Bizzarri et at., 2007). For example, 30 to 60 percent of patients with bipolar disorder abuse alcohol or drugs (Brady & Sonne, 1995), about 15 percent of the individuals with alcoholism, and approximately 30 percent of those with a drug addiction suffer from PTSD (Addiction and Substance Abuse, 2008). Substance abuse should be a flag for a possible, undiagnosed mental disorder in offenders. With appropriate intervention and treatment, perhaps incarceration could be avoided.

As previously stated, the most important finding is that the cumulative ACE scale is not as predictive of these conditions as the individual items. Instead of focusing

on cumulative stressors, we should look at the stressors that are related to which negative outcomes. Additionally, race played a role. The question, of course, is whether these Black and Native American women experienced as many symptoms of PTSD and depression as white women but were simply undiagnosed. If the latter, then it would suggest the importance of developing and providing better mental health services to these disadvantaged groups.

Recommendations for Further Study

The most significant finding was that the cumulative ACE scale is not as predictive of these conditions as the individual items. The results suggested that the ACE scale was significantly associated only with PTSD. However, some individual ACE items were significantly related with the dependent variables. This would suggest the importance of examining individual adverse experiences rather than a cumulative scale, both in research and in developing policies. Studies such as this should not be limited to individuals in lower socioeconomic backgrounds who are more likely to experience adverse events in clusters. It is important to understand the effects of adverse childhood experiences at all socioeconomic levels. Additionally, documentation of the specific age at which an individual experiences the traumatic event could further expand the understanding of individual adverse experiences and coping mechanisms. It would be advantageous to examine the virtues of divorce. Previous research has focused on the negative effects. Understanding the positive effects of divorce may help programs and other coping mechanisms of the negative effects.

One limitation of this study was the use of self-report diagnosis prior to incarceration. Minorities and lower SES Whites are not likely to seek out mental health

treatment due to lack of financial resources, stigma, and mistrust of health care providers. For this population, it is difficult to estimate the number of individuals who had experienced depression, bipolar disorder or PTSD but never received a diagnosis. A survey, describing the symptoms of depression, bipolar disorder and PTSD, could be administered to see if the participants had experienced the symptoms in lieu of a diagnosis. It would be important to know to what degree they experienced the symptoms, which could be measured using a Likert scale. It is clear that more research needs to be done to understand options to improve mental health after traumatic experiences.

References

Addiction and Substance Abuse. (2008). Post-traumatic stress disorder and addiction. Retrieved from http://www.addiction.cc/2008/03/27/post-traumatic-stress-disorder-and-addiction/

Africana Voices Against Violence. (2002). Tufts University, Statistics. Retrieved from www.ase.tufts.edu/womenscenter/peace/africana/newsite/statistics.htm

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology,* 30, 47-87.

Agnew, R. (1999). A general strain theory of community differences in crime rates. *Journal of Research in Crime and Delinquency*, *36*(3), 123-133.

Agnew, R. (2001). Building on the foundation of general strain theory. *Journal of Research in Crime and Delinquency*, 38, 319–361.

Agnew, R. (2002). Experienced, vicarious, and anticipated strain: An exploratory study on physical victimization and delinquency. *Justice Quarterly, 19*(4), 603–632.

Agnew, R. (2006). *Pressured into crime*. Los Angeles, CA: Roxbury Publishing Company.

Agnew, R., Brezina, T., Wright, J. P., & Cullen, F. T. (2002). Strain, personality traits, and delinquency. *Criminology, 40,* 43–71.

Agnew, R. & White, H. (1992). An empirical test of general strain theory. *Criminology, 30*,475-99.

Aidala A, Cross J.E., Stall, R., Harre, D., & Sumartojo, E. (2005). Housing status and HIV risk behaviors: Implications for prevention and policy. *AIDS and Behavior, 9*(3), 251-265.

Allard, P. (2002). Life sentences: Denying welfare benefits to women convicted of drug offenses Washington, DC: The Sentencing Project.

Allison, P. D. (1999). *Multiple regression: A primer*. Thousand Oaks, CA: Pine Forge Press.

Amaro, H., Blake, S.M., Schwartz, P.M., & Flinchbaugh, L.J. (2001). Developing theory based substance abuse prevention programs for young adolescent girls. *Journal of Early Adolescence, 21,* 256-293.

Anda, R.F., Whitfield, C.L., Felitti, V.J., Chapman, D., Edwards, V.J., Dube, S.R., & Williamson, D.F. (2002). Alcohol-impaired parents and adverse childhood experiences: the risk of depression and alcoholism during adulthood. *Journal of Psychiatric Services. 53,* 1001-1009.

Anglin, D. M., Link, B. G., & Phelan, J. C. (2006). Racial differences in stigmatizing attitudes toward people with mental illness. *Psychiatric Services, 57,* 857-862.

Andrews, B. (1995). Bodily shame as a mediator between abusive experiences and depression. *Journal of Abnormal Psychology, 87*, 49–74.

Andrews, B. (1997). Bodily shame in relation to abuse in childhood and bulimia. *British Journal of Clinical Psychology, 36*, 41–50.

Andrews, B. (1998). Shame and childhood abuse. In P. Gilbert, & B. Andrews (Eds.), *Shame, interpersonal behavior, psychopathology and culture* (pp.176–190). Oxford: Oxford University Press.

Andrews, B., Brewin, C. R., Rose, S., & Kirk, M. (2000). Predicting PTSD in victims of violent crime. *Journal of Abnormal Psychology, 109,* 69–73.

Augoustinos, M. (1987). Developmental effects of child abuse: Recent findings. *Child Abuse & Neglect*, 11, 15–28.

Bao, W., Whitebeck, L., & Hoyt, D. (2000). Life stressors, social support networks, and depressive symptoms among homeless and runaway adolescents. *Journal of health and Social Behavior, 41*, 408-420.

Baron, S. W. (2004). General strain, street youth and crime: A test of Agnew's revised theory. *Criminology. 42,* 457-483.

Bazelon Center for Mental Health Law (2006). S*tate involuntary outpatient commitment laws.* Washington, D.C. Retrieved from http://www.bazelon.org/issues/commitment/moreresources/iocchartintro.html

Bebbington, P.E., Dun, G., Jenkins, R., Lewis, G., Brugha, T., Farrell, M., & Meltzer, H. (2003). The influence of age and sex on the prevalence of depressive conditions: Report from the National Survey of Psychiatric Morbidity. *International Review of Psychiatry*, *15*(1), 74-83.

Beck, A. J., & Karberg, J. C. (2001). Prison and jail inmates at midyear 2000. Bureau of Justice Statistics Bulletin. Washington, DC: U.S. Government Printing office.

Beitchman, J. H., Zucker, K. J., Hood, J. E., daCosta, G. A., & Akman, D. (1991). A

review of the short-term effects of child abuse. *Child Abuse & Neglect*, 15, 537–556.

Bizzarri, J. V., Sbrana, A., Rucci, P., Ravani, L., Massei, G. J., Gonnelli, C., Spagnolli, S., Doria, M. R., Raimondi, F., Endicott, J., Dell'Osso, L., & Cassano, G. B. (2007). The spectrum of substance abuse in bipolar disorder: reasons for use, sensation seeking and substance sensitivity. *Bipolar Disorder, 9*(3), 213-220.

Briere, J., & Zaidi, L. Y. (1989). Sexual abuse histories and sequelae in female psychiatric emergency room patients. *American Journal of Psychiatry, 146,* 1602–1606.

Blazer, D.G., Kessler, R.C., McGonagle, K.A. & Swartz, M.S. (1994). The prevalence and distribution of major depression in a national community sample: The National Comorbidity Survey. *American Journal of Psychiatry, 151*, 979-986.

Brady, K. T. & Sonne, S. C. (1995). The relationship between substance abuse and bipolar disorder. *Journal of Clinical Psychiatry*, *56,* 19 -24.

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology, 68*(5), 748–766.

Broidy, L., & Agnew, R. (1997). Gender and crime: A general strain theory perspective. *Journal of Research in Crime and Delinquency*, 34, 275–306.

Brook, J. S., Ning, Y., Balka, E. B., Brook, D. W., Lubliner, E. H., & Rosenberg, G. (2007). Grandmother and parent influences on child self-esteem. *Pediatrics*, 119 (2), 444-451.

Brown, G. W., Harris, T. O. (1978). Social origins of depression: A study of psychiatric disorder in women. London: Tavistock Publications.

Bryer, J. B., Nelson, B. A., Miller, J. B., & Krol, P. A. (1987). Childhood sexual and physical abuse as factors in adult psychiatric illness. *American Journal of Psychiatry, 131*, 981–985.

Burnam, M. A., Golding, J. M., Siegel, J. M., Sorenson, S. B., Stein, J. A., Forsythe, A. B., (1988). Sexual assault and mental-disorders in a community population. *Journal of Consulting and Clinical Psychology, 56*(6), 843–850.

Calvete, E., &. Cardeñoso, O. (2005). Gender differences in cognitive vulnerability to depression and behavior problems in adolescents. *Journal of Abnormal Child Psychology, 33*, 179-192.

Campbell, D. W., Sharps, P. W., Gary, F., Campbell, J. C., & Lopez, L. M. (2002). Intimate partner violence in African American women. *Journal of Nursing, 7*(1), 4.

Caspi, A., Sugden, K., Moffitt, T.E., Taylor, A., Craig, I.W., Harrington, H. (2003). Influence of life stress on depression: Moderation by a polymorphism in the 5-HTT gene. *Science, 301*(5631), 386-389

Caspi, A., Bem, D. J., Elder, G. H. (1989). Continuities and consequences of interactional styles across the life course. *Journal of Personality, 57*(2), 375–406.

Chakraburtty, Amal. (2009). Causes of mental illness. Retrieved from http://www.webmd.com/anxiety-panic/mental-health-causes-mental-illness.

Chapple, C. L., Hope, T. L. & Whiteford, S. W. (2005). The direct and indirect effects of parental bonds, parental drug use, and self-control on adolescent substance use. *Journal of Child and Adolescent Substance Abuse, 14* (3), 17-38.

Chassin, L., Barrera, M., & Montgomery, H. (1997). Parental alcoholism as a risk factor. In S.A. Wolchik, & I. N. Sandler (Eds.), *Handbook of children's coping: Linking theory and intervention* (pp. 101–130). New York, NY: Plenum.

Clark, H. W., Masson, C. L., Delucchi, K. L., Hall, S. M., & Sees, K. L. (2001). Violent traumatic events and drug abuse severity. *Journal of Substance Abuse Treatment, 20*(2), 121–127.

Coid, J., Wilkins, J., Coid, B., & Everitt, B. (1992). Self-mutilation in female remanded prisoners. II. A cluster analytic approach towards identification of a behavioral syndrome. *Criminal Behavior and Mental Health, 2*, 1–14.

Coker, A., Smith, P. H., McKeown, R. E. & King, M. (2000). Frequency and correlates of intimate partner violence by type: Physical, sexual and psychological battering. *American Journal of Public Health, 90*(4), 553-559.

Connor, J.M., Poyrazil, S., Ferre-Wreder, L., Grahame, K. M. (2004). The relation of age, gender, ethnicity, and risk behaviors to self-esteem among students in nonmainstream schools. *Adolescence, 39*(155), 457-473.

Correctional Association of New York (2002). Women in Prison Project: The effects of imprisonment on families. Retrieved from: http://www.correctionalasociation.org/Images/Chileren-of-IncarceratedParents.pdf

Corrigan, P. W., & Watson, A. C. (2007). The stigma of psychiatric disorders and the gender, ethnicity, and education of the perceiver. *Community Mental Health Journal, 43*, 439- 458.

De Hart, D.D. (2008). Pathways to prison: Impact of incarceration in the lives of incarcerated women. *Violence Against Women, 14*(12). Sage Publication.

Demaris, A., & Kaukinen, C. (2005). Violent victimization and women's mental and physical health: Evidence from a national sample. *Journal of Research in Crime and Delinquency, 42*(4), 384–411.

Dietz, P.M., Spitz, A.M., Anda, R.F., Williamson, D.F., McMahon, P.M., Santelli, J.S., Nordenberg, D.F., Felitti, V.J., & Kendrick, J.S. (1999). Unintended pregnancy among adult women exposed to abuse or household dysfunction during their childhood. *Journal of the American Medical Association, 282*, 1359–1364.

Ditton, P. M. (1999). Mental Health and Treatment of Inmates and Probationers. Bureau of Justice Statistics, US Department of Justice.

Disability Rights Commission. (2006). Equal treatment: Closing the gap. Disability Rights Commission, London.

Dong, M., Anda, R.F., Dube, S.R., Giles, W.H., & Felitti, V.J. (2003). The Relationship of exposure to childhood sexual abuse to other forms of abuse, neglect and household dysfunction during childhood. *Child Abuse and Neglect, 27*, 625-639.

Dube, S.R., Anda, R.F., Felitti, V.J., Chapman, D., Williamson, D.F., & Giles, W.H. (2001). Childhood abuse, household dysfunction and the risk of attempted suicide throughout the life span: Findings from the Adverse Childhood Experiences Study. *Journal of the American Medical Association, 286*, 3089-3096.

Dube, S.R., Anda, R.F., Felitti, V.J., Edwards, V.J., & Williamson, D.F. (2002). Exposure to abuse, neglect and household dysfunction among adults who witnessed intimate partner violence as children. *Violence and Victims, 17*, 3-17.

Dube, S.R., Felitti, V.J., Dong, M., Chapman, D.P, Giles W.H., & Anda R.F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. *Pediatrics, 111*, 564-572.

Duncan, R. D., Saunders, B. E., Kilpatrick, D. G., Hanson, R. F., & Resnick, H. S. (1996). Childhood physical assault as a risk factor for PTSD, depression, and substance abuse: Findings from a national survey. *American Journal of Orthopsychiatry, 66*(3), 437–448.

Eisenberg, L. (2005). Are genes destiny? Have adenine, cytosine, guanine and thymine replaced Lachesis, Clotho and Átropos as the weavers of our fate? *World Psychiatry, 4*(1), 3-8.

Elder, H. W. (1989). Trials and settlements in the criminal courts: An empirical analysis

of dispositions and sentencing. *Journal of Legal Studies*, 191-208.

Ellis, A. A.., Nixon, R. & Williamson, P. (2009). The effects of social support and negative appraisals on acute stress symptoms and depression in children and adolescents. *British Journal of Clinical Psychology, 48*, 347-361.

Epstein, J. A., Griffin, K. W. & Botvin, G. J. (2008). A social influence model of alcohol use for inner-city adolescents: Family drinking, perceived drinking norms and perceived social benefits of drinking. *Journal of Studies on Alcohol and Drugs*, 69, 397-405.

Feiring, C., Taska, L., & Lewis, M. (2002). Adjustment following sexual abuse discovery: The role of shame and attributional style. *Developmental Psychology*, 38, 79–92.

Felitti, V.J. (2002). The relationship between adverse childhood experiences and adult health: Turning gold into lead. *The Permanent Journal*, *26*, 44-47.

Felitti, V. J, Anda R. F, Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Koss, M. P. (1998). The relationship of adult health status to childhood abuse and household dysfunction. *American Journal of Preventive Medicine, 14*, 245-258.

Finkelhor, D. (1995). The victimization of children—Developmental perspective. *American Journal of Orthopsychiatry*, *65*(2), 177–193.

Finkelhor, D., Ormrod, R. K., Turner, H. A., & Hamby, S. L. (2005). The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment*, 10(1), 5–25.

Fogel, C.I., & Martin, S.L., (1992). The mental health of incarcerated women. *Western Journal of Nursing Research, 14*(1), 30-47. Sage Publications, Inc.

Friestad, C. & Hansen, I., (2005). Mental health problems among prison inmates: The effect of welfare deficiencies, drug use and self-efficacy. *Journal of Scandinavian Studies in Criminology and Crime Prevention, 6*, 183-196.

Galaif, E. R., Hser, Y., Grella, C. E., & Joshi, V. (2001). Prospective risk factors and treatment outcomes among adolescents. *Journal of Adolescent Research*, *16*(6), 661-678.

Gibson, L. E., Holt, J. C., Fondacaro, K. M., Tang, T. S., Powell, T. A., & Turbitt, E. L. (1999). An examination of antecedent traumas and psychiatric comorbidity among male inmates with PTSD. *Journal of Traumatic Stress*, *12*(3), 473-484.

Gilfus, M. E. (2002). Women's experiences of abuse as a risk factor for incarceration.

Harrisburg, PA: Pennsylvania Coalition Against Domestic Violence. Retrieved from http://www.vawnet.org.

Glied, S., & Kofman, S. (1995). *Women and mental health: Issues for health reform background paper*. New York: The Commonwealth Fund, Commission on Women's Health.

Goldberg, I. K. (2008). Bipolar disorder secondary to head injury. *Bipolar Disorder. 10*(1), 111-113.

Harlow, C. W. (2003). Education and correctional populations. Bureau of Justice Statistics. Retrieved from: http://www.ojp.usdoj.gov/bjs/pub/pdf/ecp.pdf

Hatfield, A. B. (1996). Dual diagnosis: Substance abuse and mental illness. Retrieved from: Bipolar.about.com/cs/dualdiag/a/0008_dual_diag_2.htm

Heatherton, T., & Baumeister, R. F. (1991). Binge-eating as an escape from self-awareness. *Psychological Bulletin, 110*, 86–108.

Hoffman, J. P., & Su, S. (1997). The conditional effects of stress on delinquency and drug use: A strain theory assessment of sex differences. *Journal of Research in Crime and Delinquency, 34*, 46–78.

Ireland, T., & Widom, C. (1994). Child victimization and risk for alcohol and drug arrest. *The International Journal of the Addictions, 29*, 122–133.

Jacob, T., & Leonard, K. E. (1986). Psychological functioning in children of alcoholic fathers, depressed fathers, and control fathers. *Journal of Health and Social Behavior, 42*, 184–201.

James, D. and L. Glaze (2006). *Mental Health Problems of Prison and Jail Inmates.* Special report prepared by the Bureau of Justice Statistics, U.S. Department of Justice. Washington, D.C.

Jang, S. J. & Johnson, B. R. (2003). Strain, negative emotions, and deviant coping among African Americans: A Test of General Strain Theory. *Journal of Quantitative Criminology, 19*(1).

Johnson, H. (2006). Concurrent drug and alcohol dependency and mental health problems among incarcerated women. *The Australian and New Zealand Journal of Criminology*, 39, 190-217.

Jordan, K., Schlenger, W., Fairbank, J., & Caddell, J. (1996). Prevalence of psychiatric disorders among incarcerated women: Convicted felons entering prison. *Archives of General Psychology,* 53(6), 513–519.

Karb, R., Glistler, M., & Woolley, M. E. (2008). Experiences of racial discrimination

and mental health outcomes: Moderating effects of neighborhood sociostrucural characteristics. *Society for Social Work Research*. Retrieved from http://sswr.confex.com/85wr/2008/techprogram/p8988.htm

Kaslow, N. J., Thompson, M., Meadows, L., Jacobs, D., Chance, S., & Gibb, B. (1998). Factors that mediate and moderate the link between partner abuse and suicidal behavior in African American women. *Journal of Consulting and Clinical Psychology,* 66, 533–540.

Kaufman, J. (1991). Depressive disorders in maltreated children. *Journal of the American Academy of Child and Adolescent Psychiatry, 30,* 257–265.

Kaufman, J., Yang, B., Douglas-Palumberi, H., Houshyar, S., Lipschitz, D., Krystal, J. H. & Gelernter, J. (2004). Social supports and serotonin transporter gene moderate depression in maltreated children. *Proceedings of The National Academy of Sciences, 101*(49), 17316-17321.

Kendler, K. S., Gardner, C. O., & Prescott, C. A. (2006). Toward a comprehensive developmental model for major depression in men. *American Journal of Psychiatry, 163,* 115-124.

Kendler, K.S., Kessler, R.C., Neale, M.C., Heath, A.C., & Eaves, L.J. (1993). The prediction of major depression in women: Toward an integrated etiologic model. *American Journal of Psychiatry, 150,* 1139-1148.

Kendler, K.S., Kuhn, J.W., Vittum, J., Prescott, C.A., & Riley, B. (2005). The interaction of stressful life events and a serotonin transporter polymorphism in the prediction of episodes of major depression: A Replication. *Archives of General Psychiatry, 62,* 529-535.

Kent, A., & Waller, G. (1998). The impact of childhood emotional abuse: An extension of the Child Abuse and Trauma Scale. *Child Abuse and Neglect, 22,* 393–399.

Kent, A., Waller, G., & Dagnan, D. (1999). A greater role of emotion than physical or sexual abuse in predicting disordered eating attitudes: The role of mediating variables *International Journal of Eating Disorders, 25,* 159–167.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6), 593-602.

Kieseppa, T., Partonen, T., Haukka, J., Kaprio, J., & Lonnqvist, J. (2004). High concordance of bipolar I disorder in a nationwide sample of twins. *American Journal of Psychiatry, 161,* 1814-1821.

Kilpatrick, D. G., Acierno, R., Resnick, H. S., Saunders, B. E., & Best, C. L. (1997). A 2-year longitudinal analysis of the relationships between violent assault and substance use in women. *Journal of Consulting and Clinical Psychology, 65*(5), 834–847.

Krishnan, K.R. (2005). Psychiatric and medical comorbidities of bipolar disorder. *Psychosomatic Medicine, 67*(1), 1-8.

Kubiak, S. P. (2004). The effects of PTSD on treatment adherence drug relapse, and criminal recidivism in a sample of incarcerated men and women. *Research on Social Work Practice, 14*(6), 424-433.

Lacey, J. H. (1993). Self-damaging and addictive behavior in bulimia nervosa. *British Journal of Psychiatry, 163*, 190–194.

Lamb, H. R. Weinberger, L., & Gross, B. (1999). Community treatment of severely mentally ill offenders under the jurisdiction of the criminal justice system: A review. *Psychiatric Services,* 50, 907-913.

Leboyer, M., Henry, C., Paillere-Martinot, M.-L., & Bellivier, F. (2005). Age at onset in bipolar affective disorders: a review. *Bipolar Disorders, 7*, 111–118

Leventhal, H., Leventhal, E. A., & Nguyen, T. V. (1985). Reactions of families to illness: Theoretical models and perspectives. In D. C. Turk, & R. D. Kerns (Eds.), *Health illness and families: A lifespan perspective* (pp. 108–145). New York, NY: Wiley.

Lewis-Hall, F.C. (2008). Fighting the blues in African Americans. Retrieved from www.lawattstimes.com/articles/2008/09/04/special_section

Linton, J. (2004). U.S. Department of Education Update. *The Journal of Correctional Education, 55*(4), 274-276

Lo, C. C., Kim, Y. S. & Church II, W. T. (2008). The effects of victimization on drug use: A multilevel analysis. *Substance Use and Misuse, 43*(10), 1340-1361

Maloney**,** M. P., Ward, M. P., & Jackson, C. M. (2003). Study reveals that more mentally ill offenders are entering jail. *Corrections Today,* 65(2), 100-104.

Mazerolle, P., & Maahs, J. (2000). General strain and delinquency: An alternative examination of conditioning influences. *Justice Quarterly,* 17(4), 753–778.

Maziak, W., & Asfar, T. (2003). Physical abuse in low-income women in Aleppo, Syria. *Health Care for Women International,* 24, 313–326

McCoy, K. B. & Sharp, B. S. (2007). Hard time for women: Female incarceration

policies in the southern states. Paper presented at the annual meeting of the Southern Political Science Association, Hotel InterContinental, New Orleans, LA Retrieved from http://www.allacademic.com/meta/p142919_index.html

McCauley, J., Kern, D.E., Kolodner, K., Dill, L., Schroeder, A.F., DeChant, H.K. (1997). Clinical characteristics of women with a history of childhood abuse: Unhealed wounds. *Journal of the American Medical Association,* 277(177), 1362-1368.

McGrath, E., Keita, G. P., Stickland, B. R., & Russo, N. F. (1990). *Women and depression: Risk factors and treatment issues.* Washington, DC: American Psychological Association.

McLoyd, V. C. (1989). Socialization and development in a changing economy. American Psychologist, 44, 293–302.

Meade, C.S. (2009). A prospective study examining the effects of gender and sexual/physical abuse on mood outcomes in patients with co-occurring bipolar I and substance use disorders. *Bipolar Disorders, 11*(4), 425-433.

Menard, S., & Huizinga, D. (2001). Repeat victimization in a high-risk neighborhood sample of adolescents. *Youth & Society, 32*(4), 447–472.

Milligan, R.J. & Andrews, B. (2005). Suicidal and other self-harming behavior in offender women: The role of shame, anger and childhood abuse. *Legal and Criminological Psychology, 10,* 13-25.

Milligan, R. J., & Waller, G. (2001). Anger and impulsivity in non-clinical women. *Personality and Individual Differences, 30,* 1073–1078.

Mills, K., Teesson, M., Ross, J., Darke, S., & Shanahan, M. (2005). Costs and outcomes of opiate treatment associated with post-traumatic stress disorder. *Psychiatric Services, 56,* 940-945.

National Institute of Mental Health (2006). Bipolar Disorder. Retrieved from http://www.nimh.nih.gov/health/publications/bipolar-disorder/complete-index.shtml

National Institute of Mental health. (2007). Women and depression. Retrieved from: http://psychcentral.com/lib/2007/women-and-depression/

National Institute of Mental Health. (2008). The numbers count: Mental disorders in America. Retrieved from http://www.nimh.nih.gov

National Institute of Mental Health. (2009). Co-occurrence of depression with other

illnesses. Retrieved from http://www.nimh.nih.gov/health/publications/men-and-depression/co-occurrence-of-depression-with-other-illnesses.shtml.

National Research Council. (1993). *Understanding child abuse and neglect*. Washington, DC: National Academy Press.

Natural Standard Research Collaboration. (2010). Retrieved from www.naturalstandard.com.

Oklahoma Department of Corrections Division of Female Offender Operations. (2010). *Fiscal Year 2010 Annual Report.* Oklahoma City, OK: Oklahoma Department of Corrections.

Olaya, B., Ezpeleta, L., Osa, N., Granero, R., & Doménech, J. M. (2010). Mental health needs of children exposed to intimate partner violence seeking help from mental health services. *Children and Youth Services Review, 32* (7), 1004-1011

Olphen, J., Eliason, M.J., Freudenberg, N. & Barnes, M. (2009). Nowhere to go: How stigma limits the options of female drug users after release from jail. *Substance Abuse Treatment, Prevention, and Policy, 4,* 10.

Ozer, E. J., Best, S. R., Lipsey, T. L., &Weiss, D. S. (2003). Predictors of posttraumatic stressdisorder and symptoms in adults: A meta-analysis. *Psychological Bulletin, 129*(1), 52–73.

Paternoster, R. & Mazerolle, P. 1994. General strain theory and delinquency: A replication and extension. *Journal of Research in Crime and Delinquency, 31*(3), 235-263

Pilowsky, D. J., Keyes, K. M., Hasin, D. S. (2009). Adverse childhood events and lifetime alcohol dependence. *American Journal of Public Health, 99,* 258-63.

Piquero, N. L., & Sealock, M. D. (2004). Gender and general strain theory: A preliminary test of Broidy and Agnew's gender/GST hypotheses. *Justice Quarterly, 21*, 125–158.

Plummer, L., Potterat, J. J., Muth, S. Q., & Muth, J. B. (1996). Providing support and assistance for low-income or homeless women. *Journal of the American Medical Association, 276* (23), 1874-1875.

Preston, P. (2006). Marijuana use as a coping response to psychological strain: Racial, ethnic, and gender differences among young adults. *Deviant Behavior, 27*, 397-421.

Radloff, L. (1975*).* The CESD: A self-report depression scale for use in the general population. *Applied Psychological Measurement, 1,* 385-401.

Read, J., Agar, K., Argyle, N., ÔC Aderhold, V. (2003). Sexual and physical abuse during childhood and adulthood as predictors of hallucinations, delusions and thought disorder. *Psychology and Psychotherapy: Theory, Research and Practice, 76*, 1-22.

Read, J., van Os, J., Morrison, A.P., & Ross, C.A. (2005). Childhood trauma, psychosis and schizophrenia: A literature review with theoretical and clinical implications. *Acta Psychiatrica Scandinavie, 112*, 330-350.

Rennison, C., & Planty, M. (2003). Non-lethal intimate partner violence: Examining race, gender and income patterns. *Violence and Victims,* 18(4), 433-443.

Richie, B. E. (2001). Challenges incarcerated women face as they return to their communities: Findings from life history interviews. *Crime & Delinquency,* 47, 410-427.

Roosa, M. W., Sandler, I. N., Beals, J., & Short, J. L. (1988). Risk status of adolescent children of problem drinking parents. *American Journal of Community Psychology*, 16, 225–239.

Sampson, R. J., & Laub, J. H. (1990). Crime and deviance over the life course: The salience of adult social bonds. *American Sociological Review,* 55(5), 609–627.

Sampson, R. J., & Wilson, W. J. (1995). Toward a theory of race, crime and urban inequality. In J. Hagan & R. Peterson (Eds.), *Crime and inequality,* 37–54. Stanford, CA: StanfordUniversity Press.

Schilling, E., Aseltine, R. H., & Gore, S. (2007). Adverse child experiences and mental health in young adults: a longitudinal survey. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1832182/

Schmidt, C. W. (2007). Environmental connections: A deeper look into mental illness. *Environmental Health Perspective*. 115, 404-410.

Sharp, S. F. (2004). *Oklahoma study of incarcerated mothers and their children: Phase I.* Oklahoma City, OK: Oklahoma Commission on Children and Youth.

Sharp, S. F. (2005a). *Oklahoma study of incarcerated mothers and their children: Phase II*. Oklahoma City, OK: Oklahoma Commission on Children and Youth.

Sharp, S. F. (2005b). *Oklahoma Study of Incarcerated Mothers and Their Children: Phase III*. Oklahoma City, OK: Oklahoma Commission on Children and Youth.

Sharp, S. F. (2006a). *Incarcerated mothers and their children.* Oklahoma City, OK: Oklahoma Commission on Children and Youth.

Sharp, S. F. (2006b). *Incarcerated mothers and their children*. Oklahoma City, OK: Oklahoma Commission on Children and Youth.

Sharp, S. F. (2008a) *The real cost of incarcerating mothers: Study of incarcerated women and their children*. Oklahoma Commission on Children and Youth.

Sharp, S. F. (2008b) *Breaking the cycle of violence: Study of incarcerated women and their children*. Oklahoma Commission on Children and Youth.

Sharp, S. F., & Marcus-Mendoza, S. T. (2001). It's a family affair: Incarcerated women and their families. *Women & Criminal Justice, 12*(4), 21-49.

Sharp, S. F., Terling-Watt, T., Atkins, L. A., Gilliam, J. T., & Sanders, A. (2001). Purging behavior in a sample of college females: A research note on general strain theory and female deviance. *Deviant Behavior, 22*,171-88.

Sharp, S. F., Brewster, D. R. & Redhawk-Love, S. (2005). Disentangling strain, personal attributes, affective response and deviance: A gendered analysis. *Deviant Behavior 26*, 122-157.

Sharp, S. F., Hartsfield, J., Conner, S., & Wolf, M. (2007). *Incarcerated mothers and their children*. Oklahoma City, OK: Oklahoma Commission on Children and Youth.

Sharp, S. F. & Pain, E. (2010). *No sympathy…Study of incarcerated women and their children.* Oklahoma City, OK: Oklahoma Commission on Children and Youth.

Silverman, A. B., Reinherz, H. Z., & Giaconia, R. M. (1996). The long-term sequelae of child and adolescent abuse: A longitudinal community study. *Child Abuse & Neglect, 20*(8), 709–723.

Silverman, J. G., McCauley, H. L., Decker, M. R., Miller, E., Reed, E. & Raj, A. (2011). Coercive forms of sexual risk and associated violence perpetrated by male partners of female adolescents. *Perspectives on Sexual & Reproductive Health, 43*(1), 60-65.

Souto, B. (1996). Dual diagnosis: Adolescents with co-occurring brain disorders and substance abuse disorders. Retrieved from http://bipolar.about.com/cs/dualdiag/a/0008_dual_diag.htm

Stein, J. A., Leslie, M. B., & Nyamathi, A. (2002). Relative contributions of parent substance use and childhood maltreatment to chronic homelessness, depression, and substance abuse problems among homeless women: Mediating roles of self-esteem and abuse in adulthood. *Child Abuse & Neglect, 26*(10), 1011-1027.

Stiles, B. L., Liu, X., & Kaplan, H. B. (2000). Relative deprivation and deviant adaptations: The mediating effects of negative self-feelings. *Journal of Research in Crime and Delinquency, 37*, 64–90.

Taft, C. T., Bryant-Davis, T., Woodward, H. E., Tillman, S., & Torres, S. E. (2009). Intimate partner violence against African American women: An examination of the socio-cultural context. *Aggression and Violent Behavior, 14*(1).

Teicher, M. H., Polcari, A., Anderson, C. M., Andersen, S. L., Lowen, S. B., & Navalta, C. P. (2003). Rate dependency revisited: Understanding the effects of methylphenidate in children with attention deficit hyperactivity disorder. *Journal of Childhood and Adolescent Psychopharmacology, 13*(1):41-51.

Torrey E. (1995). Jails and prisons—America's new mental hospitals. *American Journal of Public Health. 85*, 1611–13.

Turner, H. A., Finkelhor, D., & Ormrod, R. (2006). The effect of lifetime victimization on the mental health of children and adolescents. *Social Science & Medicine,* 62(1), 13–27.

Turner, H. A., & Butler, M. J. (2003). Direct and indirect effects of childhood adversity on depressive symptoms in young adults. *Journal of Youth and Adolescence*, 32, 89–103.

Turner, R. J., & Lloyd, D. A. (1995). Direct and indirect effects of childhood adversity on depressive symptoms in young adults. Journal of Youth and Adolescence, 32, 89-103.

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services. (1999). *Mental health: A report of the Surgeon General*. Retrieved from: http://www.surgeongeneral.gov/library/mentalhealth/home.html

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services. (2001). *Mental health: Culture, race and ethnicity*. Retrieved from: http://www.consumerstar.org/resources/pdf/SurgeonGeneralsReport2001.pdf

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services. (2003). *Cultural competence standards in managed care mental health services: Four underserved/underrepresented racial/ethnic groups.* Retrieved from: http://www.mentalhealth.org/publications/allpubs/SMA00-3457/intro.asp.

Weathers, F. W., Litz, B. T., Herman, D. S. Huska, J. A. & Keane, T. M. (1993). The PTSD checklist: Reliability, validity, and diagnostic utility. Presented at the annual meeting of the International Society for Traumatic Stress Studies, San Antonio, TX.

Widom, C. S. (2000). Understanding the consequences of childhood victimization. In R. M. Reece (Ed.), *The treatment of child abuse,* (pp. 339–361). Baltimore, MD: Johns Hopkins University Press.

Wilkins, J., & Coid, J. (1991). Self-mutilation in female remanded prisoners. An indicator of severe psychopathology. *Criminal Behavior and Mental Health, 1,* 247–267.

Willis, K. & Rushforth, C. (2003). The female criminal: An overview of women's drug use and offending behavior. *Trends and Issues in Crime and Criminal Justice, 264*. Canberra: Australian Institute of Criminology.

Wilson, W. J. (1987). *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago, Ill: University of Chicago Press.

Wittebrood, K.& Nieuwbeerta, P. (2000). Criminal victimization during one's life course: The effects of previous victimization and patterns of routine activities. *Journal of Research in Crime and Delinquency, 37*(1), 91–122.

Wolfe, D. A. (1987). *Child abuse: Implications for child development and psychopathology.* Newbury Park, CA: Sage Publications.

Wolff, N., Blitz, C.L. & Shi, J. (2007). Rates of sexual victimization in prison for inmates with and without mental disorders. *Psychiatric Service, 58,* 1087-1094.

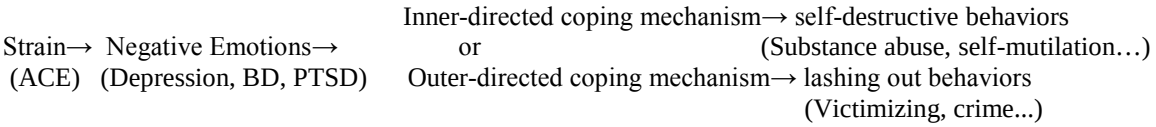
Yolken, R. H., & Torrey, E. F. (1995). Viruses, schizophrenia, and bipolar disorder. *Clinical Microbiology, 8* (1), 131–45.

Zlotnick, C. (1997). Posttraumatic stress disorder (PTSD), PTSD comorbidity, and childhood abuse among incarcerated women. *Nervous and Mental Disease, 185,* 761-763.

Zubin J, Spring B (April 1977). Vulnerability--a new view of schizophrenia. *Journal of Abnormal Psychology, 86* (2), 103–26.

Appendix

Figure 1. Model: General Strain Theory



Agnew (2006)

Table 1. Response and Distribution Rates of Facilities

Facility	Response %	Distribution %
KBCCC	68.5	7.7
HCCC	68.5	12.5
EWCC	62.6	38.4
MBCC	56.2	41.4

Table 2. Racial Composition of Sample

Race	N	%
White	146	53.9
Black	58	21.4
Native American	67	24.7
Total	271	100

Table 3. Educational Attainment of Sample

Educational Level	N	%
Less than HS	123	45.6
HS or GED	81	30.0
More than HS	66	24.4
Total	271*	

* There was 1 case missing in educational attainment.

Table 4. Frequency Distribution of ACE Items of Sample Reporting Yes

ACE Item	N	%
Divorced parents	168	62.0
Lived with someone with a mental illness	127	46.9
Family member who went to prison	69	25.5
Family member with alcohol or drug problem	190	70.1
Childhood sexual abuse	148	54.6
Childhood physical abuse	131	48.3
Emotional abuse (called names)	104	38.4
Father abused mother	92	33.9

Table 5. Frequency of Respondents With and Without a Prior Depression and Bipolar Disorder Diagnosis

Prior Diagnosis	Yes	No
Depression	69 (25.5%)	202 (75.5%)
Bipolar	44 (16.2%)	227 (83.8%)

Table 6. Descriptive Statistics of the PTSD and ACE Scores

	Minimum	Maximum	Mean	S.D
PTSD Scale	13	65	29.31	11.873
ACE Scale	0	7	3.56	2.008

Table 7. Logistic Regression of Depression Diagnosis on ACE Scale (with control variables)

Variable	B	SE B	ODDS RATIO
ACE Scale	.002	.074	1.002
Black	-.329	.383	.720
Native American	-.074	.340	.928
High School/GED	.483	.337	1.272
More than HS	-1.187	.351	1.623
Constant	-1.433	.510	.239

*p < .05. **p < .01. ***p < .001
Pseudo R^2 = 0.031

Table 8. Logistic Regression of Depression Diagnosis on Individual ACE Items (with control variables)

Variable	B	SE B	ODDS RATIO
Lived with someone with alcohol or drug problem	-.071	.373	.940
Lived with someone with mental illness	1.413***	.367	4.472
Parents divorced	-.811**	.335	.434
Family member went to prison	-1.237**	.423	.290
Father abused mom	-.334	.357	.712
Childhood physical abuse	.380	.360	1.465
Childhood sex abuse	-.108	.351	.890
Emotional abuse (called names)	.118	.347	1.127
Black	.123	.426	1.132
Native American	.154	.369	1.167
High School/GED	.311	.365	1.365
More than HS	.827	.383	1.332
Constant	-1.433**	.510	.239

*p < .05. **p < .01. ***p < .001
Pseudo $R^2 = 0.134$

Table 9. Logistic Regression of Bipolar Disorder Diagnosis on ACE Scale (with control variables)

	B	SE B	ODDS RATIO
ACE Scale	.151	.094	1.163
Black	-2.044**	.751	.130
Native American	-1.056	.451	.348
High School/GED	-.002	.402	.998
More than HS	.084	.434	1.046
Constant	-1.810	.638	.164

*p < .05. **p < .01. ***p < .00l
Pseudo R^2 = 0.073

Table 10. Logistic Regression of Bipolar Disorder Diagnosis on Individual ACE Items (with control variables)

Variable	B	SE B	ODDS RATIO
Lived with someone with alcohol or drug problem	.543	.488	1.728
Lived with someone with mental illness	1.166**	.423	3.334
Parents divorced	-594	.397	.557
Family member went to prison	-.1.013*	.455	.410
Father abused mom	-.301	.402	.769
Childhood physical abuse	.402	.431	1.508
Childhood sex abuse	.650	.429	1.937
Emotional abuse (called names)	-.002	.398	1.010
Black	-1.703*	.774	.186
Native American	-.977	.471	.376
High School/GED	.017	.433	1.017
More than HS	-.056	.466	.945
Constant	-2.159	.728	.115

*p < .05. **p < .01. ***p < .001
Pseudo R^2 = 0.134

Table 11. OLS Regression of PTSD Score on ACE Scale with control variables (unstandardized coefficients with standardized coefficients in parentheses)

	B	SE B
Ace Scale	.783	.379
Black	.595** (.021)	1.877
Native American	.827 (.028)	1.879
High School/GED	.401 (.015)	1.681
More than HS	-1.196 (-.043)	1.827
Constant	27.597***	2.598
R^2 .029		

*p < .05. **p < .01. ***p < .001

Table 12. OLS Regression of PTSD on Individual ACE Items with control variables (unstandardized coefficients with standardized coefficients in parentheses)

	B	SE B
Lived with someone with alcohol or drug problem	1.862 (.072)	1.724
Lived with someone with mental illness	4.560** (.192)	1.582
Parents divorced	-1.719 (-.070)	1.519
Family member went to prison	-3.846* (-.141)	1.659
Father abused mom	-2.890 (-.116)	1.635
Childhood physical abuse	-.787 (-.033)	1.655
Childhood sex abuse	5.611*** (.236)	1.608
Emotional abuse	2.536 (.104)	1.633
Black	2.599 (.090)	1.878
Native American	2.534 (.092)	1.695
High School/GED	.864 (.033)	1.644
More than HS	-1.307 (-.047)	1.788
Constant	25.974***	2.628
R^2 = .137		

*p < .05. **p < .01. ***p < .001