Implications of Long-Term Incarceration for Persons with Mental Illness

by

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ABSTRACT

Currently in the United States, 1.6 million offenders are incarcerated within state and federal prison systems (Guerino, Harrison, & Sabol, 2011). Most recent estimates purport approximately 24 percent of the prison population presents with serious mental health problems (James & Glaze, 2006); however, there is a paucity of research examining the impact of long-term incarceration among persons with mental illness (PMI). Although research with non-disordered offenders has failed to demonstrate deleterious psychological consequences due to long-term incarceration (Bonta & Gendreau, 1990; Bukstel & Kilmann, 1980), recent investigations with PMI have suggested otherwise (Morgan et al. 2007; Yang et al., 2009). For example, Morgan et al. (2007) suggested that increased time served in prison was associated with increased psychiatric symptoms, criminal thinking, and poorer institutional behavior for female PMI incarcerated in a general population prison facility, but not necessarily with concomitant complications for male PMI incarcerated in a psychiatric inpatient prison facility. Thus, the purpose of this study was to examine the relationship between time served in prison and the mental health functioning and criminal and behavioral presentations of male PMI incarcerated in general population correctional facilities. Participants ($n = 134$) were sampled from three separate general population correctional facilities within a Midwestern state correctional system. The majority of participants were diagnosed with Major Depressive Disorder, sentenced to an average of 20 years in prison, and served an average of 10 years on their current sentences. Results of a repeated measures regression using multilevel modeling indicated increased time served in prison was related to increased psychiatric symptoms associated with Major

Depression, as well as with other depressive syndromes and personality traits. Increases in aggressive, antisocial, and negativistic personality traits were also evidenced as a function of time. Results of a series of negative binomial regression analyses suggested time served in prison was not associated with other measures of mental health functioning (i.e., days on crisis watch, mental health sick call visits, mental health referrals and follow-ups), nor were significant associations found between time served in prison and the number of disciplinary infractions received. Further, multivariate regression analyses revealed no significant relationship between time served in prison and criminal thinking and attitudes. There was a significant underrepresentation of participants with severe mental illness, such as Schizophrenia and Bipolar Disorder. This resulted in the sample being less severely mentally ill than initially intended and perhaps limited the results. In light of this limitation, implications of findings are discussed in terms of practice and future directions for research.

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CHAPTER ONE

INTRODUCTION

Currently in the United States, 1.6 million offenders are incarcerated within state and federal prison facilities (Guerino, Harrison, & Sabol, 2011). Within most recent decades, a change in prison population characteristics has been evidenced; specifically an increase in the prevalence of severe mental illness among offenders. Recent estimates suggest 24 percent of offenders incarcerated in state prisons report a recent history of mental health problems, including being diagnosed with a mental disorder or being psychiatrically hospitalized (James & Glaze, 2006), with approximately 10 percent receiving psychotropic medication (Beck & Maruschak, 2001).

In fact, major mental disorders are found up to four times more frequently among incarcerated offenders than non-offender populations (Hodgins, 1995); as individuals with severe mental illness are at a greater risk of being arrested and incarcerated than individuals without a severe mental illness (Munetz, Grande, & Chambers, 2001; Teplin, 1984, 1990). These statistics have been widely attributed to the deinstitutionalization movement (i.e., shift from long-term psychiatric hospitalization to community outpatient care; Lamb & Bachrach, 2001; Lamb & Weinberger, 1998; Torrey, 1995) and subsequent criminalization of the severely mentally ill (Munetz et al., 2001; Teplin, 1984, 1990). This has resulted in three times more individuals with severe mental illnesses in the U.S. prison system than in our mental health hospitals (Abramsky & Fellner, 2003); leaving our correctional facilities as the leading mental health care providers in the U.S. (Abramsky & Fellner, 2003).

Incarcerated persons with mental illness (PMI) often present with co-occurring disorders, including severe mental illnesses (e.g., schizophrenia, bipolar disorder, and major depression), substance abuse, and antisocial personality disorder (Abram & Teplin, 1991); challenging the mental health and criminal justice systems' ability to effectively manage and treat this special population. Incarcerated PMI present with psychological symptoms similar to those demonstrated by psychiatric inpatients (Morgan, Fisher, Duan, Mandracchia, & Murray, 2010) and are likely to have a history of psychiatric hospitalizations prior to incarceration (Fisher et al., 2002). Additionally, while incarcerated, many PMI are likely to have a psychiatric hospital admission (Lamb, Weinberger, Marsh, & Gross, 2007). Furthermore, PMI often present with higher levels of criminal thinking and criminal attitudes compared to offenders without mental illness (Morgan et al., 2010), resulting in prior histories of incarceration within state prisons (Lamb et al., 2007).

Given these recent prison population trends and mental health characteristics of incarcerated PMI, it becomes increasingly important to understand how serving time in state correctional facilities impacts the psychological and behavioral functioning of this population to ensure humane criminal justice practices. Traditionally, long-term imprisonment was seen as a detriment to the psychological well-being of imprisoned offenders (Cohen & Taylor, 1972; Mitford, 1973). However, decades of research has disproved this notion, with empirical investigations showing improved psychological functioning across incarceration (Bonta & Gendreau, 1990; Bukstel & Kilman, 1980). In fact, much of the research examining the effects of long-term incarceration, short-term

detention, solitary confinement, and prison overcrowding has failed to demonstrate universal physical and psychological deterioration among prisoners (Bonta & Gendreau, 1990; Bukstel & Kilman, 1980).

Upon incarceration, as an inmate transitions from the free world to imprisonment, increases in blood pressure, anxiety, and depression are evidenced (MacKenzie & Goodstein, 1985). However, with time, inmates appear to employ coping strategies allowing them to successfully adjust to the prison environment, as evidenced by decreases in physiological and psychological symptoms (Islam-Zwart, Vik, & Rawlins, 2007; Paulus & Dzindolet, 1993; MacKenzie & Goodstein, 1985). A longitudinal analysis of prison inmates across a seven year period indicated negative affect (i.e., depression, anxiety, and hopelessness) decreased over time, while self-esteem increased (Zamble, 1992). Moreover, the amount of prescribed psychotropic medications decreased from the start of incarceration (Zamble, 1992).

Similar results were reported by MacKenzie and Goodstein (1985) in a study examining the effects of long-term (i.e., more than six years) incarceration on offender outcomes. Their results indicated inmates in the first three years of their sentence reported significantly more anxiety, depression, psychosomatic illness, and lower self-esteem compared to inmates who served more than six years. Research with female prison inmates indicated female prisoners also experienced elevated levels of anxiety and depression upon initial incarceration, but within a short period of time (i.e., three weeks) psychiatric symptoms significantly declined (Islam-Zwart et al., 2007).

In addition to an improvement in psychological functioning, there is evidence to suggest inmates' exhibit more prosocial attitudes towards the criminal justice system as they move through their prison sentence (Wormith, 1984; Zamble, 1992). There does appear to be an increase in criminal thinking, as well as the development of a criminal identity, for newly imprisoned inmates (with no prior history of incarceration) during incarceration, likely as a way of coping with the prison environment (Walters, 2003); however it is unknown how criminal thinking may change with more experience in the prison environment. In addition to an increase in prosocial attitudes, institutional behavior may also improve as the amount of time served in prison increases (Zamble, 1992).

The research examining the effects of long-term incarceration has been limited to offenders not suffering from severe mental disorders (e.g., schizophrenia, bipolar disorder, major depressive disorder). In fact, PMI have been widely neglected in this line of research in both the psychological and criminological fields. This is a cause for concern given the increased prevalence of severe mental illness among the prison population. Although long-term imprisonment has not been shown to lead to global deterioration in physical and mental health functioning among inmates (Bonta & Gendreau, 1990), individual differences, such as the presence of a severe mental illness, may impact how well an inmate can adjust to long-term incarceration (Bukstel & Kilmann, 1980). On one hand, incarceration may provide a structured environment with access to mental health care and medication monitoring that may prove beneficial to the stabilization of PMI's mental health functioning (Blaauw, Roozen, & van Marle, 2007).

Alternatively, as a result of severe psychiatric symptoms, PMI may not have access to the same effective coping strategies as their non-disordered counterparts, likely resulting in increased difficulty meeting the demands of prison life. An inability to adjust to incarceration may increase stress levels, subsequently increasing the amount, duration, and/or intensity of psychiatric symptoms.

Although, the impact of long-term incarceration has not been systematically and quantitatively examined, a recent study conducted by Hassan et al. (2011) examined the change in mental health symptoms during the first two months of incarceration among male and female PMI incarcerated in English jails and prisons. Results indicated a significant decrease in symptom severity among male inmates, inmates incarcerated in prison, and inmates diagnosed with major depressive disorder over the first two months of incarceration. A non-significant decrease of symptom severity was found among those inmates who evidenced any psychotic symptoms during the two-month time frame; no significant differences across time were found among female and jail inmates, or inmates diagnosed with less severe mental illness (e.g., mild mood disorders, anxiety disorders).

Although results of Hassan et al.'s (2011) investigation are encouraging, there is empirical evidence to suggest PMI react differently throughout the course of incarceration compared to non-mentally disordered prison inmates (Abramsky & Fellner, 2003). For example, as a result of the presence of severe psychiatric symptoms, some PMI display deficits in behavioral and emotional control, social skills, and problem-solving skills, as well as distorted cognitions and perceptions (Abramsky & Fellner, 2003). Therefore, PMI may display disruptive, noncompliant, and at times aggressive

behaviors in reaction to the demands and requirements of prison life (Abramsky & Fellner, 2003). They may also present with higher levels of hostility towards correctional staff (MacKenzie, Goodstein, & Blouin, 1987). PMI inability to comply with prison rules is evidenced by their averaging more disciplinary infractions per year than their non-mentally disordered counterparts (Feder, 1991; James & Glaze, 2006; Matejkowski, Caplan, & Wiesel-Cullen, 2010; O'Keefe & Schnell, 2007).

Additionally, as a result of receiving increased disciplinary infractions, PMI may be more likely to be placed in administrative segregation which could exacerbate their psychiatric symptoms and lead to increased social withdrawal (Miller & Young, 1997), appetite and sleep disturbances (Haney, 2003), negative affect (Grassian & Friedman, 1985; Kupers, 1996), and psychotic symptoms (Grassian & Friedman, 1985; Kupers, 1996). Additionally, non-compliant institutional behavior is likely to decrease PMI chances of early release via parole (Lurigio, 2001; Matejkowski, et al., 2010). In fact, PMI are more likely to serve out a maximum sentence than offenders without mental illness (Jemelka, Trupin, & Chiles, 1989; Lurigio, 2001).

Not only do PMI present a managerial challenge to correctional staff in terms of their non-compliant behavior, but they are often targets of victimization. In fact, PMI are more likely to be physically and sexually assaulted by non-mentally disordered inmates while in prison (Abramsky & Fellner, 2003). Prevalence estimates suggest, the rate of physical victimization is 1.6 times higher for inmate-on-inmate violence and 1.2 times higher for staff-on-inmate violence for male PMI compared with their non-disordered counterparts (Blitz, Wolff, & Shi, 2008). Additionally, 1 in 12 male PMI report sexual

victimization by another inmate over a six-month period, compared with 1 in 33 non-disordered offenders (Wolff, Blitz, & Shi, 2007). Female PMI are sexually victimized at a rate three times higher than their non-disordered counterparts (Wolff et al., 2007). Victimization or simply the fear of victimization (McCorkel, 1993ab) may result in psychiatric instability, making it more difficult for PMI to adjust to prison life over time. Therefore, the longer PMI spend incarcerated, the more psychiatrically unstable they may become. In addition to not being able to adjust to prison, they may subsequently have increased difficulty transitioning back into society (Boxer, Middlemass, & Delorenzo, 2009).

As stated above, research examining the impact of long-term imprisonment has not specifically targeted PMI as a population of study; however, two recent studies have begun to move this line of research forward. Yang, Kadouri, Révah-Lévy, Mulvey, and Falissad (2009) utilized qualitative methods to examine the impact of long-term imprisonment (i.e., time served in prison ≥ 10 years) in a sample of PMI and non-disordered inmates incarcerated in a French prison. Results indicated markedly different views of imprisonment among the two groups. Specifically, PMI expressed feelings of hostility and hatred towards correctional staff and other inmates, as well as feelings of persecution, often blaming others for their current situation. Additionally, PMI coped with the prison environment through social withdrawal. Non-mentally ill inmates often began their prison sentences with a rebellious attitude, and at times expressed anger and blamed others for their plight, but over the course of incarceration became reflective and developed insight into their behaviors.

Morgan et al. (2007), while examining treatment correlates and intervention content for PMI, discovered that the length of incarceration (i.e., amount of time spent in prison) was significantly associated with increased psychiatric symptomatology, criminal thinking, criminal attitudes, and institutional behavioral problems for female PMI, without concomitant complications for male PMI. Unexpectedly, this gender difference could be the result of inherent differences between male and females or the result of a discrepancy in sampling.

For example, the male PMI were sampled from an inpatient psychiatric prison (which are more structured facilities, designed to treat and care for inmates with severe mental illness experiencing difficulty functioning in the general population prison), and generally evidenced greater psychiatric symptoms and criminal attitudes than their female counterparts who were housed in a general population facility. Thus, a ceiling effect may be present in the male PMI sample, such that increases in psychiatric disturbance and criminalness (i.e., criminal thoughts, beliefs, attitudes) could not be observed. Alternatively, the female PMI, sampled from a general population correctional facility, were not psychiatrically or behaviorally impaired to the extent that they required placement in a specialized unit, thus differences in functioning could be detected. In other words, for the male PMI, Morgan et al. (2007) sampled the “worst of the worst” such that the offenders were all actively psychiatrically and/or behaviorally disturbed. Nevertheless, it does appear that female PMI incarcerated longer in a general population facility do exhibit increased psychiatric symptomatology, as well as cognitive processes and attitudes consistent with a criminal belief system.

Purpose of the Study

The purpose of this study is to gain a better understanding of how long-term imprisonment affects the clinical and behavioral presentation of PMI. The physical and psychological impact of long-term incarceration has been widely studied (Bonta & Gendreau, 1990; Bukstel & Kilmann, 1980). However, PMI have been neglected in this area of research, with the exception of two recent studies. Recent investigations conducted by Morgan et al. (2007) and Yang et al. (2009) suggested PMI react and cope with the prison environment in a manner distinct from non-disordered offenders. These data further suggest as the amount of time served in prison increases, mental health functioning may deteriorate, and increases in criminal thinking and criminal attitudes may be observed. However, Morgan et al.'s (2007) findings were a byproduct of their initial investigation, and have limited generalizability given sampling methods (i.e., psychiatric prison versus general population prison). Additionally, Yang et al. (2009) utilized a small ($n = 59$, with only 6 PMI), French sample, limiting the generalizability of their results. Results from the Hassan et al. (2011) study suggested an improved clinical presentation among certain PMI; however, the generalizability of their findings are also limited, as they utilized an English sample, and more importantly restricted their examination to the first two months of incarceration. Thus, the aim of this study is to extend the literature in this area, by examining the impact long-term incarceration has on the mental health functioning, criminal thinking, criminal attitudes and institutional behavior of male PMI serving time in a general prison population facility within the

United States. This will allow for an indirect comparison of the male PMI sampled in Morgan et al. (2007) study.

Significance of the Study

What is known about the male PMI experience in prison over time needs to be clarified. That is, an examination of male PMI not in a secure psychiatric facility within in the U.S. needs to be conducted. If Morgan et al.'s (2007) and Yang et al.'s (2009) findings are replicated, showing some PMI experience deterioration in mental health functioning, as well as an increase in criminal attitudes and poor institutional behavior as the amount of time served in prison increases, then a need is demonstrated for mental health professionals to provide mental health services that facilitate the development of coping skills. Increasing PMI's ability to adapt to the prison environment is important in order to effectively stabilize their psychiatric symptoms, which will decrease suffering. Moreover, identifying where PMI have difficulty adjusting, as well as understanding how the prison environment impacts the clinical and behavioral presentation of PMI, may promote policy changes and the development of new intervention strategies, allowing for more humane treatment of this population. Then in turn, mental health professionals will be better able to prepare PMI for re-entry back into society. Increasing PMI's ability to transition back into society may lead to reductions in psychiatric re-hospitalization or re-incarceration among this population.

Research Questions

1. Is there a relationship between the amount of time served in prison and the presence of psychiatric symptoms for male PMI incarcerated in a general population correctional facility?
2. Is there a relationship between the amount of time served in prison and criminal thinking and attitudes for male PMI incarcerated in a general population correctional facility?
3. Is there a relationship between the amount of time served in prison and the number of disciplinary infractions for male PMI incarcerated in a general population correctional facility

Research Hypotheses

1. There will be a statistically significant relationship between the amount of time served and psychiatric symptoms, such that as the amount of time served increases so will the severity of psychiatric symptoms.

Rationale: This population will be recruited from similar institutions as the female population studied in Morgan et al. (2007) (i.e., general population facilities), therefore it is expected they will present similarly. Additionally, general population facilities are not tailored to the special needs of PMI, and the characteristics of these facilities may increase the risk for victimization (Wright, 1991b), thus making it more difficult for PMI to cope with the prison environment, and perhaps exacerbate their psychiatric symptoms.

2. There will be a statistically significant relationship between the amount of time served and criminal thinking and criminal attitudes, such that as the amount of time served increases so will criminal thinking and criminal attitudes.

Rationale: This population will be recruited from similar institutions as the female population studied in Morgan et al. (2007) (i.e., general population facilities), therefore it is expected they will present similarly. Additionally, as suggested by Walters (2003), the adoption of criminal thinking and attitudes may serve as a coping mechanism in a harsh prison environment; therefore PMI may adopt a criminal belief system in order to survive in prison.

3. There will be a significant relationship between the amount of time served and the number of disciplinary infractions received, such that as the amount of time served increases so will the amount of disciplinary infractions.

Rationale: This population will be recruited from similar institutions as the female population studied in Morgan et al. (2007) (i.e., general population facilities), therefore it is expected they will present similarly. Additionally, due to their psychiatric symptoms, PMI may have difficulties with behavioral and emotional control, as well as disturbances in thought processes and perceptions; therefore they may have a difficult time conforming to prison rules, resulting in more disciplinary infractions per year.

Assumptions

1. Incarcerated PMI will respond to study materials in a manner consistent with incarcerated PMI completing these instruments for clinical purposes.
2. Incarcerated PMI volunteering to participate in this investigation are representative of the overall incarcerated PMI population incarcerated in general population prison facilities.
3. Incarcerated PMI in this study are similar to the incarcerated PMI in the Morgan et al. (2007) investigation.
4. The MCMI-III, PICTS, and CSS-M, are valid measures of the constructs for which they are intended to measure.
5. Institutional behaviors gathered in this study (i.e., disciplinary history) are valid indicators of general behavioral activity.

Definition of Terms

- *Criminal Attitudes* – opinions and beliefs supporting an antisocial lifestyle.
- *Criminal Thinking* – maladaptive thought patterns promoting antisocial behaviors.
- *Disciplinary Infractions* – non-compliant behaviors deemed to be in violation of institutional rules resulting in an inmate being written-up and/or charged with such violation.
- *General Population Prison* – correctional institution with varying levels of security (e.g., maximum, medium, minimum) housing a variety of inmates convicted of varying felonies. Inmates in these institutions are not

segregated and generally have access to areas outside their cells (e.g., recreation yard).

- *Inmate/Offender* – adult (i.e., 18 years of age or older) male currently incarcerated in a secure state prison facility subsequent to conviction of a felony offense.
- *Psychiatric Prison* – a segregated correctional institution serving as a secure psychiatric inpatient unit providing psychiatric and psychological treatments to stabilize inmates engaging in self-injurious behaviors and/or diagnosed with a mental illness.
- *Recidivism* – engaging in criminal acts after a period of incarceration and release back into society.
- *Reentry* – the act of an offender reintegrating back into society after a period of incarceration.
- *Severe Mental Illness* – A diagnosis meeting the criteria of the Diagnostic Statistical Manual of Mental Disorders, 4th Edition, Text Revised (2000) for Schizophrenia and other Psychotic Disorders, Bipolar Disorder, and Major Depressive Disorder.

CHAPTER TWO

METHODOLOGY

Participants

Data were collected from 145 adult male inmates who were incarcerated within the Kansas Department of Corrections (KDOC) and volunteered to participate in this study. Participants were required to provide written informed consent, have the ability to speak and read English, be at least 18 years old, have served at least three years (36 months) on their current sentence, and have an Axis I Disorder as defined by the DSM-IV-TR. Of the 145 participants, eleven participants were eliminated from the sample due to failure to meet all inclusion criteria. More specifically, one participant was eliminated because he refused to provide written informed consent, two participants were eliminated because they had not been diagnosed with a DSM-IV-TR Axis I disorder per their self-report as well as a review of their electronic medical file, and eight were eliminated because they served less than 36 months on their current sentence at the time of data collection. All descriptive data and analyses are based on the remaining 134 participants' data. It should be noted one potential participant was immediately excluded at the start of data collection, as he was unable to speak and read English.

The data collection sites included three KDOC general population prisons: Lansing Correctional Facility, a multi-custody prison housing 2,354 inmates of minimum, medium, or maximum security classification; Hutchinson Correctional Facility, a multi-custody prison housing 1,879 inmates of medium or maximum security classification, as well as work release inmates; and El Dorado Correctional Facility, a multi-custody prison

housing 1,293 inmates of medium or maximum security classification. El Dorado Correctional Facility also houses newly incarcerated inmates in the Reception and Diagnostic Unit, as well as KDOC's most violent and assaultive inmates in a long-term, 23-hour lock-down, segregation unit. At the time of data collection, the majority of participants were incarcerated in medium security housing (i.e., 59%), with the remaining participants in maximum security (i.e., 33.6%) or low security (i.e., 7.5%) housing.

The participants' mean age was 41.2 years ($SD = 12.2$, range 23 to 82). The majority of participants self-identified as Caucasian/White ($n = 72$, 58.2%) or African-American/Black ($n = 32$, 23.9%), while the remaining participants self-identified as "other" (which included Biracial/Multiracial groups; $n = 12$, 9.0%), Hispanic/Latino ($n = 6$, 4.5%), American-Indian/Native-American ($n = 5$, 3.7%), or Asian/Asian-American ($n = 1$, 0.7%). Participants reported a mean of 11.6 ($SD = 2.4$, range 3 to 16) years of formal education. Slightly more than half of the participants reported they were non-partnered (54.5%, $n = 73$), 20.1% ($n = 27$) were divorced, 11.9% ($n = 16$) were married, 7.5% ($n = 10$) were separated, 3.0% ($n = 4$) were partnered/common-law married, and 3.0% ($n = 4$) were widowed.

Participants mean sentence length was 254.7 months ($SD = 193.7$, range 42 to 960), with a total of eleven participants who indicated they were sentenced to life in prison. Participants had spent an average of 128.3 months ($SD = 92.1$, range 36 to 480) on their current sentences. Forty-four percent ($n = 59$) of participants indicated they were incarcerated for a single index offense, whereas the remaining participants were convicted of two (17.9%; $n = 24$), three (19.4%; $n = 26$) or four (9.0%; $n = 12$) index

offenses. The remaining participants (9.7%, $n = 13$) neglected to report their index offense(s). For the primary reported index offense, an overwhelming majority of participants (91.7%, $n = 111$) were incarcerated for a violent index offense (e.g., homicide, sexual assault, robbery), with only six participants (5%) being incarcerated for a drug offense (e.g., possession, delivery), two participants (1.7%) for property crimes (i.e., burglary, theft), and two participants (1.7%) were incarcerated for “other” offenses (i.e., falsifying documents, escape). According to participants’ institutional files, the mean number of disciplinary infractions received for the current period of incarceration over the past three years was six ($SD = 8.9$, range 0 to 54).

Although efforts were made to limit this sample to PMI with severe DSM-IV-TR Axis I disorders (i.e., Schizophrenia and Other Psychotic Disorders, Bipolar Disorder, and Major Depressive Disorder), other Axis I disorders (i.e., primarily other mood and anxiety disorders) were also included in order to reach a sufficient sample size. As indicated in participants’ electronic medical records, 50.7% ($n = 68$) of participants were diagnosed with Major Depressive Disorder, 14.2% ($n = 19$) with Schizophrenia or other psychotic-related disorders, and 7.5% ($n = 10$) with Bipolar Disorder. The remaining 27.6% ($n = 37$) of participants were diagnosed with other Axis I disorders. As previously noted, these diagnoses primarily consisted of other mood disorders (i.e., Dysthymia [$n = 5$, 13.5%], Depressive Disorder Not Otherwise Specified [$n = 4$, 10.8%], Mood Disorder Not Otherwise Specified [$n = 3$, 8.1%], Cyclothymia [$n = 1$, 2.7%], Mood Disorder due to Head Trauma [$n = 1$, 2.7%], Substance-Induced Mood Disorder [$n = 1$, 2.7%]) and anxiety disorders (i.e., Post-Traumatic Stress Disorder [$n = 11$, 29.7%], Generalized

Anxiety Disorder [n = 5, 13.5%], Obsessive-Compulsive Disorder [n = 2, 5.4%], Panic Disorder without Agoraphobia [n = 1, 2.7%], Substance-Induced Anxiety Disorder [n = 1, 2.7%]). Additionally, one participant (2.7%) was diagnosed with Pain Disorder associated with Psychological Factors. According to participants' electronic medical records, 86.6% (n = 116) of participants were prescribed psychotropic medications at some point during their current incarceration. At the time of data collection, 38.8% (n = 52) of participants were prescribed psychotropic medications. Of those participants currently receiving psychotropic medications, 51.9% (n = 27) were prescribed antidepressants only, 7.7% (n = 4) were prescribed antipsychotics only, and 1.9% (n = 1) were prescribed a mood stabilizer only. Other participants were prescribed a combination of psychotropic medications, including 15.9% (n = 8) receiving both an antidepressant and an antipsychotic, 11.5% (n = 6) receiving both an antidepressant and a mood stabilizer, 9.6% (n = 5) receiving both an antidepressant and anxiolytic, and 1.9% (n = 1) receiving a combination of an antidepressant, an antipsychotic, and a mood stabilizer.

Only 14.5% (n = 19) of participants were admitted to a psychiatric correctional facility during their current incarceration. For those participants, the number of inpatient admissions ranged from one to nine. The majority of participants (n = 9) had one admission, while four participants had two admissions, two participants had three admissions, one participant had six admissions, one participant had seven admissions, one participant had eight admissions, and one participant had nine admissions. Additionally for those participants, 47.4% (n = 9) were diagnosed with MDD, 15.8% (n =

3) were diagnosed with schizophrenia, and 5.3% (n = 1) were diagnosed with bipolar disorder. The remaining 31.6% (n = 6) were diagnosed with other, less severe Axis I diagnoses.

Measures

Demographic Form

A demographic form (see Appendix C) was designed to obtain basic demographic information from the participants (i.e., age, racial/ethnic identity, relationship status, years of education). This demographic form also obtained information specific to the participants' incarceration (i.e., housing status, index offense, sentence length, time served on current sentence) and mental health (i.e., recent diagnoses, mental health services received) status.

The Millon Clinical Multiaxial Inventory – 3rd Edition (MCMI-III)

The MCMI-III (Millon, 1994) is a 175-item true-false inventory that measures 14 personality patterns and 10 clinical syndromes. This inventory is designed to parallel the diagnostic categories of the DSM-IV (American Psychiatric Associations, 1994). Five clusters of indices comprise the MCMI-III: the Moderate Personality Disorder scales (i.e., Schizoid, Avoidant, Dependent, Histrionic, Narcissistic, Antisocial, Aggressive, Compulsive, Negativistic, and Masochistic) assess personality styles; the Severe Personality Pathology scales (i.e., Schizotypal, Borderline, and Paranoid) assess dysfunctional personality patterns; the Moderate Syndrome scales (i.e., Anxiety, Somatic, Manic, Dysthymia, Alcohol, Drug, and PTSD) assess distortions in the basic personality patterns; and the Severe Syndrome scales (i.e., Thought Disorder, Major Depression, and Delusional) assess severe symptomatic

psychopathology. The Moderate Personality Disorder and Severe Personality Pathology scales are intended to reflect DSM-IV Axis II personality disorders, while the Moderate and Severe Syndrome scales are intended to reflect DSM-IV Axis I disorders. Lastly, the Modifying Indices (i.e., Disclosure, Desirability, and Debasement) assess profile validity. A MCMI-III profile is considered invalid due to random responding if 12 or more items are missing, if two or more Validity scale items are marked True, if a Disclosure raw score is < 34 or > 178 , or if none of the base rate scores on the Moderate Personality Disorder scales are above 59. A profile is considered invalid due to fake-bad responding if a base rate score for the Disclosure scale is ≥ 85 , if a base rate score for the Desirability scale is ≤ 35 , or if the base rate score for the Debasement scale is ≥ 85 . Further a profile is considered invalid due to fake-good responding if a base rate score for the Disclosure scale is ≤ 35 , or if the base rate score for the Desirability scale is ≥ 85 , or if the base rate score for the Debasement scale is ≤ 35 .

The MCMI-III has been found to be a reliable and valid measure. Internal consistency coefficients were found to be adequate with alphas ranging from .66 to .90 (Millon, 1994). Test-retest reliability coefficients ranged from .82 to .96 for each scale with a retesting interval ranging between 5 to 14 days (Millon, 1994). The MCMI-III scales have demonstrated good convergent validity as evidenced by moderate to strong correlations with other relevant test scores, including the Beck Depression Inventory (BDI), the General Behavior Inventory (GBI) Depression and Hypomania scales, and the Symptom Checklist 90 – Revised (SCL-90-R; Millon, 1994). The MCMI-III ranks as one of the most frequently utilized psychological tests in clinical practice (Piotrowski, 1997). Moreover, the MCMI-III has been used as a

treatment outcome measure for inpatients (Piersma & Boes, 1997). Scores on the personality indices become less extreme, and appear to flatten upon discharge from psychiatric hospitalization (Piersma & Boes, 1997), perhaps, suggesting an ability to detect changes as a result of treatment and/or environment. Furthermore, among correctional populations, MCMI-III scales were found to be predictive of receiving a mental health diagnosis, placement on psychotropic medication, mental health contact time, as well as institutional violence (Retzlaff, Stoner, & Kleinsasser, 2002). For the current study the reliability coefficients for the MCMI-III was 0.97.

The Psychological Inventory of Criminal Thinking Styles (PICTS)

The PICTS (Walters, 1995ab; see Appendix E) is an 80-item self-report instrument designed to assess thinking styles that are supportive of a criminal lifestyle. Utilizing a 4-point Likert-type scale (1 = disagree, 2 = uncertain, 3 = agree, 4 = strongly agree), the PICTS measures thinking patterns associated with serious criminal behavior. Scores are calculated for eight scales representing the thinking styles (i.e., Mollification [rationalizing behavior by placing blame on external factors], Cutoff [ignoring responsible action and eliminating sensitivity to consequences], Entitlement [a sense of being above the law, an exception to the rule], Power Orientation [the need for utmost control over the environment and others], Sentimentality [self-serving acts of kindness], Superoptimism [overconfidence in one's ability to evade negative consequences], Cognitive Indolence ["lazy thinking," taking the easy way out], and Discontinuity [lack of persistence, getting easily sidetracked from one's goals]), as well as for two content scales (i.e., Current and Historical) and five factor and special scales (i.e., Problem

Avoidance, Interpersonal Hostility, Self-Assertion/Deception, Denial of Harm, and the Fear of Change). Higher scores among all scales are indicative of a higher degree of criminal thinking.

Additionally, scores are also calculated for two composite scales (i.e., Proactive and Reactive). The Proactive composite scale is a combination of the Entitlement thinking style scale, Self-Assertion/Deception factor scale, and the Historical content scale, whereas the Reactive composite scale is a combination of the Cutoff thinking style scale, the Problem Avoidance factor scale, and the Current content scale. The PICTS also contains three validity scales (i.e., “?” scale [the number of items omitted by the respondent], the Confusion scale, and the Revised Defensiveness scale). T-scores of greater than or equal to 75 on either the Confusion scale or the Revised Defensiveness scale indicate an invalid profile.

The PICTS has been shown to be a reliable and valid measure of criminal thinking. Internal consistency reliability coefficients for the PICTS scales ranged from moderate (0.55) to high (0.88) for male offenders (Walters, 1995a). Scale test-retest reliability coefficients were also found to be adequate for male and female offenders, ranging from 0.68 to 0.85 after two weeks, and 0.57 to 0.72 after 12-weeks (Walters, 1995a; Walters, Elliot, & Miscoll, 1998). The PICTS scales were found to display convergent validity with the Antisocial Features (ANT) scale of the Personality Assessment Inventory (PAI), with correlations ranging from .26 to .54, and discriminant validity with PAI scales unrelated to criminal thinking (Walters & Geyer, 2005). Additionally, the PICTS correlated moderately (i.e., between -.32 and .51) with two other measures of criminality,

the Psychopathy Checklist-Revised (PCL-R) and the Lifestyle Criminality Screening form (LCSF-R; Walters, 2001). The PICTS scales further demonstrated convergent validity with correlations ranging from $-.32$ to $.33$ among a variety of criminal risk variables, including prior arrests, prior incarcerations, age of first arrest, and age of first incarceration (Walters, 2001). The PICTS scales have also been found to be predictive of disciplinary infractions (Walters, 2005a, 2007; Walters & Geyer, 2005) and recidivism (Walters, 2005b). Additionally, the General Criminal Thinking (GCT) scale was recently found to partially mediate the relationship between severe mental illness and institutional violence among incarcerated PMI (Walters, 2011). Moreover, incarcerated PMI have been found to produce scores on the PICTS scales similarly to that of offenders without mental illness (Morgan et.al, 2010). For the current study, the reliability coefficient for the PICTS was 0.96.

The Criminal Sentiments Scale-Modified (CSS-M)

The CSS-M (Shields & Simourd, 1991) is a 41-item self-report instrument designed to measure attitudes, values, and beliefs related to criminal behavior (Simourd, 1997). The CSS-M utilizes a 3-point Likert-type scale with subscale and the total score being sums of the item score, with higher scores reflecting the presence of greater pro-criminal attitudes. Scores are calculated for five subscales (Attitude Toward the Law [Law]; Attitude Toward the Court [Court]; Attitude Toward the Police [Police]; Tolerance for Law Violations [TLV]; and Identification with Criminal Others [ICO]). The first three subscales (i.e., Law, Court, Police) are combined to form the Law-Court-Police (LCP) subscale, to assess the respondents' respect for the law and the criminal justice system.

The TLV subscale assesses the respondents' justification for criminal behavior. The ICO assesses the respondents' opinions about others who break the law.

The CSS-M has been shown to be a reliable and valid measure. Internal consistency coefficients for the scales were found to be adequate, with alphas ranging from .51 to .87, with the majority falling between .70 and .76 (Simourd & Olver, 2002; Simourd, 1997). Interscale correlations ranged from low (e.g., .15, .18, .27) to high (e.g., .91, .85, .84), with higher correlations present among scales combined to form a composite scale (i.e., Law, Court, Police; Simourd, 1997). The CSS-M also evidenced good convergent validity with correlations ranging from low to moderate among a variety of criminal risk measures, including the Pride in Delinquency Scale (PID; $r = .36$), Level of Service Inventory – Revised (LSI-R; $r = .37$), and General Statistical Information on Recidivism (GSIR; $r = .25$; Simourd, 1997). The CSS-M was also found to be significantly correlated with disciplinary infractions ($r = .27$; Simourd, 1997). Additionally, incarcerated PMI have been found to produce scores on the CSS-M similarly to that of offenders without mental illness (Morgan et al., 2010). For the current study, the reliability coefficient for the CSS-M was 0.59.

Procedure

Participant Recruitment

The procedures used in this study were approved by the Texas Tech University Institutional Review Board Protection of Human Subjects Committee and approval for data collection was obtained through the Kansas Department of Corrections. Additional approval was obtained by the warden at each facility where data was collected. Data

collection periods were arranged in conjunction with individuals designated by the warden (i.e., Mental Health Coordinators, Correctional Officers) and in accordance with facility policy. Potential participants were identified by the Mental Health Coordinator at each facility. Each Mental Health Coordinator developed a list of inmates designated with a Mental Health Code of 3, 4, or 6. Mental Health Codes of 3, 4, and 6 indicate inmates who require on-going mental health services that may include medication management, require special needs treatment monitoring, or require mental health structured reintegration program, respectively.

Potential participants identified by the Mental Health Coordinators were provided “lay-in” slips (i.e., instructions from the institution’s officials to attend scheduled activities such as meetings) instructing them to arrive at the data collection site at a designated time. The number of inmates provided “lay-in” slips for each data collection period was determined by the individuals (i.e., Mental Health Coordinator and Correctional Officers) responsible for coordinating the data collection sessions. At two of the sites visited (i.e., Lansing and Hutchinson Correctional Facilities), data collection occurred at scheduled times throughout the day in small groups. At El Dorado Correctional Facility, data collection occurred at one scheduled time with one large group for each day visited. For some data collection sessions, researchers waited to provide information about the study until all inmates who were provided “lay-in” slips arrived to the data collection site or until it was reasonable to assume that no more inmates would be arriving for that scheduled session. For other data collection sessions, inmates arrived at various times during the designated time due to other obligations (e.g., work, school)

or other scheduled appointments, and as a result each participant was provided with information about the study on an individual basis. How each data collection session was organized (i.e., which participants showed up where and when) was determined by the research coordinators at each facility according to facility policy. For all data collection sessions, the researchers identified themselves, described the nature and purpose of the study, and explained the procedures for completing the research materials. Potential participants were then instructed to discuss any questions or concerns regarding participation in the study with the researchers. Inmates who declined participation were allowed to leave in accordance with facility policy (e.g., had the lay-in slip signed or documented, waited until appropriate times to leave). A total of 237 inmates across all three data collection sites were provided with “lay-in” slips in order to be recruited for the study. A total of 72 inmates (30.4%) refused to participate, along with 20 inmates (8.4%) who “no-showed” to the data collection sessions.

Data Collection

Inmates who consented to participate were instructed to complete the demographic form, and the three measures (MCMI-III, PICTS, and CSS-M), which had been compiled into individual research packets for each participant and labeled with a participant number. The researchers addressed any questions or concerns presented by participating inmates on an individual basis throughout the data collection session. Participants with literacy problems had materials read to them by a research assistant ($n = 9$). Participants were instructed to return all materials into the corresponding packet after completion. The researchers collected the data packet from each participant as they finished. Inmates

were dismissed from the data collection site in accordance with the policy of each specific facility (e.g., left at a specified time, escorted by facility officials, left immediately upon finishing).

At the completion of each assessment session, the researchers reviewed and documented the participants' mental health records. Data gathered included current DSM-IV-TR diagnoses and history of psychotropic medications prescribed.

Additionally, the number of mental health "sick call" visits, days on crisis watch, and mental health referrals and follow-ups were recorded for the last three years.

Participants' criminal histories were also reviewed, including current convictions, date of incarceration, sentence length, amount of time served on current sentence, and disciplinary infractions committed over the last three years; however, due to limited time available at the data collection sites, participants' criminal histories were documented offsite, as this information is available through a website provided to the researchers by KDOC.

Confidentiality

Only the primary researcher and research assistants had access to participant's identifying information. Participants' individual responses were not shared with KDOC staff or officials in any circumstances. To ensure confidentiality, each research packet and corresponding materials were identified with a designated participant number. The consent form, which is the only material within the packet that contained identifying information (i.e., the inmate's signature indicating consent for participation), was not identified by a participant number. Participants were instructed not to put any identifying

information on any of the other research materials; however, there were participants who put their name and/or KDOC identification number on the research materials. In these cases, the researchers marked through this identifying information so that it could no longer be read by others.

The researchers delivered all completed research packets directly to Texas Tech University upon return from the data collection facility. All completed surveys were stored in a secure file cabinet in a research laboratory at Texas Tech University that requires the passage of two secure doors. Only individuals involved with the research, under the direction of the faculty member supervising the research laboratory, had access to this file cabinet (i.e., graduate students and undergraduate research assistants working with that faculty member). The consent forms were separated from the packets in order to secure anonymity of responses and stored apart from the other research materials in the research laboratory.

Data was entered into computers for data analysis by the primary researcher and undergraduate research assistants. The computers utilized for data entry for this research study were located in the aforementioned research laboratory. Original data materials and consent forms will be disposed of in a manner to ensure confidentiality (i.e., shredded) after five years from the date of publication of the results of this investigation. Only individuals involved with research conducted under the supervision of the faculty member supervising the research laboratory have access to these computers (i.e., graduate students and undergraduate research assistants working with that faculty member).

Research Design

The present study utilized a cross-sectional, quantitative, descriptive design to examine the relationship between the amount of time served in prison and mental health functioning, criminal thinking and attitudes, and institutional behavior. The dependent variables are mental health functioning, criminal thinking, criminal attitudes, and institutional behavior. Mental health functioning was measured using the MCMI-III (Millon, 1994), as well as the number of mental health “sick call” visits, days spent on crisis watch, and mental health referrals and follow-ups within the past three years. Criminal thinking, criminal attitudes, and institutional behavior was measured using the PICTS (Walters, 2001), the CSS-M (Shields & Simourd, 1991), and the number of disciplinary infractions charged within the past three years, respectively. The current study was designed to assess whether PMI incarcerated in prison are evidencing an increase in psychiatric symptoms, criminal thinking and attitudes, and non-compliant institutional behavior as the amount of time served in prison increases.

CHAPTER 3

RESULTS

Data Screening and Preparation

Examination of Data Entry Errors. After all the data were entered into a Statistical Package for the Social Sciences (SPSS) data file, 10% of the data packets were randomly selected and examined for data entry errors. An extremely low number of errors were found (i.e. 12; ~ .002%) and corrected in the data file. An examination of the minimum and maximum values for each variable was conducted using SPSS analyses of descriptive and frequency statistics. A minimal number of data were identified as falling outside of the possible range for some variables (e.g., response on the CSS-M entered as 20 [actual response was 2], PICTS General Criminal Thinking T-Score entered as 598 [actual score was 59], MCMI Scale 3-BR entered as 710 [actual score was 70]). The original data from the paper materials were examined and corrections were made accordingly.

Assumptions for Analyses

Missing Data. Participants' questionnaire packets were assessed for sufficient completion of the instruments. During data entry, generally responses in which two choices were endorsed for one item were treated as missing data. The exception to this rule was items answered on the CSS-M. If a participant circled both "agree" and "disagree," their response was coded as "undecided." There were relatively few missing responses on the PICTS, CSS-M, and MCMI-III, with an approximate total of 6% of data missing across all three instruments (i.e., 1.0%, 1.3%, and 3.4%, respectively). Missing responses on the CSS-M showed no discernable pattern; however, on both the PICTS and

MCMI-III missing responses appeared to occur more frequently on items at the end of the instruments. For example, frequency statistics for the PICTS revealed items 74 through 80 averaged six missing cases each, as compared to an average of one missing case for items 1 through 73. These items were on the back of the last page and possibly overlooked by these participants. A complete deletion of the case (i.e., listwise deletion) was avoided as a method of handling missing data since this procedure reduces the sample size impacting the power to detect significant results. On the other hand, using estimation procedures to replace missing values can overestimate correlations among items, improperly reduce variance, and produce an overly fit model in regression analyses (Tabachnik & Fidell, 2001). Thus, if a participant's total score fell within the valid range despite the presence of missing items, the instrument was retained. However, if the number of missing items rendered the score invalid, cases with missing data were only excluded from the analysis that included that specific variable (i.e., pairwise deletion).

Minimal missing responses were found among demographic variables, with the exception of years of education. All participants identified their ethnicity and marital status, and only 3 of the 143 participants (approximately 2%) failed to report their age. However, approximately 20% of participants failed to accurately report the number of years of formal education they completed. More specifically, these participants indicated they obtained a GED, but did not note the last grade of formal schooling they completed prior to obtaining a GED. Although a response of "GED" could have been coded as 12 years of education, it would not have differentiated those who completed 12 years of education consecutively and those who may have completed only 10 years and obtained a

GED at a later date, for example. Thus, it was coded as a missing response. While the education variable contained a disproportionately high level of missing responses, these cases were retained because it appears unlikely that the response pattern toward the educational demographic variable would systematically relate to responses on research measures.

Outliers. Standardized scores (z) were examined to determine the presence of univariate outliers. Cases with z scores greater than 3.29 ($p < .001$, two-tailed test) were considered outliers. A total of 27 univariate outliers were identified across several variables including demographic variables (i.e., age and time served), scaled scores on the PICTS (i.e., Interpersonal Hostility and Denial of Harm subscales), a subscale score on the CSS-M (i.e., Law), scaled scores on the MCMI-III (i.e., Clinical Personality Scales 4 [Histrionic], 5 [Narcissistic], and 7 [Compulsive]; Severe Syndrome Scale T [Thought Disorder]), and variables obtained from participants' institutional file (i.e., disciplinary infractions, crisis watch, sick call, follow-up, and referrals). In an effort to avoid reducing the sample size and limiting power, outliers were retained with steps taken to reduce their impact. More specifically, outlying scores were changed to either one unit larger or smaller than the next most extreme score in the distribution. By changing the score in this manner the cases remain deviant but not as deviant as they originally were (Tabachnik & Fidell, 2001). To determine the presence of multivariate outliers, Mahalanobis distance was calculated for each case. The Mahalanobis distance values were evaluated with a chi-square (χ^2) distribution at a stringent alpha level of $p < .001$ (Tabachnik & Fidell, 2001). No multivariate outliers were identified in this sample.

Normality. Histograms were visually scanned for resemblance to a normal curve. Most distributions appeared to deviate from the normal curve. An examination of the skewness statistic revealed the majority of subscales on the PICTS and CSS-M to be moderately, positively skewed (i.e., between +0.5 and +1.0; Bulmer, 1979), with the exception of the Interpersonal Hostility subscale on the PICTS and the Identification with Criminal Others subscale on the CSS-M which were both found to be highly, positively skewed (i.e., $> +1$; Bulmer, 1979). There were scores on the CSS-M that were found to be normally distributed (i.e., between -0.5 and +0.5), including the Total score and subscales Court and Police. The majority MCMI-III subscales were also found to be moderately skewed, but in the negative direction. However, several scales fell within the highly, negatively skewed range, including the Schizoid, Narcissistic, Schizotypal, Paranoid, and Alcohol Dependence subscales. Key demographic variable distributions were also found to deviate from the normal curve. More specifically, age was found to be moderately, positively skewed, while sentence length and time served were both found to be highly, positively skewed. Normal P-P Plots were also examined to further assess the distributions of the variables. Generally, errors on the PICTS and CSS-M were reasonably placed along the diagonal line, with deviations found among a majority of the MCMI-III subscales and the highly skewed demographic variables described above (i.e., sentence length and time served). Based on the Tabachnick and Fidell's (2001) recommendations, several transformations (i.e., square root, log, and negative reciprocal) were attempted separately with insufficient results found. That is, distributions were no closer to normal than prior to the transformations. This is not an uncommon occurrence,

as improvements with transformations are often marginal when variables are all skewed to about the same moderate extent (Tabachnik & Fidell, 2001). Thus, analyses were conducted without transformations, despite their deviations from normality.

All count data (i.e., disciplinary infractions, days on crisis watch, sick call visits, mental health follow-ups, and mental health referrals) were highly, positively skewed and reflect a Poisson distribution, as expected. The statistical analyses conducted (i.e., negative binomial regression) with these variables accounted for this distribution; thus, it was unnecessary to transform these variables to a normal distribution. In fact, such a procedure would be deemed inappropriate (Long, 1997).

Linearity. Multiple pairwise scatterplots of the variables included in each analysis were visually inspected to ensure a linear relationship existed among the variables. The scatterplots did not appear to have a curvilinear relationship among the pairs of variables for each analysis. In addition, an examination of residual plots for the multivariate regression analyses showed no indication of nonlinearity (i.e., errors appeared equally distributed above and below 0, no curve to the distribution was noticeable). However, similar to violations of normality, violations of linearity were present among all count variables (i.e., disciplinary infractions, crisis watch, sick call, mental health follow-ups, and mental health referrals). Again, due to the nature of count data, violations of assumptions of Ordinary Least Squares analyses were expected (Long, 1997). These violations were taken into account with the statistical analyses performed with these variables (i.e., negative binomial regression); thus, no transformations were warranted.

Multicollinearity. Correlations between the variables in each analysis were examined to ensure no variables were correlated with each other at a level high enough to suggest multicollinearity. Further, the Variance Inflation Factor (VIF) and Tolerance were examined for continuous variable with no indication of multicollinearity present. Specifically, VIF values were approximately 10 or lower and Tolerance values were .05 or higher (Stevens, 2002; Tabachnik & Fidell, 2001).

Statistical Analyses

Research Question One. Is there a relationship between the amount of time served in prison and the presence of psychiatric symptoms for male PMI incarcerated in a general population correctional facility? It was hypothesized that there would be a statistically significant relationship between the amount of time served and psychiatric symptoms, such that as the amount of time served increases so will the severity of psychiatric symptoms.

A repeated measures regression using multilevel modeling was performed to determine if scaled scores on the MCMI-III significantly changed as a function of time. This approach was favored over repeated measures analysis of variance, as it allowed time to be treated as a continuous variable between assessments (Hayes, 2006; West, 2009). Allowance for unequal measurement times was most important, as participants were administered the MCMI-III at varying times for both time one (i.e., at intake upon entering prison; T1) and time two (i.e., during data collection periods; T2).

Of the 134 participants available for analysis, 60 participants (44.8%) were excluded from analysis as they produced invalid profiles on the MCMI-III at T2 (see Methodology

for description of validity indicators and cutoff scores). Of the remaining 74 participants with valid MCMI-III profiles at T2, an additional 19 participants were excluded from analysis because scores from a previous MCMI-III administration (i.e., T1) were not included in their mental health records. Additionally, two participants were excluded as they produced invalid MCMI-III profiles at T1. Further, seven participants were excluded because their mental health records included scores at T1 from earlier versions of the MCMI and not the third edition. Thus, a total of 46 participants were included in the following multilevel modeling analysis. The number of years between measurement times for participants ranged from one to ten years with a mean of 5.86 years ($SD = 2.12$). The means, standard deviations, and ranges for the MCMI-III scale scores for T1 and T2 are displayed in Table 1.

Separate mixed linear regression models were constructed for each MCMI-III scale score (dependent variables). Measurement time (i.e., T1 and T2), number of years between T1 and T2, and their interaction term were included as predictors in the model. An interaction between time wave and years between assessments was predicted, such that more years between assessments would predict higher T2 MCMI-III scores. All predictor variables, including the interaction term, were treated as fixed effects. The parameters of the fixed effects were estimated using the restricted maximum likelihood (REML) estimation.

As displayed in Table 2, among the 11 Moderate Personality Disorder scales, as the number of years between T1 and T2 increased, so did the Schizoid, Depressive, Antisocial, Aggressive, and Negativistic MCMI-III scaled scores. This effect was not

observed on the Avoidant, Dependent, Histrionic, Narcissistic, Compulsive, or Masochistic MCMI-III scaled scores. Additionally, there were no significant associations found among the three Severe Personality Pathology scale (i.e., Schizotypal, Borderline, and Paranoid) scores.

More specifically, as can be seen from Table 2, each year of incarceration between measurement times was associated with a 4.34 point increase in participants' scores on the Schizoid subscale. Indeed, all significant interactions were of this form, with increased time between assessments associated with an increased endorsement of psychopathological personality traits. Moreover, graphs of the regression coefficients for the scales with significant interactions are displayed in Figures 1 through 5. As can be seen in Figures 1 through 5, participants whose time served in prison was greater than or equal to one standard deviation above the mean (i.e., ≥ 7.98 years) evidenced a significant increase in scores on the Schizoid, Depressive, Antisocial, Aggressive, and Negativistic scales from T1 to T2, when compared to participants whose time served in prison was less than or equal to one standard deviation below the mean (i.e., ≤ 3.74 years).

As displayed in Table 3, among the seven Moderate Syndrome scales, as the number of years between T1 and T2 increased, so did the Dysthymia, Alcohol Dependence, and Post-Traumatic Stress Disorder (PTSD) MCMI-III scaled scores. This effect was not observed on the Anxiety, Somatic, Mania, and Drug Dependence scale scores. Additionally, among the three Severe Syndrome scales, as the number of years between measurements increased, so did the Major Depression scaled score. This effect was not

observed on the Thought Disorder or Delusional scaled scores. For example, as can be seen from Table 3, each year of incarceration between measurement times was associated with a 6.74 point increase in participants' scores on the Dysthymia subscale. Similar to the effects found among the Moderate Personality Disorder scales, all significant interactions were of this form, with increased time between assessments associated with an increased endorsement of psychiatric symptoms.

As with the Moderate Personality Disorder Scales, graphs of the regression coefficients for the Moderate and Severe Syndrome scales with significant interactions are displayed in Figures 6 through 9. As can be seen in Figures 6 through 9, participants whose time served in prison was greater than or equal to one standard deviation above the mean (i.e., ≥ 7.98 years) evidenced a significant increase in scores on the Dysthymia, Alcohol Dependence, Post-Traumatic Stress Disorder, and Major Depression scales from T1 to T2, when compared to participants whose time served in prison was less than or equal to one standard deviation below the mean (i.e., ≤ 3.74 years).

A series of Poisson distribution regression models were conducted to further assess the relationship between the amount of time served in prison and participants' mental health functioning (i.e., days on crisis watch, sick call visits, mental health follow-ups, and mental health referrals). As previously discussed, these dependent variables are in the form of count data (i.e., non-negative integers) reflecting a Poisson distribution (i.e., highly, positively skewed). A Poisson regression is the gold standard for count data; however, a Poisson regression assumes equidispersion (i.e., the conditional mean equals the conditional variance) which is an assumption social science research is often unable

to meet (Walters, 2007). If this assumption is violated, a negative binomial regression is considered the most appropriate model for count data as it allows for overdispersion (i.e., conditional variance exceeds conditional mean). An additional problem often encountered with count data is an excess of zero counts. Excess zeros may pose a threat to the Poisson regression, and may also exceed that which a negative binomial regression can handle. A zero-inflated negative binomial regression would be an appropriate model to compensate for excess zeros with an overdispersed distribution.

Prior to conducting the analysis, a test of overdispersion was conducted for the number of days on crisis watch to determine the appropriate model needed to fit the data. The mean number of days on crisis watch is 1.01 with a variance of 9.23 (see Table 4). This suggests the presence of overdispersion, as the variance exceeds the mean. A more formal evaluation of overdispersion was also conducted using the likelihood ratio (LR) test. LR test of overdispersion was significant ($\chi^2(1) = 261.59, p < .0001$), indicating an overdispersed distribution. This suggests a negative binomial regression is favored over the standard Poisson regression. An attempt to test for excess zeros utilizing the recommended Vuong statistic (Vuong, 1989) was made to determine if a zero-inflated negative binomial regression should be used over a standard negative binomial regression. However, the parameter statistics for a zero-inflated negative binomial regression could not be estimated because the data is too sparse. More specifically, there were not enough non-zero values present to predict the probability of zero-values and counts among the participants. Thus, it could not be determined if the zero-inflated negative binomial regression should be used over the standard negative binomial.

Accordingly, only a negative binomial regression was conducted with the amount of time served as the predictor variable and the number of days on crisis watch as the dependent variable. Age and sentence length were entered as covariates and Axis I diagnosis, a categorical variable, was entered as a fixed factor. Two participants were excluded from analysis as they did not report age. Thus, data from 132 participants were included for the following analysis.

A likelihood ratio for the full negative binomial regression model was statistically significant ($N = 132$; $\chi^2(6) = 28.60, p < .0001$). Table 5 displays unstandardized regression coefficients (B), Wald statistics, odds ratios, and 95% Wald confidence intervals for odds ratios for predictor variable, covariates, and fixed variable. According to the Wald criterion, a diagnosis of Major Depressive Disorder and Schizophrenia or other Psychotic Disorders were significant predictors of days on crisis watch, $\chi^2(1, N = 132) = 5.02, p = 0.025$ and $\chi^2(1, N = 132) = 9.05, p = 0.003$, respectively. As indicated by the B , the expected log count for those diagnosed with Major Depressive Disorder increases by 0.727, as compared to participants in the “other” Axis I diagnosis group. While the expected log count for those diagnosed with Schizophrenia or other Psychotic Disorders increases by 1.20, as compared to participants in the “other” Axis I diagnosis group. As can be seen in Table 4, age ($p = 0.485$) and sentence length ($p = 0.082$) did not account for a significant amount of variance and the amount of time served did not significantly predict days on crisis watch ($p = 0.485$; $p = 0.082$; $p = 0.851$, respectively). Parameter statistics could not be estimated for the Bipolar Disorder group as singularities

were present in the Hessian Matrix, likely due to the sparseness of data particularly in this group ($n = 10$; mean days on crisis watch = .99).

A test of overdispersion was conducted for the number of sick call visits to determine the appropriate model needed to fit the data. The mean number of sick call visits is 2.86 with a variance of 21.36 (see Table 4), suggesting overdispersion (i.e., variance exceeds mean) is present. LR test of overdispersion was significant ($\chi^2(1) = 327.29, p < .0001$), indicating an overdispersed distribution. Thus, a negative binomial regression is favored over the standard Poisson regression. A test for excess zeros using the Vuong statistic was attempted to determine if a zero-inflated negative binomial regression should be used over a standard negative binomial regression. However, as with days on crisis watch, the parameter statistics for a zero-inflated negative binomial regression could also not be estimated because the data is too sparse. Consequently, it could not be determined if the zero-inflated negative binomial regression is preferred over the standard negative binomial. As a result, only a negative binomial regression was conducted with the amount of time served as the predictor variable and number of sick call visits as the dependent variable. Again, age and sentence length were entered as covariates and Axis I diagnosis was entered as a fixed factor. As in the previous analysis, two participants were excluded from analysis as they did not report age. The following analysis is conducted with the remaining 132 participants.

A likelihood ratio for the full negative binomial regression model was statistically significant ($N = 132; \chi^2(6) = 17.70, p = 0.003$). Unstandardized regression coefficients (B), Wald statistics, odds ratios, and 95% Wald confidence intervals for odds ratio for

predictor variable, covariates, and fixed variable are displayed in Table 5. According to the Wald criterion, a diagnosis of Schizophrenia or other Psychotic Disorders was a significant predictor of sick call visits, $\chi^2(1, N = 132) = 4.97, p = 0.026$. As indicated by the *B*, the expected log count for those diagnosed with Schizophrenia or other Psychotic Disorders increases by .723, as compared to participants in the “other” Axis I diagnosis group. The amount of time served did not significantly predict sick call visits, nor did age or sentence length account for a significant amount of variance ($p = 0.773, p = 0.490, p = 0.734$, respectively; see Table 5).

A test of overdispersion was conducted for the number of mental health follow-ups. A review of the mean number of mental health follow-ups and variance suggested overdispersion, 4.63 and 53.24 respectively (see Table 4). LR test of overdispersion was significant ($\chi^2(1) = 561.172, p < .001$), indicating an overdispersed distribution and the need for a negative binomial regression over the standard Poisson regression. Similarly to the two previous analyses, an attempt was made to test for excess zeros, and again the parameter statistics for a zero-inflated negative binomial regression could not be estimated due to the sparseness of data. As such, only a negative binomial regression was conducted with the amount of time served as the predictor variable and mental health follow-up count as the dependent variable with age and sentence length entered as covariates and Axis I diagnosis entered as a fixed factor. Again, analysis was performed with 132 participants, as two participants were excluded due to the missing demographic variable (i.e., age).

A likelihood ratio for the full negative binomial regression model was statistically significant ($N = 132$; $\chi^2(6) = 21.74, p = .001$). Table 5 displays unstandardized regression coefficients (B), Wald statistics, odds ratios, and 95% Wald confidence intervals for odds ratios for predictor variable, covariates, and fixed variable. According to the Wald criterion, a diagnosis of Bipolar Disorder was the only significant predictor of number of mental health follow-ups, $\chi^2(1, N = 132) = 16.62, p < 0.0001$. As indicated by the B , the expected log count for those diagnosed with Bipolar Disorder decreases by 2.39, as compared to participants in the “other” Axis I diagnosis group. The amount of time served did not significantly predict mental health follow-ups ($p = 0.497$; see Table 4). Moreover, age and sentence length did not account for a significant amount of variance ($p = 0.329, p = 0.346$, respectively).

Similarly to the previous analyses, a test of overdispersion was conducted for the number of mental health referrals. The mean and variance of mental health referrals suggest overdispersion, 2.48 and 8.39 respectively (see Table 4). LR test of overdispersion was significant ($\chi^2(1) = 117.726, p < .001$), indicating an overdispersed distribution. Again, a negative binomial regression is favored over the standard Poisson regression. A test for excess zeros was attempted, but was also unsuccessful as the parameter statistics for a zero-inflated negative binomial regression could also not be estimated as a result of too few non-zero data points. Accordingly, only a negative binomial regression was conducted with the amount of time served as the predictor variable and number of mental health referrals as the dependent variable. Age and sentence length remained as covariates and Axis I diagnosis as a fixed factor. In line

with the three previous analyses, the following analysis was conducted with data from 132 participants, as age was missing from two participants.

A likelihood ratio for the full negative binomial regression model was not statistically significant ($N = 132$; $\chi^2(6) = 11.58, p = 0.072$). Unstandardized regression coefficients (B), Wald statistics, odds ratios, and 95% Wald confidence intervals for odds ratios for predictor variable, covariates, and fixed variable are displayed in Table 5. As seen with mental health follow-ups, the Wald criterion indicated a diagnosis of Bipolar Disorder was a significant predictor of mental health referrals, $\chi^2(1, N = 132) = 4.56, p < 0.033$. As indicated by the B , the expected log count for those diagnosed with Bipolar Disorder decreases by 1.17, as compared to participants in the “other” Axis I diagnosis group. As with the other mental health count variables, the amount of time served did not significantly predict mental health referrals ($p = 0.429$) and age and sentence length did not account for a significant amount of variance ($p = 0.752, p = 0.337$, respectively; see Table 5).

Thus, Hypothesis One, which asserted that the amount time served in prison would predict increases in psychiatric symptomatology, was partially supported, as a variety of scale scores on the MCMI-III increased as a function of time. These scales included Moderate Personality Disorder scales (i.e., Schizoid, Depressive, Antisocial, Aggressive, and Negativistic), Moderate Syndrome scales (i.e., Dysthymia, Alcohol Dependence, and PTSD), as well as one Severe Syndrome scale (i.e., Major Depression). However, the amount of time served was not associated with other measures of mental health

functioning, including days on crisis watch, sick call visits, mental health follow-ups and mental health referrals.

Research Question Two. Is there a relationship between the amount of time served in prison and criminal thinking and attitudes for male PMI incarcerated in a general population correctional facility? It was hypothesized that there would be a statistically significant relationship between the amount of time served and criminal thinking and criminal attitudes, such that as the amount of time served increases so will criminal thinking and criminal attitudes.

To determine the relationship between the amount of time served in prison and criminal thinking, a series of multivariate regression analyses were conducted for the two content scales (i.e., Current and Historical), eight criminal thinking scales (i.e., Mollification, Cutoff, Entitlement, Power Orientation, Sentimentality, Superoptimism, Cognitive Indolence, and Discontinuity), five factor and special scales (i.e., Problem Avoidance, Interpersonal Hostility, Self-Assertion/Deception, Denial of Harm, and the Fear of Change), and two composite scales (i.e., Proactive and Reactive of the PICTS), with time served in prison as the predictor variable. For all analyses, Axis I diagnosis, age, and sentence length were entered as covariates to reduce error variance associated with these variables. Additionally, a Benjamini and Hochberg False Discovery Rate (Benjamini & Hochberg, 1995) correction was performed on all multivariate regression analyses to reduce the occurrence of false positives associated with multiple testing. Twenty-five participants produced invalid profiles on the PICTS (i.e., Confusion scale ≥ 75 and/or Revised Defensive scale ≥ 75), and as such were excluded from analyses

utilizing this measure. Of the 109 remaining participants, an additional participant was excluded due to a missing demographic variable (i.e., age). Thus, data from a total of 108 participants were used for the following multivariate regression analyses. The means and standard deviations of the PICTS scale scores are displayed in Table 6.

The unstandardized regression coefficients (B), the standard error of B , the 95% confidence intervals of B , and the standardized regression coefficients (β) for all three multivariate regression analyses are provided in Table 7. As can be seen in Table 7, the amount of time served in prison was not significantly related to criminal thinking as measured by the PICTS two content scales, eight criminal thinking scales, five factor and special scales, or two composite scales.

To determine the relationship between the amount of time served in prison and criminal attitudes, a simple linear regression analysis was conducted for the CSS-M Total Score with time served in prison as the predictor variable. Additionally, a multivariate linear regression analysis was also conducted for the CSS-M subscales (i.e., Law, Court, Police, TLV, and ICO) with time served in prison as the predictor variable. Similarly to the analyses conducted with the PICTS, Axis I diagnosis, age, and sentence length were entered as covariates to reduce error variance associated with these variables. Moreover, a Benjamini and Hochberg False Discovery Rate correction was also performed to reduce the occurrence of false positives associated with multiple testing.

The CSS-M does not contain measures of validity; however, it seems reasonable to believe that if a participant provided invalid responses to a measure of criminal thinking, they may also have provided invalid responses on a measure of criminal attitudes.

Therefore, it was decided if a participant produced an invalid PICTS profile, their scores on the CSS-M were considered invalid and excluded from analysis. As previously stated, 25 participants produced invalid profiles on the PICTS, and thus excluded from the following analyses with the CSS-M. Of the remaining 109 participants, two additional participants were excluded as they did not complete the CSS-M and one additional participant was excluded as age was missing. Thus, the following analyses were conducted with data from the remaining 106 participants. The means and standard deviations for the CSS-M scale scores are displayed in Table 8.

The unstandardized regression coefficients (B), the standard error of B , the 95% confidence intervals of B , and the standardized regression coefficients (β) for the simple linear regression are displayed in Table 9. There was no significant relationship found between time served in prison and the CSS-M Total score. The squared multiple correlation coefficient (R^2) was 0.062, $F(4, 101) = 1.68$, $p = 0.160$, after controlling for Axis I diagnosis, age, and sentence length. When time served in prison was entered, it did not significantly add predictive value to the equation ($\Delta R^2 = .005$).

The unstandardized regression coefficients (B), the standard error of B , and the 95% confidence intervals of B for the multivariate regression analysis are provided in Table 10. As can be seen in Table 10, the amount of time served in prison was not significantly related to any of the CSS-M subscales.

Thus, Hypothesis Two, which asserted that the amount time served in prison would predict scores on measures of criminal thinking and criminal attitudes, was not supported

as there was not a significant relationship between the amount of time served in prison and criminal thinking and attitudes as measured by the PICTS and CSS-M, respectively.

Research Question Three, Is there a relationship between the amount of time served in prison and the number of disciplinary infractions for PMI incarcerated in a male general population correctional facility? It was hypothesized that there will be a significant relationship between the amount of time served and the number of disciplinary infractions received, such that as the amount of time served increases so will the amount of disciplinary infractions.

Similarly to the analyses conducted with the mental health count variables, a series of Poisson distribution regression models were conducted to determine the relationship between the amount of time served in prison and disciplinary infractions, as the number of disciplinary infractions is also in the form of count data. The mean number of disciplinary infractions is 5.52 with a variance of 50.22 (see Table 4), and as with the mental health count variables, the variance exceeds the mean suggesting overdispersion. LR test of overdispersion was significant ($\chi^2(1) = 461.22, p < .0001$), confirming an overdispersed distribution. Thus, a negative binomial regression is preferred to the standard Poisson regression. A test for excess zeros using the Vuong statistic was attempted to determine if a zero-inflated negative binomial regression should be used over a standard negative binomial regression. However, as with the mental health count variables, the parameter statistics for a zero-inflated negative binomial regression could not be estimated because the data is too sparse. As a result, it could not be determined if the zero-inflated negative binomial regression is favored over the standard negative

binomial. Accordingly, only a negative binomial regression was conducted with the amount of time served as the predictor variable and disciplinary infractions as the dependent variable. Age and sentence length were entered as covariates and Axis I diagnosis was entered as a fixed factor. Similarly to analyses with mental health count variables, two participants were excluded from analysis as they did not report age. Data from the remaining 132 participants were included for the following analysis.

A likelihood ratio for the full negative binomial regression model was statistically significant ($N = 132$; $\chi^2(6) = 33.73, p < .0001$). Unstandardized regression coefficients (B), standard error of B , 95% Wald confidence intervals, Wald statistics, odds ratios ($\exp B$), and 95% Wald confidence intervals for $\exp B$ for the predictor variable, covariates, and fixed variable are displayed in Table 8. According to the Wald criterion, age was a significant predictor of disciplinary infractions, $\chi^2(1, N = 132) = 21.03, p < 0.0001$, such that as age increased the number of disciplinary infractions decreased. As can be seen in Table 11, the amount of time served did not significantly predict disciplinary infractions ($p = 0.977$), nor did Axis I diagnosis (MDD, $p = 0.714$, Bipolar Disorder, $p = 0.174$, Schizophrenia, $p = 0.079$) or sentence length ($p = 0.713$) account for a significant amount of variance.

The exact sequence of analysis utilized for disciplinary infractions was also conducted for weighted disciplinary infractions to account for the severity of the infractions. The mean number of weighted disciplinary infractions is 13.22 with a variance of 312.46 (see Table 4). Similar to disciplinary infractions (unweighted), an overdispersed distribution was present ($\chi^2(1) = 1591.07, p < .001$), indicating a

preference for a negative binomial over a standard Poisson regression. As with all the other count variables in this study, the Young statistic could not be generated due to sparseness of data. Thus, it could not be determined if a zero-inflated negative binomial regression should be used to account for an excess of zeros in the data. Consequently, a standard negative binomial regression was conducted with weighted disciplinary infractions as the dependent variable and the amount of time served as the predictor variable with data from 132 participants. As with all previous analyses, age and sentence length were entered as covariates and Axis I diagnoses as a fixed factor.

A likelihood ratio for the full negative binomial regression model was statistically significant ($N = 132$; $\chi^2(6) = 39.40, p < .0001$). Unstandardized regression coefficients (B), standard error of B , 95% Wald confidence intervals, Wald statistics, odds ratios ($\exp B$), and 95% Wald confidence intervals for $\exp B$ for the predictor variable, covariates, and fixed variable are displayed in Table 8. Similar to unweighted disciplinary infractions, age was a significant predictor of disciplinary infractions, $\chi^2(1, N = 132) = 23.22, p < 0.0001$, as increases in age was associated with decreases in the number of disciplinary infractions. The amount of time served ($p = 0.979$), Axis I diagnosis MDD, $p = 0.809$, Bipolar Disorder, $p = 0.048$, Schizophrenia, $p = 0.054$), and sentence length ($p = 0.654$) were not significant predictors of disciplinary infractions (see Table 11).

Thus, Hypothesis Three, which asserted that the amount of time served would predict the number of disciplinary infractions received, was not supported as there was not a significant relationship between the amount of time served and the number (or severity) of disciplinary infractions. Although the overall models were found to be significant for

both un-weighted and weighted disciplinary infractions, age was the only significant predictor of disciplinary infractions in both analyses as a younger age was associated with an increase in disciplinary infractions.

CHAPTER 4

DISCUSSION

Summary of Results

This study investigated the impact of long-term incarceration on the mental health functioning and criminal and behavioral presentations among male PMI imprisoned in general population correctional facilities. The majority of participants were diagnosed with MDD, and, on average, served approximately ten years in prison on their current sentences. An assessment of mental health functioning included an objective measure of personality traits and psychiatric symptoms, as well as the frequency of mental health service utilization. Levels of criminal thinking and attitudes were also measured, and the frequency and severity of disciplinary infractions received by participants over the past three years were documented. The relationship between these variables and the amount of time served in prison was examined.

As hypothesized, results revealed significant increases in psychiatric symptoms as a function of time. That is, increased scores on a variety of MCMI-III personality and clinical syndrome scales were associated with increased time in prison. Specifically, participants' current scores for 5 of the 11 Moderate Personality Disorder scales (i.e., Schizoid, Depressive, Antisocial, Aggressive, and Negativistic), as well as the 3 of the 7 Moderate Syndrome scales (i.e., Dysthymia, Alcohol Dependence, and PTSD) were significantly higher than their scores upon incarceration for their current offenses. There were no significant differences between Severe Personality Pathology scale scores (i.e., Schizotypal, Borderline, and Paranoid) and scores upon incarceration. Finally, for the

three Severe Syndrome scales, a significant increase in scores was observed across assessment periods for the Major Depression scale, but not for the Thought Disorder or Delusional scales.

Increased scores across a variety of MCMI-III scales is consistent with Morgan et al.'s (2007) findings with female PMI incarcerated in general population facilities, with similar increases found among both samples on the Negativistic, Dysthymia, and Major Depression scales. Increased scores on the Schizoid, Antisocial, Aggressive, and Negativistic scales are consistent with Yang et al.'s (2009) qualitative results which suggested that as male PMI served more time in prison they evidenced increased social withdrawal, hostility and hatred toward others, as well as blaming others for their problems. Yang et al. (2009) also found increased feelings of persecution for incarcerated male PMI as a function time; however, these results were not replicated in this study as no significant differences were found for either of the Severe Personality Pathology scales or the Thought Disorder or Delusional scales. Increased scores among the Depressive, Dysthymia, and Major Depression scales appear consistent with participants' Axis I diagnoses; again, as a majority of participants were diagnosed with MDD. Additionally, this may explain the lack of significant differences between the amount of time served in prison and the more severe personality and syndrome scales, as less than 25% of participants were diagnosed with more severe Axis I disorders, like schizophrenia or bipolar disorder.

An unexpected finding was the increased MCMI-III Alcohol Dependence scale scores across time. While increased scores may be the result of increased problematic use of

alcohol over time, this explanation is probably unlikely given the controlled prison environment (although prison does not ensure abstinence). A more plausible explanation may be that increased scores reflect increased insight into their substance abuse problems or a greater willingness among participants to report their alcohol use in a more forthright manner over time.

Behavioral measures of mental health functioning used in this study (i.e., days spent on crisis watch, the number of mental health sick call visits, and the number of mental health referrals and follow-ups), were not significantly associated with time served in prison as hypothesized. It is possible that no real relationship exists between the amount of time served in prison and these variables; however, an alternative explanation for the lack of statistical significance among the count variables is that the time span included in this study (i.e., three years) was insufficient given low base rates of these behaviors. The base rate provides us with the likelihood of these behaviors occurring; perhaps, the probability of such behaviors is too low to accurately examine changes in mental health functioning across time. For example, among this study's current sample, approximately 87% of participants spent zero days on crisis watch, approximately 74% had three sick call visits or less, 63% had three mental health follow-ups or less, and 74% had three mental health referrals or less, across a three year span. With an overwhelming majority of participants evidencing little to none of the behaviors over the three year time period, the statistical model (i.e., zero-inflated negative binomial regression) was unable to predict zero from non-zero count data points. This resulted in a failure to fit these data to potentially the most appropriate statistical model as noted in Chapter Three.

Additionally, it is possible that the lack of a statistically significant relationship between the examined behavioral data and time served in prison may have resulted because these count variables do not adequately measure mental health functioning. However, significant results have been found in previous research using a similar measure of behavior, as Zamble (1992) found a significant decrease in the number of medical visits for stress-related problems (e.g., headaches, sleep disturbances) over time among inmates without mental illness. The inconsistency between this study's results and Zamble's (1992) findings could be attributed to differences in research design. More specifically, the current study utilized a cross-sectional design, whereas Zamble (1992) employed a longitudinal design which likely strengthened the power to detect a significant relationship.

Contrary to expectations, there were no significant associations found between time served in prison and criminal thinking or antisocial attitudes. These results are consistent with Morgan et al.'s (2007) findings for male PMI incarcerated in an inpatient psychiatric prison facility, but are inconsistent with the results Morgan et al. (2007) found for female PMI incarcerated in a general population prison facility, which revealed higher CSS-M scores were associated with more time served in prison. The differences between male and female inmates could simply be attributed to an atypical finding by Morgan et al. (2007), especially since examining the impact of imprisonment was not the primary purpose of their study, but rather a byproduct of their initial investigation. Alternatively, these gender differences may be related to differences in how each experience the prison environment. For females, it has been suggested they suffer the pains of imprisonment in

a more severe manner because of the difficulty in being separated from family, especially their children (Pollock-Byrne, 1990). Moreover, research has indicated that female inmates serving lengthy prison sentences reported increased situational problems (e.g., boredom, limited access to opportunities and luxuries) as the amount of time served increased (Mackenzie, Robinson, & Campbell, 1989). Perhaps, females in Morgan et al.'s (2007) sample endorsed increased criminal attitudes over time as a way to cope with the depriving prison environment, as suggested by the theory of prisonization (Sykes & Messinger, 1960; Walters, 2003).

The lack of support for increased criminal thinking and attitudes in the current study appears consistent with research conducted with inmates without mental illness. For example, both Heskin, Bolton, Smith, & Banister (1974) and MacKenzie and Goodstein (1985) found no significant differences in attitudes toward the criminal justice system across incarceration periods among non-mentally ill inmates. Other research with non-mentally ill inmates actually discovered improvements in antisocial attitudes, as Rasch (1981) found inmates evidenced more favorable attitudes toward correctional officers as time served in prison increased, and both Wormith (1984) and Zamble (1992) found significant decreases in CSS-M scores over time.

Similar to the results for the mental health count variables and criminal thinking and attitudes, time served was not significantly associated with the frequency and severity of disciplinary infractions. While research has suggested PMI may have difficulties with behavioral and emotional control, as well as disturbances in thought processes and perceptions, leading to difficulties conforming to prison rules (Abramsky & Fellner,

2003), and resulting in more disciplinary infractions per year as compared to their non-disordered counterparts (Feder, 1991; James & Glaze, 2006; Matejkowski et al., 2010; O'Keefe & Schnell, 2007), this does not appear to be related to the amount of time served in prison as indicated by the results of this study.

Implications for Practice

The majority of participants in this study were diagnosed with MDD, and results indicated increased depressive symptomatology over time. Importantly, for the vast majority of participants (i.e., approximately 84%), such increases in symptom endorsement failed to reach clinical significance (i.e., scores at T2 were less than 70). Perhaps suggesting that, despite current diagnoses of MDD, symptoms were well-managed by psychotropic medications and/or participants' effective coping strategies. However, correctional mental health providers should be aware that for some PMI (i.e., approximately 16%) increases in depressive symptoms which cause clinical distress or functional impairment may be evidenced over the course of incarceration.

To improve mental health providers' ability to identify inmates at risk for increased psychopathology during incarceration, intake screenings should regularly include questions about history of depression, as well as current symptoms. Moreover, as previous research suggests, inmates serving lengthy prison sentences may evidence increased depression compared to inmates serving shorter sentences (MacKenzie & Goodstein, 1985). Participants in this study were on average serving long prison sentences (i.e., approximately 20 years); Therefore, practitioners may want to pay particular attention to inmates serving lengthy prison sentences with histories of

depression, and provide psychoeducation to these inmates about the potential impact of incarceration on their mental health functioning. Additionally, a review of healthy ways to cope with incarceration (e.g., enrolling in educational or vocational programs, participating in recreational activities, and developing a prosocial support network) should be provided, as well as procedures for obtaining future mental health services.

Intervening early on, perhaps during intake screenings, may prove useful in preventing an increase in symptoms that could lead to future suicidal ideation and/or behaviors. Additionally, information could be disseminated during new inmate orientation, including details about the symptoms of depression and ways to seek help if symptoms do arise and/or worsen. General psychoeducation could be provided that inform inmates about ways to prevent and cope with depressive symptoms. For example, providing education on the importance of a healthy diet and good sleep hygiene, as well as the benefits of a social support network and involvement in recreational activities and hobbies, may prove beneficial. Additionally, programs may want to emphasize increasing inmates' sense of purpose and self-worth in prison to prevent future feelings of hopelessness and worthlessness often associated with Major Depression. Doing so may lead to improved mental health functioning and may help to reduce this populations' vulnerability to victimization by inmates and staff (Wolff et al., 2007; 2009)

Increased scores on scales which assessed aggressive, antisocial, and negativistic traits suggests that in addition to mental health interventions, criminal rehabilitation programs may also prove beneficial in treating PMI in correctional settings. That is, treatment goals for PMI within the criminal justice system should focus on both mental

health needs and criminal propensity (Bauer, Morgan, & Mandracchia, 2011; Draine, Salzer, Culhane, & Hadley, 2002; Hodgins, et al., 2007; Morgan et al., 2010; Morgan, Flora, Kroner, Mills, Varghese, & Steffan, 2012; Wolff, Morgan, Shi, Huening, & Fisher, 2011). This holistic approach to treating incarcerated PMI is not typically employed by mental health providers, as many practitioners focus most of their efforts on treating only PMI's mental health needs (Bewley & Morgan, 2011). In fact, in a meta-analytic review of 26 treatment outcome studies, only two studies targeted dual issues of mental illness and criminality. Providing interventions that include these co-occurring issues may lead to greater success for re-entry back into society, and reduce the risk of psychiatric re-hospitalizations and criminal recidivism (see Lamberti, Weisman, Schwarzkopf, Price, Ashton, & Trompeter, 2001).

Limitations

As with any research, there are limitations with this study. The most significant limitation of this study is the cross-sectional design, as it does not permit distinction between cause and effect. Efforts were made to improve on this design by including a repeated measure (i.e., MCMI-III) and through the collection of archival longitudinal data (i.e., behavioral count variables); however, a true longitudinal design is needed to more accurately determine the effect time may have on inmates' mental health functioning.

The sample was overrepresented by inmates diagnosed with MDD and less severe Axis I disorders (e.g., mild mood and anxiety disorders) with limited numbers representing inmates diagnosed with more severe mental illnesses like schizophrenia and bipolar disorder. Additionally, only 15% of the sample had a history of psychiatric

inpatient admissions during incarceration. This may suggest that this sample was not as severely mentally ill as initially intended. Thus, these results may not accurately reflect the experience of inmates with more severe mental illnesses, limiting the generalizability of this study.

Limited power is another limitation in this study as the targeted sample of 150 participants was not achieved. Recruitment efforts were thwarted by a 30% refusal rate. Useable data was further reduced as several participants did not meet the inclusion criteria for this study (i.e., participants were required to provide written informed consent, have the ability to read English, have served at least three years (36 months) on their current sentence, and have an Axis I Disorder as defined by the DSM-IV-TR). Unfortunately, even more participants were excluded during the data analyses process due to invalid clinical profiles for the MCMI-III and PICTS. An even larger reduction in data was then made when comparing previous MCMI-III scores with current MCMI-III scores, as only 46 participants produced valid MCMI-III profiles at both assessment occasions. Thus, the ability to reject a false null hypothesis may have been reduced (i.e., Type II error).

Given that a large portion of potential participants declined to participate in the study, it could be argued that the group of inmates who agreed to participate in the research may have been different from the group of inmates who refused participation. This may be especially true given the population studied, as inmates diagnosed with severe mental illness, like schizophrenia, may be less trusting of others, experience increased paranoia, and may generally feel uncomfortable completing research measures in a group format.

Thus, the symptom presentation for those who declined may differ from those who agreed to participate; further limiting the generalizability of results for incarcerated PMI.

Future Research Directions

In light of the limitations of this study, future research with this population is necessitated. As previously noted, longitudinal studies with this population are necessary to gain a clearer and more accurate clinical picture of incarcerated PMI over time.

Although longitudinal research designs are complicated to complete, continued research with more rigorous designs will likely prove beneficial in helping to shape criminal justice policies and mental health practice, as well as ensure humane treatment of incarcerated PMI. For example, given that some mental health deterioration was evidenced, longitudinal methods could help to identify the causes of this increased symptom presentation and key intervention points. Such research should include both individual variables (i.e., coping styles, history of victimization, level of social support, history of mental health treatment, and criminal history) and institutional variables (i.e., institutional climate, security level and custody classifications, availability of mental health resources and rehabilitation programs).

Although the MCMI-III has been used as a treatment outcome measure and used to assess acute changes over time (Piersma & Boes, 1997), future research may want to include other measures of mental health functioning. For example, symptom checklists may prove useful for better pinpointing symptom variability, and increase clinicians' ability to identify treatment targets. Additionally, the inclusion of qualitative procedures may also broaden the clinical picture and provide an understanding of the

phenomenological experience of incarcerated PMI (e.g., conducting semi-structured, in-depth interviews with PMI during the early, middle, and late phases of incarceration).

While no relationship was found between time served in prison and criminal thinking and attitudes in the current study, research that utilizes theories of prisonization and examines how PMI adapt their thoughts and attitudes to survive the prison environment may prove useful for gaining an increased understanding of PMI in the criminal justice system. Research questions could investigate whether PMI adapt in ways similar to inmates without mental illness; which may be likely given incarcerated PMI present with similar criminal thinking styles to their non-disordered counterparts (Morgan et al., 2010). Longitudinal designs could examine if criminal attitudes change as PMI move from earlier phases of incarceration to later phases, and if these changes reflect the inverted U shaped pattern exhibited by inmates without mental illness (i.e., lower levels of antisocial attitudes in the early and late phases of incarceration with higher levels during the middle phase; see Wheeler, 1961).

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APPENDICES

APPENDIX A

EXTENDED LITERATURE REVIEW

Criminal Justice System Statistics

In 2010, over seven million offenders were under the supervision of the criminal justice system (Glaze, 2011). The most recent data from the U.S. Bureau of Justice Statistics (BJS) report over 1.6 million offenders incarcerated within the state and federal prison systems, with the overwhelming majority (approximately 1.5 million) consisting of men (Guerino, Harrison, & Sabol, 2011). The jail population reached 748,728 incarcerated offenders in 2010 (Glaze, 2011), with 88 percent of those offenders consisting of men (Minton, 2011). The majority of offenders within the criminal justice system are supervised at the community level. Specifically, there were over four million offenders on probation and over 800,000 offenders on parole in 2010. Again, as with the prison and jail populations, the overwhelming majority of offenders on probation and parole are men, 76 and 88 percent, respectively (Glaze & Bonczar, 2011).

The population characteristics of the criminal justice system have changed within recent decades. Specifically, there has been an increase in the prevalence of severe mental illness among offenders. The BJS conducted a national survey of prison and jail inmates, in 2004 and 2002 respectively, to gain an understanding of the prevalence of mental health problems within correctional facilities. “The BJS’ inmate surveys are the only national source of detailed information on criminal offenders, particularly special populations, such as...offenders who have mental health problems” (p. 11). State prison inmates were recruited from 287 of the 1,585 State correctional facilities. A total of

14,499 State prison inmates were interviewed. For the Federal prison sample, 39 of the 148 Federal prison facilities were selected, and 3,686 of inmates across those facilities were interviewed. Additionally, offenders incarcerated in jails were also recruited for the survey. Interviews were conducted on 6,982 inmates from 417 of the 3,365 jails across the United States. The results indicated that 24 percent of State prisoners, 21 percent of jail inmates, and 14 percent of Federal prisoners reported a recent history of a mental health problem, as defined by receiving a clinical diagnosis or treatment by a mental health professional, hospitalized due to a mental health problem, or prescribed psychotropic medication, all occurring either one year before the offender's arrest or since incarceration. Data was also gathered regarding the presence of psychiatric symptoms, by adopting questions from a structured clinical interview for diagnosing mental disorders based on the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; American Psychiatric Association, 1994). Symptoms of major mental disorders including depression, mania, or psychotic episodes were most prevalent among jail inmates (60.5%), followed by State prison inmates (49.2%), and Federal prison inmates (39.8%). Additionally, the majority of inmates across facilities who presented with symptoms described above did not have a history of mental health problems prior to incarceration. Although, there is no clear and definitive explanation, it may be that the prison or jail environment is not conducive to the mental well-being of offenders.

It should be noted however, approximately 17 percent of offenders in state, as well as Federal prisons, presented with both a history and symptoms of mental health problems.

Moreover, approximately one-third of state prisoners, followed by one-quarter of Federal prisoners, and 17 percent of jail inmates, who had mental health problems had received treatment since incarceration, including psychiatric hospitalization, psychotropic medications, and psychotherapy. The results also revealed those with mental health problems, as defined by this survey, were more likely than those without mental health problems to have been charged with institutional rule violations, including verbal and physical assault. Furthermore, they were more likely to be injured in a fight, than those without mental health problems.

Steadman, Osher, Clark-Robbins, Case, and Samuels (2009) collected data from both male and female jail inmates from 2002 to 2003 and from 2005 to 2006 in order to determine the most recent prevalence estimates of severe mental illness among jail populations. Participants were recruited from five different jails from two different states (i.e., New York and Maryland). All inmates that were newly incarcerated during the data collection periods were screened for mental illness. Inmates were separated into two groups: a positive screen group and a negative screen group. A sample from both groups were subsequently administered the SCID (i.e., a semi-structured interview to determine the presence of a DSM-IV-TR Axis I disorder). Interviewers administering the SCID were blind to whether the participant screened positive or negative for mental illness. A total of 822 inmates were administered the SCID. Results indicated the prevalence rate of severe mental illness (i.e., Major Depression, Bipolar Disorder, Schizophrenia or other psychotic disorders) among male jail inmates was 14.5%. That rate increased to 17.1% if a diagnosis of Post-traumatic Stress Disorder (PTSD) was included in the estimate. As

for female jail inmates, prevalence rates of severe mental illness was more than doubled than that for the male jail inmates, at 31.0%. The rate also increased when a diagnosis of PTSD was included in the estimate to 34.3%.

As major mental disorders are found up to four times more frequently among incarcerated offenders than the general population (Hodgins, 1995), many of these individuals require inpatient treatment for their acute psychiatric symptoms during incarceration (Lamb, Weinberger, Marsh, & Gross, 2007). Offenders presenting with severe mental illness are likely to have had psychiatric hospitalizations prior to incarceration, as well as multiple contacts with the criminal justice system (Lamb & Weinberger, 1998). Additionally, their clinical presentation is often complicated with co-occurring disorders, including the co-occurrence of severe mental disorders, substance abuse, and antisocial personality disorder (Abram & Teplin, 1991).

Once released from incarceration, it appears persons with mental illness (PMI) may return to prison at a faster rate than their non-disordered counterparts, as suggested by a recent study conducted within the Utah Department of Corrections (Cloyes, Wong, Latimer, & Abarca, 2010). Cloyes et al., examined recidivism (defined as a return to prison for a parole violation or new offense) rates for over 9,000 offenders released from Utah State Prisons between 1998 and 2002, with 23% of those offenders identified as having a severe mental illness (i.e., schizophrenia and other psychotic disorders, major depression, or bipolar disorder). Results of their investigation indicated those diagnosed with a severe mental illness returned to prison approximately one year sooner than offenders without mental illness, while controlling for demographics, offense type, and

conditions of release and return. Moreover, significantly more PMI were re-incarcerated after three years, with 77 percent of PMI returning to prison as compared to 62 percent of offenders without mental illness. Furthermore, it appears both a history of mental health services and criminal history may be related to short-term outcomes for PMI released from incarceration (Hartwell, 2003). Specifically, a vast majority of PMI, with a history of mental health services prior to incarceration, were re-incarcerated within three months of release (Hartwell, 2003). In terms of criminal history, PMI incarcerated for misdemeanors were more likely to be re-incarcerated within three months of being released, whereas PMI serving time for felonies are more likely to be hospitalized within three months of being released (Hartwell, 2003). Thus, PMI are cycling between the mental health and criminal justice systems with no apparent improvement in psychiatric functioning or reduction in criminal behaviors.

Why the Increase in Prevalence of Mental Illness?

Researchers in recent decades have been investigating why there has been an increase in the prevalence of mental illness within the criminal justice system (e.g., Lamb & Weinberger, 1998; Teplin, 1984; Torrey, 1995). One theory that has prevailed suggests deinstitutionalization of the severely mentally ill from state hospitals and institutions has contributed greatly to the large influx of offenders with severe mental disorders. Deinstitutionalization can be defined as a movement away from long-term psychiatric hospitalization, towards community-based care for persons with mental illness (Bachrach, 1996). Deinstitutionalization is comprised of three main components: (1) releasing persons with mental illness from hospitals into the community; (2) diverting

persons with mental illness from psychiatric hospital admissions; and (3) developing community-care alternatives (Bachrach, 1976). Deinstitutionalization was implemented with the purpose of promoting more humane, therapeutic, and cost-effective alternatives to long-term psychiatric hospitalization (Bachrach, 1978; Thornicroft & Bebbington, 1989). However, the first two components of deinstitutionalization have been implemented much more quickly than the third essential component, which has often lagged behind, resulting in, at times, inadequate care and unintended consequences (Lamb & Bachrach, 2001). Specifically, problems encountered as a result of unsuccessfully implementing deinstitutionalization include “providing inappropriate or inadequate outpatient treatment, insufficient community resources, and insufficient 24-hour highly structured psychiatric care facilities for those who need them” (Lamb & Weinberger, 1998, p.).

Some have suggested deinstitutionalization resulted in the increase in the severely mentally ill’s involvement with the criminal justice system (Lamb & Bachrach, 2001; Lamb & Weinberger, 1998; Teplin, 1984). Lamb and Weinberger (1998) opined the problems noted above played a significant role in the placement of the severely mentally ill in jails and prisons. The criminalization of the mentally ill has burdened the criminal justice system, making it the de facto mental health system (Fagan & Ax, 2003; Holton, 2003). In fact, correctional facilities are currently the leading mental health care providers in the U.S. (Abramsky & Fellner, 2003).

The Prison Environment

Serving time is meant to be difficult, and prisons are meant to be uncomfortable (Toch, 1992a). In fact, the United States Supreme Court upheld this view, stating “to the extent that prison conditions are restrictive and even harsh, they are part of the penalty that criminal offenders must pay for their offenses against society” (Rhodes v. Chapman, 101 S Ct. 2392, 1981). Through qualitative investigations, Toch (1992b) suggested all prisoners at some point in their incarceration experience serious and potentially disabling stress. This may be exacerbated by the violent nature of prisons (Wolff, Blitz, Shi, Siegel, & Bachman, 2007; Wolff, Shi, & Siegel, 2009; Wright, 1991a), as well as overcrowded facilities serving as warehouses for offenders (Toch, 1985).

As previously discussed, the U.S. prison population has steadily increased such that many state and federal prisons have been operating over capacity (Harrison & Beck, 2004). With deficient medical attention, diminished security, and a reduction in rehabilitative programs (Cobb, 1985; Toch, 1985), overcrowded prisons may lead to increased physical illness (McCain, Cox, & Paulus, 1976). Researchers have also suggested overcrowding leads to increased suicide risk among prisoners (Huey & McNulty, 2005). Utilizing census reports gathered from adult state and federal correctional facilities in 1990 and 1995, Huey and McNulty (2005) examined the impact of overcrowding on prison suicide. The results indicated, at lower levels of overcrowding, medium- and maximum-security prisons have increased risk of suicide compared with minimum-security prisons; however, at higher levels of overcrowding,

minimum-security prisons are as likely to experience suicide as higher security level facilities.

Prisons are not only overcrowded, but appear to be violent as well (Wolff et al., 2007; Wolff et al., 2009; Wright, 1991a). Although, it appears overcrowding itself does not lead to increased violence (Franklin, Franklin, & Pratt, 2006), victimization appears to play a role in many inmates' prison experience. As stated above, the discomfort of incarceration is part of the punishment; however, prisons need to remain humane, particularly if the goal is to "correct" behavior prior to release (Wolff et al., 2007). Utilizing a large state prison sample (n = 7, 221 males, n = 564 females), Wolff et al. (2007) found 20 percent of females and 25 percent of males reported being physically assaulted by another inmate during incarceration. Additionally, eight percent of female inmates and 29 percent of male inmates reported being physically assaulted by a staff member during incarceration. During the six months prior to the study, 21 percent of males and females reported being hit, slapped, bit, choked, beat-up, or hit or threatened with a weapon by another inmate, with males more likely being attacked with weapon compared to females. Moreover, during the six months prior to the study, males were three times more likely than females to be physically assaulted by a staff member. These reported victimization rates are significantly higher than that reported by the general population, with male inmate rates being 18 times higher and female inmate rates being 27 times higher than those not imprisoned (Wolff et al., 2007).

In addition to physical violence, sexual victimization is also of concern. Utilizing the same sample as Wolff et al. (2007), Wolff et al. (2009) examined the prevalence of

sexual violence (i.e., either being touched or grabbed in a sexually threatening way, forced into sexual intercourse, or performing oral sex) in prison within the six months prior to the study. The results indicated 21 percent of females and 4 percent of males reported being sexually assaulted by another inmate. Although there is a significant gender difference in the rate of sexual assault perpetrated by other inmates, it appears males and females experience similar rates of sexual assault perpetrated by staff members (i.e., 8% for both males and females).

As a result of such violence, prison inmates appear to live in a chronic state of stress characterized by a perpetual state of fear and a constant need to be on guard (McCorkle, 1993ab; Toch, 1992a). To examine the impact this persistent fear may have on inmates' well-being, McCorkle (1993b) conducted a study utilizing a sample of 300 male prisoners. The results indicated among several variables (i.e., age, education, time served, social support, boredom, privacy, and prior victimization), fear of victimization was the strongest predictor of an inmate's level of psychological well-being (as measured by the absence of depressive, anxious, and somatic symptoms), even after controlling for prior mental health history. Interestingly prior victimization while incarcerated was not a significant predictor of psychological well-being. That is, the persistent fear of being victimized impacts one's psychological functioning, more so than a history of actual prison victimization. Moreover, the rate of victimization has created the reality among inmates that one could be assaulted at any time, and the need to be hypervigilant appears to impact the well-being of inmates (Boxer, Middlemass, & Delorenzo, 2009).

Of even greater concern is how victimization and the fear of victimization impacts a prisoner once released back into society. Boxer et al. (2009) examined the relationship between exposure to prison violence and psychological adjustment following release from prison among 124 offenders. A multiple regression analysis indicated exposure to prison violence (i.e., being a victim or witness to violence while incarcerated) was significantly related to post-release adjustment (i.e., emotional distress, antisocial behavior). More specifically, after controlling for demographic variables, offense type (violent or nonviolent), and exposure to violence outside of prison, increased exposure to prison violence was predictive of increased depression, anxiety and aggressive behaviors upon release back into the community. Given the nature of the prison environment, and the psychological impact crowded and violent institutions can have on offenders, it is important to understand how an inmate assimilates to this harsh environment.

Theory of Prisonization

Clemmer (1940) coined the term “prisonization” in his seminal work examining the prison subculture. He defined prisonization as “the taking on in greater or lesser degree the folkways, mores, customs, and general culture of the penitentiary” (p. 270).

Prisonization is similar to the sociological process of assimilation, in which individuals from different groups become absorbed into the dominant culture (Clemmer, 1951).

Clemmer (1940; 1951), through his descriptive and qualitative study of the prison culture, suggested every inmate to some extent undergoes a certain level of prisonization. For example, every inmate becomes part of the subordinate group, accepting an inferior role. Inmates quickly learn the organization of the prison, including the titles and rankings of

the officers. New habits are developed by all, including eating, sleeping, dressing, and working. Additionally, each inmate adopts a new language, characterized by prison slang. Clemmer (1951) considered this level of assimilation as universal to all inmates and was not detrimental or caused harm. According to Clemmer (1951), it is those inmates who move through deeper levels of prisonization, such that they begin to integrate the dogmas and mores of the prison subculture (i.e., anti-institutional beliefs, attitudes, behaviors), who will display increased levels of criminality and antisocial tendencies. As a result, Clemmer (1951) purported prisonization was a leading contributor to recidivism.

According to Clemmer (1951), not all inmates become fully immersed in the prison subculture. He hypothesized seven factors that likely shield certain inmates from becoming fully prisonized. The seven factors include: (1) a short prison term, likely limiting an inmates' subjection to certain influences; (2) having had adequate and prosocial relationships prior to prison; (3) continued positive relationships with others outside of prison; (4) refusal or inability to integrate into an inmate primary group; (5) refusal to blindly accept the prison code, and a willingness to aid correctional officers in certain situations, thus leading to an identification with prosocial values; (6) being placed with other inmates who are not completely integrated into the prison subculture; and (7) refraining from criminal activities while incarcerated, as well as a willingness to engage in work and prosocial recreational activities. Whereas, if the exact opposite factors are present (i.e., lengthy sentences, inadequate or lack of prosocial relationships prior to and during incarceration, placed with other inmates who have adopted the dogmas of the

prison culture, having a readiness and capacity to integrate into an inmate primary group, with blind acceptance of the prison code, and willingness to engage in antisocial activities during incarceration) would increase the likelihood an inmate will become deeply integrated into the prison subculture, and are at increased risk for recidivism (Clemmer, 1951).

Clemmer (1951) suggested it is the prison environment that “breeds” criminality. Although he recognized each inmate brings a certain level of criminality with them upon incarceration, it is the environment and the process of prisonization that “intensifies” this criminality. Thus, according to Clemmer, incarceration leads to increased criminal thinking and behaviors, resulting in recidivism when released back into society. Clemmer’s theory of prisonization is based on a direct social learning theory. It closely resembles Sutherland’s (1947) theory of differential association. Differential association theory, based on Sutherland’s research on juvenile delinquents, suggested criminal behavior, as well as criminal techniques, motives, drives, rationalizations and attitudes are learned through associations and direct contact with criminal others within a primary group (e.g., family, friends, peers; Sutherland & Cressey, 1955). Additionally, these associations vary by the frequency, duration, priority, and intensity of contact with criminal others (Sutherland & Cressey, 1955). These variables present in Sutherland’s theory, appear to influence the degree of prisonization that occurs within an inmate as well (Wheeler, 1961).

Both Sutherland’s and Clemmer’s theories have been criticized for similar reasons, however. The chief criticism of Sutherland’s theory is that it is incomplete, and fails to

identify the circumstances that lead to the presence of criminal culture to begin with (Cohen, 1955). Similarly, Sykes and Messinger (1960) find Clemmer's theory of prisonization incomplete; they argue it does not account for *how* the prison culture comes into existence. Both Sutherland's theory and Clemmer's theory only take into account how one is assimilated into the culture, and does not explain why the culture is in place to begin with (Wheeler, 1961).

Wheeler (1961) further criticized Clemmer for concentrating on an inmate's adjustment once released, without examining the changes that may occur within an inmate as they move closer to their release date. As discussed above, Clemmer used his theory of prisonization to explain recidivism. However, the research conducted by Clemmer, was based on the early and middle phases of incarceration (Wheeler, 1961). Clemmer extrapolated what was known about an inmate's experience in the early and middle phases of incarceration to explain post-release adjustment, without investigating potential changes that may occur throughout the entire span of one's incarceration (Wheeler, 1961). Based on sociological theories, Wheeler (1961) argues it is reasonable to assume that a change may occur as an inmate prepares to change his current group membership from prison inmate to community member.

To test this assumption, Wheeler (1961) conducted a study consisting of 237 inmates from a state prison to examine inmates' level of conformity to staff expectations. Inmates were divided into three groups based on the amount of time served. The early phase included inmates who served less than six months, the late phase included inmates with only six months left to serve, whereas the middle phase included inmates who

served more than six months and had more than six months left to serve. Each inmate was presented with five hypothetical situations involving a typical conflict that may occur in prison. The inmates were asked to determine whether they approved or disapproved of the inmate's behavior in the hypothetical situation. The inmates were then placed in three groups based on their responses. The high conformity group included inmates whose own responses agreed with the staff in at least four of the five scenarios; the medium conformity group included inmates whose own responses agreed with the staff in two or three of the five scenarios; while the low conformity group included inmates whose own responses agree with staff in zero or one of the scenarios.

The results indicated two significant trends. First, there was a steady increase in the proportion of low conformity responses as the amount of time served increased. Second, there was a U-shaped distribution of high conformity responses across the three phases. The first trend supports the process of prisonization. That is, the longer an inmate serves in prison the less conformity to staff expectations are observed. The second trend supports Wheeler's assumption that there is a shift in an inmate's values and beliefs as they move closer to release. The U-shaped distribution indicated inmates recently incarcerated and inmates soon to be released were more likely to conform to prosocial values; whereas those inmates in the middle phase were least likely to conform to prosocial standards. Similar results were still evident when length of sentence was controlled for; however, it was noted this trend is stronger for those inmates serving shorter sentences.

As a result of this study, Wheeler (1961) proposed two theories of prisonization could help explain the two patterns of inmate non-conformity. The first theory, most commonly referred to as the “importation” model contends a culture will express the values held by the members in the group (Irwin & Cressey, 1962). In a prison culture, because of participation in criminal activity, many inmates hold a value and belief system that opposes prosocial norms. Furthermore, they bring this system, as well as their past history, with them into prison, or in other words “import” these values and history into the prison culture (Irwin & Cressey, 1962). These values are clearly expressed in the inmate subculture (e.g., disciplinary infractions). Moreover, “if the culture is viewed as an outgrowth of the criminogenic character of inmates, it is reasonable to expect a reinforcement process operating throughout the duration of confinement” (Wheeler, 1961, p. 708). This theory helps explain why the data presented by Wheeler (1961) indicated an increase in non-conformity as the amount of time served increased. These data supported a theory of prisonization which projects correctional institutions as breeding grounds for increased criminality (Wheeler, 1961).

The second theory, which has been referred by most as the “deprivation model” and is largely based on the work of Sykes (1958) and Sykes & Messinger (1960), asserts the inmate subculture is a response to the “many deprivations or frustrations inflicted on imprisoned criminals” (Sykes & Messinger, 1960, p.13). Sykes (1958) identified five major deprivations which have a detrimental impact on the inmate’s psyche. These five deprivations include: (1) the deprivation of liberty; (2) the deprivation of goods and services; (3) the deprivation of sexual relationships; (4) the deprivation of autonomy; and

(5) the deprivation of security. The presence of these deprivations, along with the daily reminder to inmates that they have been ostracized and rejected by the larger society can cause imprisonment to be a painful experience (Sykes & Messinger, 1960). According to Sykes and Messinger (1960), in order to overcome or at least neutralize the pains of imprisonment, inmates move towards becoming a cohesive group, which “provides the prisoner with a meaningful social group with which he can identify himself and which will support him in his struggles against his condemners” (p.16). This model has also been referred to as the “indigenous” approach because the inmate subculture is a result of the prison environment itself; and views prisonization as an adaptive response. This is contrary to the importation model, which contends the inmate subculture is the result of the characteristics and attributes that the inmates bring (or import) into the prison environment.

Wheeler (1961) contended the deprivation model helps explain the inversed U-shape distribution present in inmate non-conformity. He suggested those inmates in the “middle phase” of incarceration are most removed from society, and may be feeling the “pains of imprisonment” more strongly, thus prisonization is most adaptive for this group. For those in the “early phase” of incarceration, they simply may not have been fully exposed to the deprivations of prison, and may not have been fully indoctrinated into the prison subculture, still holding a connection to the outside world. Inmates in the “late phase” of incarceration, on the other hand, are working towards parole and likely do not find holding anti-institutional attitudes to be beneficial in getting released early (Wheeler, 1961). Additionally, inmates in the later phase of incarceration may be

preparing themselves for reentry into society and are beginning to distance themselves from the prison subculture (Wheeler, 1961).

Similarly to the importation model, the deprivation or indigenous model has also been criticized for being incomplete. Specifically the deprivation model has been criticized for ignoring the fact that inmates bring a criminal culture with them into prison (Irwin & Cressey, 1962). Inmates, at some level, have all exhibited criminal behaviors and have held antisocial attitudes and values which they bring with them into the correctional institution, and proponents of the importation model believe this fact cannot be ignored (Irwin, 1970). Additionally, some argue if the “pains of imprisonment” were the sole determinant of prisonization, there would be a high likelihood all inmates would become highly prisonized (Paterline & Perterson, 1999).

It is unlikely all inmates will become prisonized as suggested by the deprivation model; however one of the more recent investigations suggested within a six month period, newly incarcerated inmates with no prior prison experience may undergo a level of prisonization early in their sentence (Walters, 2003). Utilizing a sample of 148 male inmates in a medium-security federal prison, the results indicated novice inmates (i.e., inmates with less than six months time served in prison or jail) evidenced increased criminal thinking and criminal self-identification compared with experienced inmates (i.e., inmates with at least five years times served in prison and at least one prior adult incarceration term of at least two years) over a six month period. More specifically, in terms of criminal thinking, novice inmates exhibited increased scores, from time one to time two, on the Psychological Inventory of Criminal Thinking Styles (PICTS) subscale

indicating entitlement and desire for power and control over one's social environment. Additionally, they evidenced an increase in the salience of their criminal identification.

Taking into account both theories of prisonization (i.e., the importation and deprivation models), this result could be interpreted in different ways. Walters (2003) suggested the results may indicate an adaptive strategy by novice inmates. Newly incarcerated inmates may need to make their criminal identity most salient and have increased thoughts of controlling one's environment, in order to survive and avoid of being taken advantage of by other inmates (Walters, 2003). This interpretation appears to coincide with the deprivation model. The results could also be indicative of the influence the prison subculture may have on newly incarcerated inmates. Imprisonment likely exposes novice inmates to more criminal others than prior to incarceration, resulting in increased identification as a criminal (Walters, 2003); perhaps suggesting an element of prisonization coinciding with importation model. However, with a lack of longitudinal data, it is unclear how criminal thinking changes as time spent in prison increases, and if there is an inverted U-shaped distribution of criminal thinking, similar to the data presented by Wheeler (1961).

Predictors of Prisonization

Some researchers have suggested the importance of incorporating aspects of both the importation and the deprivation model to explain prisonization (Dhami, Ayton, & Loewenstein, 2007; Paterline & Petersen, 1999; Thomas, 1977). Thomas (1977) conducted an investigation with 273 young-adult inmates incarcerated in a medium-security state prison to examine variables related to both the importation and deprivation

model and their relationship to prisonization. It should be noted, the range and mean age of the participants were not included, and thus it is unknown how “young-adult” inmates were defined. To examine the predictive power of the importation model, variables related to the inmate’s life prior to imprisonment (i.e., education level, average monthly income, length of employment, number of prior felony arrests) were included. To examine the predictive power of the deprivation model, variables related to life in prison (i.e., feelings of powerlessness, amount of time served) were included. Multiple regression analyses indicated both sets of variables significantly predicted prisonization (i.e., level of adoption of inmate norms), with the deprivation model variables explaining slightly more of the variance (i.e., 29.6%); however the importation variables continued significant influence (with 26.9% of variance accounted for).

Similar results were yielded by Paterline and Petersen’s (1999) investigation with 239 male inmates in a maximum-security state prison. They also found deprivation model variables (i.e., feelings of powerlessness, attitudinal opposition to the institution, life satisfaction, attitude toward violence, and post-release expectations) were stronger predictors of prisonization (i.e., adoption of inmate code) than importation model variables (i.e., age of first conviction, number of arrests, current offense, prior incarceration, marital status, employment status); however when both model variables were combined, they explained more variance (i.e., 53%) together than separately (i.e., 40% and 13%, respectively). More specifically, among the deprivation model variables, inmates’ attitudes towards the institution and towards violence were the strongest predictors, while life satisfaction and feelings of powerlessness were not significantly

associated with prisonization. Among importation model variables, the number of arrests and age of first conviction were significant predictors, such that the more arrests and the younger an inmate was at first conviction the greater the degree of prisonization.

Additionally, education and employment status were also significant predictors, such that those with higher education levels and employed for longer periods of time the lower the degrees of prisonization. Offense type and number of prior incarcerations were unrelated to prisonization.

To gain further understanding of inmates and the process of prisonization, Paterline and Petersen (1999) also included measures of an inmate's self-concept (i.e., perception of stigmatization, preprison self-identity, self-efficacy). The results indicated neither stigmatization nor self-efficacy were significant predictors of prisonization; however, those inmates who highly valued their pre-prison social identities (i.e., occupation, family, friendships, social involvements, religion) had lower levels of prisonization. The lack of association between an inmate's self-concept and prisonization perhaps suggests that once imprisoned an inmate loses their pre-prison selves and develops a new identity to survive (Paterline & Petersen, 1999), including perhaps a stronger criminal identity (Walters, 2003).

Consequences of prisonization

Is prisonization a short-term adaptive response to the stressors encountered in prison or is it a long-term consequence which leads to increased criminal activity (Paterline & Petersen, 1999; Thomas, Petersen, & Cage, 1981)? In other words, is prisonization a coping response that eventually dissipates or does it lead to increased disciplinary

infractions in prison and/or recidivism upon release from prison? Limited data exists to answer this question (Barak-Glantz, 1983; Paterline & Petersen, 1999). In fact, the majority of research has focused primarily on the effect prisonization has on inmates' attitudes, leading to assumptions about inmate behavior (Barak-Glantz, 1983).

For example, Thomas et al. (1981), examined whether prisonization leads to a series of increased antisocial attitudes, including opposition to the prison facility, opposition to the legal system, and criminal self-identification. The sample included 276 male inmates incarcerated in a maximum-security state prison, 273 male inmates incarcerated in a medium-security state prison, and 267 male delinquents housed in a juvenile institution. Prisonization was operationalized as the degree of assimilation to a system which rejects the values of the prison institution and supports the manipulation of staff. The results indicated significant associations between prisonization and antisocial attitudes in all three samples. Additionally, multiple regression analyses revealed prisonization accounts for 13 percent of the variance in opposition to the prison facility, 36 percent of the variance in opposition to the legal system, and 25 percent in criminal identification, even after controlling for age, race, and expectations of the future.

It is reasonable to assume that if prisonization leads to increased attitudinal opposition towards the prison facility, the legal system, as well as an increased criminal self-identification, these attitudes could lead to increased prison misconduct, resistance to and poor performance in rehabilitative programs, and increased recidivism upon release. For example, it has been found that those with stronger criminal identifications have poorer post-release performance (Wormith, 1984). Additionally, criminal thinking has

been linked to institutional behavior, including severe and aggressive disciplinary infractions (Walters, 2005a, 2007; Walters & Schlauch, 2008), decreased program completion (Walters & Geyer, 2005), and recidivism (Walters, 2005b).

It is important to consider the time period in which prisonization was examined (Paterline & Petersen, 1999). The current inmate subculture may not be operating similarly to the culture present in the 1950s thru the 1970s, particularly given changes in inmate characteristics and the prison environment (Paterline & Petersen, 1999). With increased racial tensions and gang conflict present in the prison environment, as well as a drastic increase in offenders with mental illness and offenders incarcerated for non-violent drug crimes, the prisonization as a construct may need to be reconceptualized (Paterline & Petersen, 1999). In more recent times, particularly with the shift in correctional ideology (e.g., movement away from rehabilitation toward retribution; Stinchcomb, 2002) leading to steady increases in incarceration, researchers began focusing on the psychological impact of imprisonment.

Impact of prison on the psychological well-being of inmates

Given the cruel and harsh realities of prison (Toch, 1992ab), it was assumed the depriving environment was responsible for universal psychological harm among prisoners (Cohen & Taylor, 1972; Mitford, 1973); however, a review of the literature, proves this once widely held assumption false (Bonta & Gendreau, 1990; Bukstel & Kilmann, 1980). Heskin and colleagues (1973; 1974) utilized a cross-sectional design to examine the impact long-term incarceration has on cognitive (Banister, Smith, Heskin, & Bolton, 1973), personality (Heskin, Smith, Banister, & Bolton, 1973), and attitudinal

(Heskin, Bolton, Smith, & Banister, 1974) variables. Controlling for age, offense-type, and sentence-type (i.e., determinate vs. indeterminate sentence), 175 inmates, all of whom were sentenced to at least ten years in prison, were divided into four groups, differing only on the amount of time served on their current sentence (i.e., zero to three years time served, four to five years time served, six to eight years time served, and eight to forty years time served).

Inmates were assessed on a variety of cognitive abilities, and results generally indicated no significant differences among the groups on measures of cognitive functioning. Inmates were measured on personality characteristics. The results indicated minimal differences among the groups across all measures; however, the results suggested an increase in hostility and a decrease in extroversion as the amount of time served in prison increased. Specifically, the group serving the most time in prison scored significantly higher than the group serving the least amount of time in prison on the intropunitive hostility scale or hostility directed toward the self (e.g., guilt, self-criticism). Scores on other forms of hostility scales including, paranoid hostility, criticisms of others, and acting-out hostility, were not significantly different among the groups. Inmates were also measured on attitudes towards the self and the criminal justice system. There were no significant differences among the groups regarding attitudes towards the law. The results indicated a decline in attitudes toward the self as the amount of time served increased. That is, the two groups serving the most amount of time in prison scored significantly lower on items related to self-evaluation than the groups serving the least amount of time. Additionally, attitudes towards work also decreased as the amount

of time served increased. Specifically, the group with the most amount of time served in prison scored significantly lower on items related to work than the group with the least amount of time served in prison.

Bolton, Smith, Heskin, and Banister (1976) conducted follow-up assessments on the above sample. One-hundred fifty-four inmates of the original sample were re-administered the battery of assessments after an average of 19 months. In general, the longitudinal analysis indicated that long-term imprisonment was not associated with psychological deterioration as measured by cognitive abilities, personality characteristics, and attitudes. Although the cross-sectional design indicated an increase in the amount of time served was associated with higher scores on hostility directed toward the self, the longitudinal design suggested otherwise. That is, a decrease in hostility scores was found across the four groups, particularly for inmates who also demonstrated an increase in emotional maturity.

Sapsford (1978) conducted an investigation, utilizing a cross-sectional design, to examine the impact of long-term incarceration on the psychological well-being of British inmates' convicted of murder with varying amounts of time served on their current prison sentences. Participants were divided into three groups: Group one consisted of 26 inmates with a mean time served in prison of nine months; Group two consisted of 24 inmates with a mean time served in prison of six years; and group three consisted of 10 inmates with mean time served in prison of 14 years. Data collection consisted of the administration of a battery of assessments, an interview, file review, and staff ratings. The results indicated interest in the world outside of prison did not decrease as the

amount of time served increased. Although, it appeared as the amount of time served in prison increased so did social introversion, there appeared to be no indication of increased apathy or loss of interest in release. Additionally, there was no found association with medical reports and psychiatric diagnosis and time served.

Richards (1978) examined inmates' experiences of psychological stressors and their methods of coping with them. Participants consisted of a small sample ($n = 22$) of inmates serving life sentences or fixed sentences of ten years or more. Participants were divided into two groups, "early" and "late," and matched by age at sentencing (i.e., under or over 25 years), sentence length (i.e., life sentence vs. fixed-term), and offense type. The "early" group consisted of 11 inmates who served less than 18 months, while the "late" group consisted of 11 inmates who served at least eight years. Participants were asked to rate the frequency and severity of 20 different problems related to imprisonment. Participants were asked, "How often do you get this problem?" and "When you get this problem, how easy is it to deal with?" Some example problems included, "keeping out of trouble," "worrying about how you will cope when you get out," "being bored," and "feeling angry with the world." Participants were then asked, "When I get this problem, the best person to help with it is: (1) fellow inmate; (2) prison staff; (3) relative or friend on the outside; or (4) myself."

The results indicated no significant differences between the groups on their ratings of frequency and severity of problems experienced, suggesting the amount of time served is not related to an inmate's perception of his problems. Additionally, the results indicated both groups agreed that the most effective coping strategy was to rely on "myself" when

faced with any of the presented problems. Furthermore, the inmates rated problems most indicative of psychological disturbance (e.g., “feeling suicidal”) as least severe. Richards concluded, “On the whole, the men did not see imprisonment as a fundamental threat to their mental health” (p. 168). It was further concluded long-term imprisonment did not appear to have a cumulative effect on the inmates’ well-being.

Flanagan (1980) conducted a study to compare long-term American prisoners’ attitudes to Richards’ (1978) results with long-term British prisoners. Participants included 49 inmates incarcerated in a state prison facility. The majority of participants were Black with a median age of 31 years, incarcerated for violent offenses, with a prior criminal record. Sixty percent of the inmates were sentenced to life in prison, and at the time of this study the average amount of time served was approximately eight years. Flanagan utilized the same instrument as Richards (discussed above) to measure inmates’ perceptions of the problems they experience while incarcerated.

The results were comparable to that reported by Richards (1978). Specifically, long-term American prisoners reported similarly the five most serious and the five least serious problems reported by the long-term British prisoners. Additionally, participants in this study also indicated dealing with problems on their own was most effective. The problems rated as most severe were those related to the loss of relationships with loved ones outside of prison, and not those directly related to prison life *per se*. Similar to Richards (1978) conclusions, the participants did not view imprisonment as a detriment to their well-being. In fact, “in response to these problem statements [‘feeling suicidal,’ ‘being afraid of going mad’], several men remarked that, although they may have

considered suicide or felt that they would go mad at some time, this had taken place in the early years of their sentence when they were younger....several of these men reported that being in prison had in some way strengthened their resolve and that they were emotionally, physically and intellectually stronger as a result” (p. 152).

In a study of German prisoners, Rasch (1981) investigated the physical and psychological effects of long-term imprisonment. Fifty-three inmates, sentenced to life in prison for murder, were divided into three groups. Group one consisted of 17 inmates with a mean age of 28 years, and a mean time served of three years. Group two consisted of 18 inmates with a mean age of 34 years, and a mean time served of 8.5 years. Lastly, group three consisted of 18 inmates, with a mean age of 39 years, and a mean time served of 13.5 years. The participants received a medical examination to assess for the presence of physical deterioration, and completed a battery of assessments (i.e., measures of intellectual functioning, personality characteristics, and a test of attitudes related to the concepts of the “self,” “fellow prisoners,” and “officers”).

Results of the medical examination yielded no evidence of serious health deterioration. None of the participants exhibited psychotic symptoms. There was no substantial evidence of intellectual deterioration as the amount of time served increased. In terms of personality functioning, during the interview an overwhelming majority (96%) claimed to have undergone change throughout their incarceration. There was a significant difference among the groups, in that groups two and three categorized this change as positive. Additionally, 80 percent of the participants claimed to have developed an increase in maturity. However, the claim of increased maturity was not

substantiated on objective measures of personality. Although scores of maturity were lower for group one, they only slightly increased as the amount of time served increased. Additionally, low scores on the conscience and self-control subscales were found in all three groups. In terms of attitude change, an increase in time served was associated with more favorable attitudes towards the prison officers, perhaps indicating an increase in prosocial attitudes. Overall, no evidence was found in this study to indicate long-term imprisonment was associated with deterioration in physical or psychological well-being.

Wormith (1984) found similar results with Canadian inmates ($n = 261$). Among inmates who served at least 6 months (mean time served = 25 months) there appeared to be a decrease in scores on 6 of 10 clinical scales of the MMPI. In addition to MMPI results, those with increased time served exhibited an increase in prosocial attitudes toward the criminal justice system and displayed more socially and psychologically adjusted profiles on the California Psychological Inventory. There was no effect on intelligence.

MacKenzie and Goodstein (1985) sought to expand on the previous literature by considering individual differences among inmates that may impact the ability to cope with long-term incarceration, such as sentence length and criminal history. In their study, 1270 inmates incarcerated in three state prisons were categorized into two groups: long-term offenders (LTOs) and non-LTOs. Demographic information was gathered from all participants. Additionally, data were collected in the following areas: anxiety, depression, psychosomatic complaints, self-esteem, fear of others, and prisonization (i.e., anti-institutional attitudes). “Early” LTOs were on average sentenced to 12.1 years, and

served a mean of 1.3 years. “Late” LTOs were on average sentenced to 15.7 years, and served a mean of 10.3 years. “Early” non-LTOs were on average sentenced to 2.5 years, and served a mean of 1.1 years.

No significant differences between the “early” and “late” LTOs were found on demographic variables, however, *t*-tests revealed significant differences across the dependent variables. Specifically, the “early” LTOs reported significantly more anxiety, depression, psychosomatic complaints, and fear of other inmates. They also reported lower self-esteem. There were no differences in prisonization attitudes. These results do not support the claim that long-term incarceration promotes deterioration among inmates. In fact, it appears that earlier periods of incarceration are more stressful, however as time progresses, inmates are better able to cope with their situation.

Analyses comparing “early” LTOs to “early” non-LTOs revealed significant differences for criminal history and some symptoms of distress. Specifically, the “early” non-LTOs had more previous arrests, and slightly more prior convictions, than the “early” LTOs. “Early” LTOs indicated higher levels of depression and psychosomatic complaints than the “early” non-LTOs. No differences between “early” LTOs and “early” non-LTOs were found on measures of anxiety, fear of others, self-esteem, or prisonization attitudes. This result may suggest inmates anticipating shorter sentences may be able to better adjust to prison at the start of incarceration than inmates with longer prison sentences. Additionally, since the “early” non-LTOs had more prior arrests and convictions, they may have more experience with prison life, resulting in an increased ability to cope with the environment upon incarceration.

Leigey (2010) also examined the impact of long-term incarceration with inmates serving life without parole. Both quantitative and qualitative data were analyzed for this study. Quantitative data were extracted from a national survey by the Bureau of Justice Statistics, which included information regarding inmates' mental health histories. Within this data set, 118 male inmates were sentenced to life without parole ("LWOP") and had served at least one year in prison on their current sentence. For purposes of the Leigey (2010) study, these inmates were split into two groups: "new LWOP" and "veteran LWOP." An inmate was considered a "new LWOP" if they served less than the sample's mean length of time served (i.e., 10.5 years; $n = 72$), while "veteran LWOP" were those inmates who served more than the sample's mean length of time served ($n = 46$). The vast majority of inmates in this study (i.e., approximately 97%) were serving a LWOP sentence for violent offenses (e.g., murder, armed robbery, sexual assault, aggravated assault). Significant differences were found between the "new LWOP" and "veteran LWOP" on demographic variables. Inmates in the "veteran LWOP" group were older, while the inmates in the "new LWOP" group were more likely to have been incarcerated prior to their current sentence. The qualitative data consisted of 25 in-depth interviews conducted with older LWOP inmates selected from correctional institutions in a mid-Atlantic state. These inmates' ages ranged from 50 to 75 years, with a mean age of 59. The amount of time served on their current sentence ranged from 15 to 31 years, with a mean of 24 years.

Results of the quantitative analysis indicated "new LWOP" inmates were significantly more likely to report a wide variety of mental health symptoms during the

year prior to the survey, including anger, restlessness, racing thoughts, sleep disturbances, numbness, feeling as though they were in a dream, as well as more serious mental health symptoms, such as hearing voices, as compared to “veteran LWOP” inmates.

Additionally, “new LWOP” inmates were more likely to report receiving treatment for their mental health symptoms than “veteran LWOP” inmates; however, this difference was not statistically significant. “Veteran LWOP” inmates were noted as being more likely to report paranoid ideation (e.g., feeling as if they were being plotted against); however, this difference was also not statistically significant. It was further noted that neither group reported their mental health symptoms as impacting their daily functioning.

Overall, these results are consistent with the results reported by MacKenzie and Goodstein (1985), lending support for the notion that mental health symptoms are more likely to be reported during earlier periods of incarceration with improved mental health in the later stages of incarceration. However, it was noted by the author that the differences found between the “new LWOP” and “veteran LWOP” could be attributed to the higher prevalence of mental health problems among “new LWOP” inmates prior to incarceration, including diagnosis of a mental health disorders and previous suicide attempts. However, analysis of the qualitative data helped to provide evidence for improved mental health over the course of incarceration. Results of the qualitative data analysis for the 25 in-depth interviews indicated the majority of participants in the sample (i.e., $n = 20$) reported feelings of anger, bitterness, and depression, and used negative terms (e.g., “terrible,” “depressed,” “suicidal,” and “warped”) to describe their mental health prior to incarceration. Despite this, only two of the 25 participants reported

receiving mental health treatment prior to incarceration. The participants also reported having poor mental health at that start of their sentences, with more serious thoughts of suicide during that time. However, they reported their mental health improved over the course of incarceration, with no participants reporting that they were prescribed psychotropic medications at the time of the interview. Moreover, participants also noted self-improvements over the course of time, including more honest self-reflections and accepting responsibility for their offenses. Additionally, they indicated less cognitive focus on the length of time they have spent in prison. However, despite the improvement in mental health, they did acknowledge experiencing some problems periodically, most commonly feelings of sadness and resentment.

Although all the research above contradicts the long held belief that imprisonment leads to universal deleterious effects on inmates, this bulk of research has been criticized for utilizing measures that are insensitive to the changes that may occur as a result of incarceration (Cohen & Taylor, 1972; Flanagan, 1982). Additionally, all of the research discussed above utilized a cross-sectional research design. To develop causal inferences about the effects of long-term incarceration, longitudinal studies are necessary.

Zamble and Porporino (1988) sought to expand on the previous literature by utilizing a longitudinal approach to examine the effect of time on the psychological well-being of 133 inmates incarcerated in medium- and maximum-security prison facilities in Canada. Each participant was assessed on three separate occasions. The first assessment took place within a month of the start of their prison term, the second assessment took place approximately three to four months later, and the final assessment took place

approximately one year after the second assessment. A variety of instruments were administered, including measures of anxiety, depression, hopelessness, locus of control, self-esteem, attitudes towards the legal system, perceived problems, and substance abuse. Taking the effects of length of sentence into account, the participants were divided into three groups consisting of: short-term inmates (sentenced to less than five years), mid-term inmates (sentenced between five to ten years) and long-term inmates (sentenced to ten years to life). At the start of the study, 45 inmates were placed in the short-term group, 47 inmates were placed in the mid-term group, and 41 inmates were placed in the long-term group.

From the first assessment to the second assessment, the results indicated, inmates' time usage and socialization patterns remained relatively the same. More specifically, the majority of an inmate's time was spent working, socializing, and engaging in passive activities (e.g., watching television, listening to the radio). Additionally, although the amount of time socializing remained stable, the amount of close friends inside the institution increased by 30 percent.

Of particular importance, the results indicated there was a significant decrease in anxiety and depression from the first assessment to the second assessment. The mean score on the Beck Depression Inventory (BDI) fell slightly above the average range. Additionally, the number of inmates with scores in the moderate to severe range fell by approximately 40%. However, it was noted a significant minority (i.e., 5 to 8 percent) were continuing to experience significant emotional distress. Still, the data clearly indicated an improvement in mood across interviews. Thus, the start of a prison term may

be particularly stressful; however, the majority of inmates successfully coped and adapted to prison, as evidenced by the decrease in negative affect. Although experiencing less depression and anxiety, levels of anger appeared to increase from interview one to interview two. That is, although inmates actively coped with the environment, they experienced increased anger about the conditions surrounding their prison term.

Unfortunately, the results also indicated a decrease in long-term goal-planning and active efforts towards self-improvement. It appeared, based on interview data, inmates began focusing their energies toward navigating the daily routines of prison life, rather than working towards positive change (i.e., increased education/training, behavioral change, self-improvement). Additionally, inmates continued to indicate they lived their lives day-by-day, with little planning, “letting things just happen” (p. 106).

At the third assessment, only 100 of the participants were available. Again, inmates’ time allocation remained constant, with the majority of time devoted to work, socialization, and passive activities. However, there was a decrease in socialization. Although inmates were not actively avoiding social contact, they preferred to spend more time on their own, opting to spend more time in their cells. Notably, contacts with others outside of prison remained the same across all assessments.

As expected, based on the previous literature, a continued decrease in negative affect was observed. In addition to significant decreases in depression and anxiety, feelings of guilt also significantly decreased from the first assessment, along with significant increases in self-esteem. Feelings of anger, loneliness, and boredom remained unchanged, and appeared to be indicative of the realities of the prison environment. Unfortunately,

however, motivation for change and self-improvement continued to decrease, with only half of the individuals from the first assessment indicating having a goal for behavioral change and self-improvement at the third assessment.

In sum, the results of Zamble and Porporino's (1988) longitudinal study supported previous findings with cross-sectional samples. That is, increased time in prison was not associated with increased psychological deterioration. Rather, as time increased, decreases in negative affect were observed, with the exception of anger, loneliness, and boredom. Additionally, increases in self-esteem were also evident. Of particular concern was the lack of motivation for change and self-improvement evidenced by inmates in favor of an approach that focused on coping with the depriving prison environment and making it through each day with a disregard for future planning.

To further examine the impact of incarceration, Zamble (1992) conducted a follow-up approximately five years after the initial study (described above) on 25 of the "long-term" group participants. The same structured interview and battery of assessment instruments were utilized as in their initial study. Results of this follow-up study indicated work took up the majority of inmates' time, and work time had significantly increased from the first interview. Although the number of friends remained the same, inmates' time spent in social activities decreased during the course of their incarceration. Specifically, as the amount of time served increased, inmates preferred to spend more time alone in their cell, engaging in individual hobbies, studying, and watching television, as opposed to going out and participating in social activities with other inmates. According to interviews, inmates indicated they avoided interacting with other

inmates because “the more involvement....the more problems...” (p. 414). Thus, reducing social contact appears to be a productive strategy.

Although contact with others inside of the prison decreased, outside contacts generally remained the same, with an increase in the number of visits received over time. Data collected from interviews indicated many inmates’ families moved closer to the penitentiary to make visits easier. Additionally, as the amount of time served increased, many of the inmates acquired “good time,” allowing for more visitors with extended visitation.

Importantly, negative affect appeared to decrease over the course of incarceration. More specifically, scores on the BDI significantly decreased, with mean scores falling in the “normal” range, with a significant decrease in anxiety scores, as well. Furthermore, self-esteem increased and feelings of guilt decreased as the amount of time served increased. Inmates reported learning how to involve themselves in a variety of activities to occupy their time, resulting in decreased feelings of boredom. Anger and loneliness appeared unchanged.

There appeared to be little change in inmates’ appraisals of their life in prison. Inmates did not perceive fewer problems, nor did they view their lives in prison as any more desirable or rewarding as amount of time served increased. Importantly however, inmates’ attitudes towards the criminal justice system appeared to become more prosocial over time, as indicated in significantly lower scores on the CSS-M, with exception of the Identification with Criminal Others subscale which remained unchanged.

Inmates continued to report living day-by-day, as opposed to planning their time over a number of days or weeks; however the majority indicated setting a future goal (e.g., increasing education). The results indicated no difference in the amount of future goal setting over the assessment periods. This finding contradicts the previous results reported by Zamble and Porporino (1988), which suggested the majority of inmates lost their motivation for self-improvement after a year of incarceration. Additionally, in contrast to earlier findings, inmates' concerns for the future increased, as they thought more about their lives after release. This finding could be attributed to the inmates' being closer to release, and not necessarily a byproduct of long-term incarceration.

In terms of behavior, the number of disciplinary infractions were significantly lower in the last 1 ½ years of assessment than during the first 1 ½ years of assessment. However, the authors did not indicate whether age was controlled for in the analyses. Therefore, it is not clear as to whether the reduction in disciplinary infractions is due to older inmates not engaging in disruptive behavior as frequently, or inmates who served longer sentences adapted to the prison environment, and subsequently evidenced fewer noncompliant behaviors.

Data from medical files indicated a significant decrease in reported sleep disturbances, headaches, or tension as the amount of time served increased. This finding suggested inmates' ability to cope with the environment increases over time, as evidenced by less frequent medical visits for stress-related problems. Additionally, there was a significant decrease in prescriptions for psychotropic medications as the amount of

time served increased, which complement the results regarding decreased presence of negative affect (e.g., depression and anxiety) discussed above.

Similar findings have been found with female inmates. MacKenzie, Robinson, and Campbell (1989) conducted an investigation with 141 first-time female offenders incarcerated in a state prison facility with a mean age of 30 years. The participants were divided into three groups defined by the amount of prison time served and sentence length: Group one consisted of 37 newly incarcerated inmates who served less than two years and were sentenced to less than two years; Group two consisted of 20 newly incarcerated inmates who served less than two years, but were sentenced to at least eight years; and the third group consisted of 18 inmates who served more than two years, and were sentenced to at least eight years.

Results indicated no significant differences across demographic variables, including criminal history (i.e., number of prior arrests and convictions), with the exception that group three included more inmates with more serious violent offenses. *T*-test comparisons indicated significant differences in perceived safety, such that group three was less concerned about safety issues. This result may suggest that the more time spent in prison the more an inmate realizes it is not as dangerous as one perceives it is at the beginning of their term. Alternatively, it is possible the longer an inmate spends in prison, the more likely they develop coping strategies that makes the environment appear less dangerous. A third explanation proposed by the authors was perhaps the environment is actually more dangerous for newly incarcerated inmates because they lack a social network inside the prison.

Interestingly, there were no differences across the groups regarding level of anxiety. Inmates in group one significantly reported less control over events compared with group two. Inmates in group three reported significantly more situational problems (i.e., feelings of boredom, limited access to opportunities and luxuries) than inmates in group two. The results indicated that as the amount of time served increased for those serving long sentences, so does the severity of their problems related to the environment. As indicated by the authors, because fewer women are incarcerated, resulting in fewer facility options, women in prison may have limited opportunities to transfer to prisons closer to their families. Job and education opportunities may also be limited. Thus, those who serve longer sentences may be more affected by the accumulation of these environmental problems than newly incarcerated inmates. However, the results indicated that although group three perceives more situational problems, there are no significant differences across groups on their ability to cope with the environment.

In summary, the results of this study suggested newly incarcerated female inmates may perceive the environment as less safe, and those who have been incarcerated for longer periods of time may perceive more problems related to the prison environment; yet they continue to evidence effective coping abilities. Thus, the prison environment does not appear to lead to an overall deterioration in inmates' well-being.

As indicated by several studies above (i.e., MacKenzie & Goodstein, 1985; Zamble, 1992; Zamble & Porporino, 1988), upon imprisonment, inmates appear to experience increased levels of anxiety, depression, and psychosomatic complaints; however as time increases, a decrease in negative affect and psychosomatic complaints are evidenced. In

fact, one study suggested for some inmates this decrease may occur rather quickly (Islam-Zwart, Vik, & Rawlins, 2007). Islam-Zwart et al. (2007) examined the psychological adjustment of first-time female offenders (n = 62) incarcerated in a minimum-security state prison. The Brief Symptom Inventory (BSI) was administered weekly for three weeks at the start of the participants' incarceration. The results indicated that at the start of incarceration the female inmates only experienced mild psychological distress as measured by the BSI. However, the majority of scaled scores decreased across the three week period, with the most change occurring from week one to week two. Similar to results reported with male inmates (Zamble, 1992), hostility scores did not decrease over time.

As evidenced by the studies reviewed above, there is widespread support, with a range of populations, to suggest imprisonment does not lead to psychological deterioration among inmates. In fact, it appears that as the amount of time served in prison increases, psychological well-being increases as compared to the start of incarceration. Additionally, there is evidence to suggest inmates' attitudes towards the criminal justice system become more prosocial over the period of incarceration (Wormith, 1984; Zamble, 1992); although increased criminal thinking and criminal self-identification may increase for newly incarcerated inmates (Walters, 2003). Thus with no uniform research agenda, a shift from examining the long-term impact of incarceration on the psychological well-being of inmates to examining how inmates are surviving prison, and escaping psychologically unharmed was initiated. Researchers began investigating the coping strategies of imprisoned offenders.

Coping with imprisonment

The above studies, as well as extensive reviews (i.e., Bukstel & Kilmann, 1980; Gendreau, 1990), showed that most offenders are not negatively impacted by the harsh conditions of prison. Specifically, the studies above suggested inmates do not evidence physical, intellectual, or cognitive impairments, or an overall decrease in psychological well-being as a result of incarceration. Thus, it appears the majority of inmates are able to effectively cope with and adjust to the prison environment. Researchers then began to focus their efforts on new research questions. These findings have led scholars to question how inmates cope with prison environment and what attributes (including internal and external) influence inmates' adjustment to incarceration?

Coping has been defined as the cognitive and/or behavioral response an individual utilizes in times of stress (Lazarus & Folkman, 1984). A stressful situation, defined as an event or condition that may be potentially physically or psychologically threatening to an individual, demands the attention of the individual (Lazarus, 1966). When attention is given to the situation, and a response is rendered by the individual, the coping process has begun (Lazarus, 1966). Thus coping can be viewed as a form of adaptation (Coelho, Hamburg, & Adams, 1974). Research with non-incarcerated populations indicated some forms of coping may be more effective than others in different situations (Holmes & Houston, 1974; Lazarus & Launier, 1978, & Rogers & Mewborn, 1976). Additionally, individuals who have a wider range of coping abilities and are more flexible in their coping repertoires are more adaptable and therefore better adjusted during stressful events (Millon & Everly, 1985).

As reviewed above, Zamble and Porporino (1988) conducted one of the first longitudinal investigations to examine the impact of imprisonment and potential psychological changes that may occur among prisoners throughout incarceration. However, an additional aim of this study was to identify the ways in which inmates cope with and adjust to the prison environment. Thus in addition to administering a comprehensive battery of assessments to assess affective, cognitive, and behavioral outcomes, structured interviews were conducted to examine specific coping mechanisms employed by inmates prior to incarceration, as well as throughout incarceration.

The data indicated offenders encountered similar problems to non-offender populations (e.g., conflicts with family and friends, financial difficulties, trouble at work). However, severe deficits in offenders' ability to cope with life stressors were observed. Offenders responded to stressful situations ineffectively and inappropriately, resulting in 54 percent of offenders exacerbating their problems. Additionally, when offenders were aware of the appropriate actions required to navigate a problem, they appeared to lack the skills to do so successfully. For example, when offenders attempted to discuss interpersonal problems, they often confronted others instead of negotiating with them. In addition to not having effective coping skills, the results indicated offenders lacked insight into the causes of their problems and the limitations of their coping responses.

The most frequent coping strategy utilized by offenders was "reactive problem-oriented," characterized by an immediate reaction to a problem in an "unplanned, scattered, and impulsive" manner. Other common strategies included avoidance (i.e.,

forcing oneself to not think about the problem), escape (i.e., physically removing oneself from the stressful situation) and palliation (i.e., engaging in activities to alter mood [e.g., listening to music, consuming alcohol and drugs]). While avoidance, escape, and palliative measures can be effective strategies, and are often used at times by most, these are short-term strategies, and adaptable, well-adjusted individuals recognize the need to employ other strategies to deal with long-term problems. Unfortunately, 35% of offenders used these strategies exclusively, despite the nature of the problem. Highly effective strategies for long-term problems (i.e., actively thinking about one's situation by analyzing the problem, devising a plan, considering alternative methods and consequences, and redefining or reevaluating the situation) were used by a small minority of offenders (i.e., 13%).

Results indicated inmates coping responses, during periods of incarceration remained relatively the same as the strategies they utilized outside of prison; lacking analysis, planning and organization, and characterized by avoidance, escape and palliative strategies. Interestingly, when conducting the cost/benefit analysis of the participants' coping strategies while in prison, the results indicated coping responses inside of prison were more effective (i.e., relief from stressor without exacerbating the problem) than those utilized outside of prison. That is 38 percent of participants were categorized as "good copers" (i.e., benefits outweighed costs) while in prison, compared with only 12 percent of participants categorized as "good copers" when residing outside of prison. Additionally, while outside of prison, 45 percent of coping responses fell within the poor range (i.e., short-term relief, with a worsened long-term situation) while only 17 percent

of coping responses fell within the poor range while inside of prison. Thus, although inmates are utilizing the same coping methods inside and outside of prison, it appears these strategies are more adaptive during incarceration, and may be useful in warding off psychological deterioration.

This paradoxical finding suggested a unique element to the prison environment (Zamble & Porporino, 1988). The prison environment is very restrictive, and many problems encountered by inmates are the direct result of prison conditions (e.g., missing family, freedom, activities); and offenders have limited ability to change the environment. As a result, offenders are limited in how they cope with the environment and solve their problems, essentially limiting their ability to exacerbate their problems. In sum, “prison creates the problems, defines the possible responses to those problems, and then requires the inmate to choose from among the available options...one might say they are not free to cope so badly in prison as they did on the outside” (Zamble & Porporino, 1988, p. 99).

Others have expanded upon Zamble & Porporino’s work by examining specific coping styles and their relationship to psychological well-being and adjustment in prison. For example, Gullone, Jones, and Cummins (2000) investigated three specific coping styles (i.e., task-oriented, emotion-oriented, and avoidance-oriented) utilized by 81 Australian prisoners incarcerated in a maximum-security facility. Among the participants, the amount of time served ranged from less than one month to eight years, with a mean time served of 1.73 years. Results indicated coping styles were related to the psychological well-being of the prisoners, accounting for 62 percent of the variance in

psychological well-being. Specifically, the results indicated emotion-oriented coping was predictive of poorer psychological well-being (i.e., higher depression and anxiety, and lower self-esteem), whereas participants engaged in task-oriented coping was predictive of higher levels of psychological well-being (i.e., lower depression and anxiety, and higher self-esteem). Similar to Zamble and Porporino (1988), avoidance-oriented coping was related to higher levels of psychological well-being, supporting the notion that many factors within the prison environment are out of the prisoner's control; thus, engaging in behaviors that distract from one's problems is beneficial to a prisoner's adjustment to incarceration.

An additional and interesting finding in this study suggested that increasing the amount of time served predicted higher levels of task-oriented coping behavior. Perhaps suggesting that as the amount of time in prison increases, inmates develop healthier and more effective coping strategies. However, it should be noted the data indicated, as a whole, inmates in this sample scored lower on task-oriented coping compared with working males in non-incarcerated populations. That is, although there may be increased levels of task-oriented coping as the amount of time spent in prison increases, it does not appear to reach levels similar to non-incarcerated populations.

In a similar study, with a smaller sample ($n = 48$), Sappington (1996) examined the relationship between prison adjustment and coping style. Participants were housed in a maximum-security prison, with a mean time served in prison of 5.6 years. Results indicated inmates with a tendency to blame others, blame self, and dwell on one's problems were related to poorer adjustment (i.e., increased disciplinary infractions,

depression, anxiety, and anger). A “Pollyanna” approach was related to fewer disciplinary infractions. Similar to Gullone et al.’s results, task-oriented coping was related to lower levels of depression. However in contrast to Gullone et al.’s results, task-oriented coping did not increase with increased time served, rather such coping decreased as the amount of time spent in prison decreased. A decrease also occurred with the “Pollyanna” coping style. That is, for this sample, inmates were less likely to utilize problem-solving techniques or to look on the bright side of things the longer they were incarcerated. This difference in results could be attributed to differences inherent within the samples. For example, the mean amount of time served was considerably smaller in Gullone et al.’s sample (i.e., 1.73 years) compared with Sappington’s sample (5.6 years). Thus, it could be argued that as the amount of time increases, a decrease in the use of task-oriented coping could occur.

Coping and adjustment among female inmates has also been examined. Negy, Woods, and Carlson (1997) examined which coping styles promoted adjustment among female inmates ($n = 153$) in a minimum-security federal prison. The average amount of time served among this sample was 14.45 months. An overwhelming majority of participants (i.e., 90%) were first time offenders serving time for drug-related offenses or fraud. Canonical correlation analysis indicated a relationship between coping style and adjustment, as measured by the number of disciplinary infractions, depression, anxiety, and self-esteem. More specifically, female prisoners who took a proactive stance toward their problems, by planning and organizing courses of action and restraining from acting impulsively reported higher levels of self-esteem and lower levels of depression and

anxiety. Additionally, inmates who viewed stressful events in a positive manner also reported higher levels of adjustment (i.e., increased self-esteem, reduced depression and anxiety), while inmates who engaged in denial or became withdrawn reported increased levels of depression and anxiety and decreased self-esteem. The results further indicated those inmates with larger and more flexible coping repertoires reported better adjustment.

Interestingly within this study, coping styles appeared unrelated to the number of disciplinary infractions received. However, the mean and rate at which disciplinary infractions were received were not reported; thus it is unknown the level of engagement in non-compliant behaviors among this sample. Given the sample was obtained from a minimum-security facility and an overwhelming majority of inmates were incarcerated for non-violent offenses, it is likely this sample's base rate for institutional violations was low, and as a result disciplinary infractions did not play a reliable role in this sample's adjustment patterns.

Environmental factors and adjustment to imprisonment

In addition to individual factors, such as coping styles, external variables, such as the conditions of the environment, have been found to be important in understanding prisoner adjustment. Specifically, institutional climate appears to play a key role in determining an inmate's adjustment to prison (Wright, 1991b, 1993). The climate of an environment or institution is a set of characteristics that distinguish that environment from other environments (Forehand & Gilmer, 1964). These characteristics are stable and affect the behavior of those participating in the environment (Forehand & Gilmer, 1964). Institutional climate has been widely studied by organizational psychologists, and

research in this field has found associations between institutional climate and productivity and performance (Lawler, Hall, & Oldham, 1974 ; Schneider & Hall, 1975; Sims & LaFollette, 1975), job satisfaction and involvement (Lawler et al., 1974; Schneider & Hall, 1975; Sims & LaFollette, 1975), and personal growth (Lawler, et al., 1974). Given the significance of institutional climate on individual and group behaviors, it is an important variable to examine within the prison system (Moos, 1975; Wright, 1991b, 1993).

Toch (1992a) identified eight dimensions that comprise the institutional climate of prisons: (a) Privacy – an environment providing peace and quiet, by reducing noise and crowding; (b) Safety – an environment providing protection, reducing the chances of being attacked; (c) Structure – a stable and predictable environment that follows clear-cut rules and scheduled events; (d) Support – an environment providing the opportunity and assistance for self-improvement, change, and planning for the future; (e) Emotional Feedback – an environment providing care and empathy; (f) Social Stimulation – an environment providing the opportunity for social interaction and the development of relationships; (g) Activity – an environment providing activities to occupy inmates' time; and (h) Freedom – an environment providing autonomy, allowing inmates to make choices with minimal restrictions.

To examine the impact the eight dimensions, identified by Toch (1992a), have on an inmate's adjustment to imprisonment, Wright (1991b) conducted an investigation with 339 male inmates incarcerated within several medium- and maximum-security state prisons in the Northeast. The results indicated the fewer of the eight dimensions

provided by the environment the more adjustment problems reported. Specifically, perceptions of less activity, less safety, less emotional feedback, less social stimulation, and less support were associated with higher levels of aggressive behavior (i.e., arguments and physical altercations with other inmates and staff). Inmates who perceived less support and less safety reported higher levels of internal distress (i.e., anger, psychosomatic complaints, fear).

Additionally, the results indicated increased frequency of disciplinary infractions was associated with more structured and safer environments. Although this finding may appear paradoxical, highly structured prison settings promoting safety are generally more restrictive and may employ tough policy regarding non-compliant behavior (Wright, 1991b). Additionally, those with higher disciplinary infractions are likely to be placed in more restrictive environments; thus this result may simply represent a sampling confound (Wright, 1991b). In contrast, inmates incarcerated in more supportive environments with more activities available reported fewer disciplinary infractions; supporting the old prison adage that a bored inmate is a bad inmate.

A more recent study, with a large sample of female inmates ($n = 1,821$), examined institutional variables (i.e., autonomy, correctional officer behavior) and prisoner adjustment (Vuolo & Kruttschnitt, 2008). Adjustment was assessed by asking inmates on a Likert-type scale (1 = “not at all difficult” to 5 = “extremely difficult”) how difficult it was to adjust to a variety of facets of prison life (e.g., other inmates, food, lack of privacy, missing home/family). Results indicated female inmates who perceived they had no control over their daily lives had more difficulty adjusting to prison, compared

with inmates who perceived having some level of control. Additionally, inmates who received no help from correctional officers (COs), who believed COs treated their work as simply a job, who perceived COs did not go by the rule book, as well as perceived new COs write up everything had the most difficulty adjusting to prison life. The results of this study suggested that, in addition to the impact associated with autonomy, correctional officers may play a vital role in an inmate's adjustment to incarceration.

Mackenzie, Goodstein, and Blouin (1987) found similar results as Vuolo & Kruttschnitt (2008), in an investigation with a large sample ($n = 2,140$) of male inmates from five different prisons, of varying security levels, across the country. The results indicated inmates who both expected to have control and perceived to have control over their environment experienced less anxiety and held fewer anti-institutional attitudes than inmates who had lower scores on measures of control expectancy and perceived control.

Coping and adjustment among inmates with severe mental illness

The prison environment is comprised of multiple, complex interactions, and each individual responds uniquely to these variables (Bukstel & Kilmann, 1980). Notably, individual differences (e.g., coping styles, locus of control, prisonization) and institutional variables (e.g., prison climate, correctional officers) impact how inmates cope with long-term incarceration (Bonta & Gendreau, 1990; Bukstel & Kilmann, 1980). When examining the impact of incarceration among prisoners, one individual difference that has been widely neglected is the presence of severe mental illness. This is particularly alarming given the increased representation of this population in the prison system. Inmates suffering from severe mental illness (i.e., schizophrenia, bipolar

disorder, major depressive disorder) may have increased difficulty adjusting to the prison environment, particularly if they are actively trying to cope with and manage their psychiatric symptoms. Alternatively, in contrast to non-disordered inmates, imprisonment may initially prove beneficial to PMI, as they are often provided with a much more structured environment, where they can receive psychotropic medications to stabilize their psychiatric symptoms upon incarceration (Blaauw, Roozen, and Van Marle, 2007). Research results are unequivocal among non-disordered inmates; however, the impact of the prison environment on the psychological and behavioral functioning of PMI is less clear.

Hassan et al. (2011) conducted a prospective cohort study of newly incarcerated jail and prison, male and female, English inmates in order to examine changes in psychiatric symptoms over time. Using an eight-item instrument validated to screen mental illness in offender populations (i.e., PriSnQuest), all newly incarcerated inmates between 2006 and 2007 ($n = 3079$) were assessed to identify those inmates with mental illness. Of those screened, 1097 inmates were positively identified as having a mental illness. Subsequently, 88% ($n = 887$) of those inmates participated in a clinical interview, along with a five percent sample of those inmates without a mental illness, for a total of 980 participants. Following the clinical interview, diagnoses were made based on the Schedule for Affective Disorders and Schizophrenia (SADS). Participants were then assigned to one of four diagnostic categories: any psychosis ($n = 72$); major depressive disorder (excluding any psychosis; $n = 249$); other mental illness (including minor depressive disorder, general anxiety disorder, obsessive-compulsive disorder, excluding

any psychoses and/or major depressive disorder; $n = 76$); and none ($n = 218$). Baseline measures of psychiatric symptoms were gathered using self-report questionnaires and follow-up interviews were conducted at one month and two months.

Results indicated imprisonment did not exacerbate psychiatric symptoms within the first two months of incarceration. In fact, results of this study suggested a significant linear decrease in psychiatric symptoms among male inmates and prison inmates, with no significant differences found among female inmates and jail inmates. Additionally, for each diagnostic group, results revealed a decrease in psychiatric symptoms among those diagnosed with major depression and no mental illness, a non-significant decrease among those diagnosed with any psychosis, and no significant differences among those diagnosed with any other mental illness. Although, overall mental health deterioration was not evidenced, results identified a minority of cases in which psychiatric symptoms did persist or deteriorate. For example, although inmates diagnosed with any mental illness evidenced no significant differences across time, the authors noted symptoms peaked at two-month follow-up. The authors opined that this group may not be receiving adequate mental health services, as many resources are focused on providing treatment to those inmates with severe mental illness.

Although the results of Hassan et al.'s (2011) study indicated some improvement in mental health functioning among PMI similar to the results reported for non-mentally ill offenders, their research only examined the initial months of incarceration, and other research has suggested PMI do function differently than non-disordered offenders over the course of their prison term (O'Keefe & Schnell, 2007). Due to the increased

prevalence of severe mental illness among American prisoners, the Human Rights Watch (2003) conducted an investigation examining the facilities housing these offenders. Their report indicated PMI do not react to the prison environment in the same manner as non-mentally disordered offenders (Abramsky & Fellner, 2003).

For example, as a result of the presence of severe psychiatric symptoms, some inmates with mental illness display deficits in behavioral and emotional control, and social and problem-solving skills, as well as distorted cognitions and perceptions (Abramsky & Fellner, 2003). Therefore, they may display disruptive, noncompliant, and at times aggressive behaviors in reaction to the demands and requirements of prison life (Abramsky & Fellner, 2003). Results found by MacKenzie et al. (1987) appear to confirm this notion, which indicated inmates with the highest levels of depression, anxiety, and psychosomatic complaints appeared to cope with prison by withdrawing from activities, but by also displaying the highest levels of anti-institutional attitudes and hostility towards staff

Incarcerated PMI's inability to comply with prison rules is evidenced by their averaging more disciplinary infractions per year than their non-mentally disordered counterparts (Feder, 1991; James & Glaze, 2006; O'Keefe & Schnell, 2007). O'Keefe and Schnell (2007) examined the behavioral adjustment of a large sample of incarcerated PMI (n = 1,294) compared with non-PMI (n = 6,357) within a state prison system. The results indicated PMI represented 25 percent of the prison population; however, they were responsible for 34 percent of the disciplinary infractions committed in one year. The results further indicated a larger percentage of PMI were placed in higher custody

levels compared to non-PMI. More specifically, 23 percent of PMI were placed in administrative segregation and close custody, as compared to 11 percent of non-PMI. Other research has also found disparities in the number of disciplinary infractions received by PMI as compared to non-PMI. In a study conducted by Matejkowski, Caplan, and Cullen (2010) found disciplinary infractions among PMI (n = 200) was slightly higher than non-PMI (n = 207). Moreover, violent disciplinary infractions were significantly higher among PMI than non-PMI. Additionally, among PMI, the rate of receiving a disciplinary infraction for violence was three times higher for those incarcerated for violent offenses when compared to those incarcerated for non-violent offenses.

Increased disciplinary infractions, particularly violent offenses, may result in an inmate being denied early release via parole, thus serving longer sentences (Ditton, 1999; Feder, 1991; Matejkowski et al., 2010). Additionally, simply having been hospitalized during imprisonment may result in incarcerated PMI being denied parole. A study with 150 PMI incarcerated in state prison, indicated psychiatric hospitalization during incarceration had the largest impact on a parole board's decision to release an inmate early (Feder, 1994). Specifically, 79 percent of offenders without a history of psychiatric hospitalization during incarceration were released early via parole, compared with only 21 percent of inmates with a history of psychiatric hospitalization (Feder, 1994).

Not only do incarcerated PMI present management difficulties to correctional staff due to increased rule violations, but also because of increased rates of victimization among this special population. As discussed previously, prison is a violent place, and

this appears to be particularly so for PMI (Abramsky & Fellner, 2003). Blitz, Wolff, and Shi (2008) administered a survey to 7,221 male inmates and 564 female inmates within a state prison system to compare physical victimization rates for PMI to non-PMI. PMI were defined as any inmate who reported having been treated for schizophrenia, bipolar disorder, depression, post-traumatic stress disorder, or an anxiety disorder; this represented approximately 22 percent of the male sample ($n = 1609$) and approximately 58 percent of the female sample ($n = 325$). Results indicated approximately 35 percent of male inmates and 24 percent of female inmates were physically victimized; however, both male and female PMI were disproportionately represented among victims of physical violence. More specifically, the rate of physical victimization was 1.6 times higher for inmate-on-inmate physical violence and 1.2 times higher for staff-on-inmate violence for male PMI compared with their non-disordered counterparts. For females, PMI were 1.7 times more likely to report being physically victimized by another inmate; however there were no difference in the victimization rates of staff-on-inmate violence between PMI and non-PMI

To further examine victimization, specifically sexual victimization (i.e., either being touched or grabbed in a sexually threatening way, forced into sexual intercourse, or performing oral sex), among PMI imprisoned, Wolff, Blitz, & Shi (2007) conducted a study with a large prison sample (males $n = 6,964$, females $n = 564$). The results indicated 1 in 12 PMI reported sexual victimization by another inmate over a six-month period, compared with 1 in 33 non-disordered offenders. PMI also had a higher risk of being sexually victimized by staff as compared to non-PMI (i.e., 1 in 10 and 1 in 14,

respectively). Female PMI were sexually victimized at a rate three times higher rate their non-disordered counterparts.

Increased risk for physical and sexual victimization may place PMI at risk for continued psychiatric instability, decreased ability to function in the environment, and increased institutional suffering. In fact, research suggests inmates who feel less safe are more likely to experience internal distress, characterized by anxiety, sleep disturbance, and anger (Wright, 1993). Thus, it could be hypothesized increased exposure to the prison environment may lead increased mental health disturbances and decreased behavioral control.

Yang, Kadouri, Révah-Lévy, Mulvey, and Falissad (2009) conducted a qualitative investigation to examine the experiential differences between PMI and non-PMI over the course of incarceration. Their sample consisted of French inmates ($n = 59$) sentenced to a minimum of 10 years in a prison, with a mean time served in prison of 13.2 years. PMI ($n = 6$) were defined as inmates diagnosed with any psychotic disorder, as well as major depressive disorder, with psychotic features or bipolar disorder, with psychotic features. The results indicated significant differences in perceptions and attitudes towards incarceration between the two groups. Specifically, PMI described their experiences of long-term imprisonment in hostile and persecutory terms. They often blamed others, particularly the correctional staff and other inmates, for their problems. Moreover, they expressed feelings of hatred and the need for revenge against the institution. Additionally, PMI often withdrew from social interactions to cope with prison life. Non-disordered inmates also described feelings of frustration and aggravation surrounding

events occurring during incarceration, and at times blamed others for their problems.

However, a key distinction between the two groups emerged. Whereas, PMI appeared to externalize the cause of their current situation, non-PMI spoke in reflective terms, and portrayed prison life as time for introspection. They often described learning more about themselves through past events, and developed insight into their behaviors.

Morgan et al. (2007), as a byproduct of their primary investigation of treatment correlates for PMI, discovered that the length of incarceration (i.e., amount of time spent in prison) was significantly associated with increased psychiatric symptomatology, criminal thinking, criminal attitudes and institutional behavioral problems for female PMI, without concomitant complications for male PMI. Their sample consisted of 135 male and 103 female PMI. Multivariate regression analyses were conducted to examine the relationship between the amount of time served in prison and psychiatric symptoms, criminal thinking, and criminal attitudes. Subsequent binomial regression analysis was utilized to examine the relationship between the amount of time served in prison and the number of disciplinary infractions received.

For the male PMI, the results indicated increased time served in prison was associated with increased scores on the Compulsive Scale ($b = .049, p = .001$), and a decrease on the Antisocial Scale ($b = -.045, p = .001$), Sadistic Scale ($b = -.035, p = .004$), Borderline Scale ($b = -.032, p = .043$), Alcohol Dependence Scale ($b = -.035, p = .019$), and Drug Dependence Scale ($b = -.044, p = .002$) scores, as measured by the MCMI-III. However, increased time served in prison was not associated with any other psychiatric scale

elevations, nor was it associated with changes in criminal thinking, criminal attitudes, or the number of disciplinary infractions received.

For female PMI however, results indicated increased time served in prison was associated with increased scores across a number of MCMI-III scales assessing psychiatric symptoms, including the Negativistic Scale ($b = .080, p = .024$), Schizotypal Scale ($b = .114, p = .004$), Paranoid Scale ($b = .083, p = .021$), Anxiety Scale ($b = .086, p = .041$), Somatoform Scale ($b = .091, p = .050$), Dysthymia Scale ($b = .104, p = .023$), Thought Disorder Scale ($b = .100, p = .014$), Major Depression Scale ($b = .151, p = .005$), and Delusional Disorder Scale ($b = .177, p < .001$), with a decrease in the Antisocial ($b = -.075, p = .005$) and Drug Dependence ($b = -.131, p < .001$) Scale scores. Similarly to the male PMI, the female PMI did not evidence an increase in criminal thinking; however, increased time served in prison was associated with increased criminal attitude scores ($b = .056, p = .016$), as measured by the CSS-M. Furthermore, as the amount of time served in prison increased, an increase in the number of disciplinary infractions received ($b = .014, SE = .0023, Wald = 35.61$) was observed.

Unexpectedly, findings by Morgan et al. (2007) suggested gender differences exist between the associations of the amount of time served in prison and mental health functioning and criminalness (i.e., antisocial thoughts, feelings, and behaviors) for male and female PMI. One possible explanation for this discrepancy is sampling differences. The males were sampled from an inpatient psychiatric prison (which are more structured facilities, designed to treat and care for inmates with severe mental illness experiencing difficulty functioning in the general population prison), whereas the female PMI were

housed in a general population facility. Additionally, results indicated the male PMI generally evidenced greater psychiatric symptoms and criminal attitudes than their female counterparts, which likely resulted in their placement in a specialized housing unit (i.e., psychiatric facility). Thus, for the males, Morgan et al. (2007) may have sampled the “worst of the worst” such that the PMI were all actively psychiatrically and/or behaviorally disturbed, creating a ceiling effect in which changes in functioning could not be observed. Alternatively, the female PMI, sampled from a general population correctional facility, were not psychiatrically or behaviorally impaired to the extent that they required placement in a specialized unit, thus differences in functioning could be detected.

Additionally, some researchers have suggested “person-environment” fit is an important variable to consider in understanding inmates’ coping and adaptation to the prison environment (Toch, 1992a; Wright, 1991b). The male PMI in Morgan et al.’s (2007) investigation were placed in an environment designed to promote psychiatric and behavioral stability, thus creating a better “fit,” and likely decreasing the risk of psychological and behavioral deterioration. Furthermore, research has suggested inmates with higher psychopathology reported fewer aggressive behaviors when placed in more structured settings. The results further indicated, those with increased psychopathology reported less physical injuries and abuse when placed in settings providing more activities. Perhaps those with increased psychopathology adapt better to an environment that is more predictable and controlled, and are more protected from victimization when provided with activities to keep busy (Wright, 1991b). Thus, it may be particularly

important for PMI to be incarcerated in prison environments more conducive to improved psychiatric and behavioral functioning. However, more data needs to be collected to clarify the impact general population prison facilities has on the psychological well-being of male PMI.

Conclusion

It is essential to gain understanding of the impact long-term imprisonment has on the mental health and behavioral functioning of male and female PMI, in order for mental health professionals to be better equipped to develop interventions that increase stable long-term functioning and decrease criminalness during incarceration. This will allow for more humane treatment of this population while incarcerated, and subsequently reduce institutional suffering. Of additional concern from a public health perspective, is the possibility that these offenders evidence increased psychiatric symptoms, criminal thinking, and criminal attitudes as a result of serving lengthy prison sentences, they may have increased difficulty re-entering the community upon release. Re-entry initiatives aim to improve an offender's ability to transition from incarceration back into society; however, these individuals' lives are influenced more by the criminal justice system after release than the mental health system (Wilson & Draine, 2006). Therefore, understanding how their clinical and behavioral presentation changes over the length of their prison sentence may help mental health professionals tailor interventions to the specific psychiatric and criminological needs of this population as they change during periods of incarceration and prepare for re-entry.

APPENDIX B

INFORMED CONSENT FORM

This is a research study about how people with mental illness serving time in prison are feeling, thinking, and behaving. We will ask you some general questions about yourself, like your age, race, etc. We will also ask you specific questions about your mental health diagnosis. We will then ask you questions about how you are currently feeling, as well as how you think about yourself, other people, and the world. By learning more about how people with mental illness think, feel, and behave while in prison, we can develop ways to treat problems some people with mental illness have. Before you answer these questions, please read and sign the consent form. After signing this form, please finish the four other forms in this packet. You do not have to answer any questions if you do not want to. If you have any questions at any time please raise your hand and wait to be approached by a researcher to answer your question.

You, _____ (inmate name), will answer questions about how you think, feel, and behave. These questions are for Dr. Robert Morgan and Ms. Rebecca Bauer of Texas Tech University. Only Dr. Morgan, Ms. Bauer, and anyone working with them will see your answers. If you don't answer these questions, no one at KDOC will know. Also, the answers you provide will not be given to KDOC. This study has nothing to do with how you are treated at KDOC.

You will be asked to complete 4 different questionnaires. Answering these questions will take about 1 hour and 30 minutes. **All of your answers are private. Do not put your name or KDOC number on the questionnaire or the demographic sheet.** Once you have answered the questions, turn in the form to the researcher. A summary of everyone's answers will be shared with KDOC and other professionals. This summary will be of everyone's answer so that no one will be able to tell how you answered any question. Other inmates may hear if you agree to answer these questions, and Dr. Morgan and Ms. Bauer have no control over this.

You will not receive payment or any other benefits for answering these questions. Although you will not receive any direct benefit from answering these questions, other people who need mental health services may be better helped.

You may choose to stop answering questions at any time, and you will not get in trouble if you decide to stop. Also, there are minimal risks for you if you answer these questions. If these questions do make you feel bad, anxious, irritated, or any other uncomfortable feelings, you may talk with the researchers. You also may ask questions at any time, and you have a right to have your questions answered.

How you answer these questions does not effect how you are treated by KDOC. You can say “no” to answering these questions, and no record of this will be placed in your central file. All of your answers will be taken to Texas Tech University. Your answers will then be kept in file cabinets behind two secure doors at Texas Tech University.

Dr. Robert Morgan or Ms. Rebecca Bauer will answer any questions you have about the study. For questions about your rights as a subject or about injuries caused by this research, contact the Texas Tech University Institutional Review Board for the Protection of Human Subjects, Office of Research Services, Texas Tech University, Lubbock, Texas 79409. Or you can call (806) 742-3884.

By signing this form, you are saying that you agree to answer the questions. You are saying that you have had all of your questions answered. You are also saying that no one is making you answer these questions. Lastly, you are saying that you understand this consent form.

Date: _____

Signed: _____

This consent form is not valid after _____

APPENDIX C

DEMOGRAPHIC FORM

Please check or circle the response or fill in the blank where appropriate

1. How old are you? _____

2. Racial/Ethnic Identity (check all that apply)

- a. _____ African American/Black
- b. _____ American Indian/Native American
- c. _____ Asian/Asian American
- d. _____ Caucasian/White
- e. _____ Hispanic/Latino
- f. _____ Other (explain) _____

3. What is your relationship status? (check only one)

- a. _____ Single
- b. _____ Partnered/Common Law
- c. _____ Divorced
- d. _____ Separated
- e. _____ Married
- f. _____ Widowed

4. How many years of formal education have you completed? _____

5. Which best describes the facility you are currently housed in? (circle only one)

- a. Reception and Diagnostic Unit
- b. Minimum
- c. Medium
- d. Maximum
- E. Other: _____

6. What crime(s) are you currently incarcerated for?

- a) _____
- b) _____
- c) _____

7. What is the length of your current sentence? _____

8. How much time have you already served on your current sentence? _____

9. Have you been diagnosed with a mental disorder? YES or NO

If YES, please list your current mental health diagnosis:

- a) _____
- b) _____
- c) _____

10. Have you received mental health services/treatment while incarcerated? YES or NO

If YES, please describe the type of services/treatment you received:

- a) _____
- b) _____
- c) _____

11. Are you currently receiving medication for your mental illness? YES or NO

If YES, please list the medications you are currently taking:

a) _____

b) _____

c) _____

APPENDIX D

INSTITUTIONAL FILE REVIEW FORM

Participant ID _____

1) Current charges:

- a) _____
- b) _____
- c) _____
- d) _____

2) Date of conviction: _____

3) Sentence length: _____

4) Current mental health diagnosis:

- Axis I: _____
- Axis II: _____
- Axis III: _____
- Axis IV: _____
- Axis V: _____

5) Current medications:

- a) _____
- b) _____
- c) _____
- d) _____

Disciplinary Infractions

Mark down date and type of disciplinary infractions occurring within the past three years.
Use extra sheets if necessary.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Psych Clinic Visits

Please mark down date(s) and reason participant visited an outpatient psych clinic during current sentence. Group dates according to year of sentence. Use extra sheets if necessary.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Psychiatric Inpatient Admissions

Please mark down date(s) and reasons participant was admitted to an inpatient psychiatric facility during current sentence. Group dates according to year of sentence. Use extra sheets if necessary.

[illegible]

Medication Changes

Mark dates and type of medication changes occurring during current sentence. Group dates according to year of sentence. Use extra sheets if necessary.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Custody Classification Changes

Please mark dates and types of custody classification or security level changes occurring during current sentence. Group dates according to year of sentence. Use extra sheets if necessary.

[illegible]

MCMII-III Scores Upon Incarceration

Date assessment completed: _____

Profile Valid: YES or NO

CATEGORY		SCORE		DIAGNOSTIC SCALES
		RAW	BR	
MODIFYING INDICES	X			Disclosure
	Y			Desirability
	Z			Debasement
CLINICAL PERSONALITY PATTERNS	1			Schizoid
	2A			Avoidant
	2B			Depressive
	3			Dependent
	4			Histrionic
	5			Narcissistic
	6A			Antisocial
	6B			Sadistic
	7			Compulsive
	8A			Negativistic
	8B			Masochistic
SEVERE PERSONALITY PATHOLOGY	S			Schizotypal
	C			Borderline
	P			Paranoid
CLINICAL SYNDROMES	A			Anxiety
	H			Somatoform
	N			Bipolar Manic
	D			Dysthymia
	B			Alcohol Dependence
	T			Drug Dependence

	R			Post-Traumatic Stress
SEVERE CLINICAL SYNDROMES	SS			Thought Disorder
	CC			Major Depression
	PP			Delusional Disorder

APPENDIX E

TABLES

Table 1

Means, Standard Deviations, and Ranges of MCMI-III Scales at T1 and T2

MCMI-III Scales	Mean		SD		Range	
	T1	T2	T1	T2	T1	T2
Moderate Personality Disorder						
Schizoid	57.76	65.41	22.67	22.29	103	84
Avoidant	53.46	61.46	34.29	26.58	100	110
Depressive	55.74	67.43	35.41	29.08	114	115
Dependant	45.74	45.30	28.00	27.37	85	115
Histrionic	43.33	43.74	18.32	10.93	93	58
Narcissistic	57.39	56.85	19.56	15.62	85	78
Antisocial	58.09	69.24	20.08	15.70	76	61
Aggressive	51.17	55.85	29.81	19.89	96	81
Compulsive	49.93	46.48	15.52	10.96	64	55
Negativistic	49.46	56.65	33.03	27.77	92	95
Masochistic	45.96	58.48	31.53	29.06	92	89
Severe Personality Pathology						
Schizotypal	50.65	59.70	29.57	22.27	97	98
Borderline	46.98	58.65	28.76	20.01	85	78
Paranoid	51.13	59.89	27.43	23.62	89	103

Table 1 continued.

MCMI-III Scales	Mean		SD		Range	
	T1	T2	T1	T2	T1	T2
Moderate Syndrome						
Anxiety	57.09	53.80	35.40	35.00	107	108
Somatic	44.22	43.11	29.04	28.31	104	74
Mania	50.07	54.96	23.81	21.16	95	86
Dysthymia	50.35	52.41	32.28	27.40	104	85
Alcohol Dependence	56.48	68.28	23.44	16.48	105	77
Drug Dependence	58.09	67.02	19.91	14.79	104	68
PTSD	51.39	49.11	27.93	24.48	104	85
Severe Syndrome						
Thought Disorder	39.07	47.93	29.45	24.75	89	82
Major Depression	42.70	45.04	28.36	26.04	94	75
Delusional	46.63	51.22	25.93	28.81	74	100

SD = standard deviation.

Table 2

Change in MCMI-III Moderate Personality Disorder and Severe Personality Pathology Scales Scores as a Function of Years between Measurement Time (N = 46)

MCMI-III Scale	Effect	Coefficient Estimate	SE	p	95% CI	
					Lower	Upper
Moderate Personality Disorder						
Schizoid	Fixed effects					
	Intercept	61.73	9.92	0.000	41.98	81.47
	Time	-17.02	12.36	0.176	-41.97	7.92
	Years	-0.83	1.59	0.602	-4.00	2.34
	Time*Years	4.34	1.98	0.034*	0.34	8.35
Avoidant	Fixed effects					
	Intercept	58.47	13.98	0.000	30.63	86.32
	Time	-4.55	16.46	0.784	-37.76	28.67
	Years	-1.05	2.25	0.643	-5.52	3.43
	Time*Years	2.35	2.64	0.378	-2.98	7.69
Depressive	Fixed effects					
	Intercept	79.44	14.50	0.000	50.55	108.34
	Time	-30.77	15.98	0.061	-63.02	1.48
	Years	-4.19	2.33	0.076	-8.83	0.45
	Time*Years	7.27	2.57	0.007**	2.10	12.45

Table 2 continued.

MCMI-III Scale	Effect	Coefficient Estimate	SE	p	95% CI	
					Lower	Upper
Dependent	Fixed effects					
	Intercept	61.66	12.52	0.000	36.70	86.62
	Time	-24.06	13.52	0.083	-51.35	3.24
	Years	-2.76	2.01	0.174	-6.77	1.25
	Time*Years	3.98	2.17	0.073	-0.39	8.38
Histrionic	Fixed effects					
	Intercept	29.34	6.37	0.000	16.68	42.01
	Time	11.40	8.19	0.171	-5.12	27.92
	Years	2.54	1.02	0.015*	0.50	4.57
	Time*Years	-1.94	1.31	0.147	-4.59	0.71
Narcissistic	Fixed effects					
	Intercept	39.19	7.74	0.000	23.74	54.63
	Time	5.36	8.43	0.528	-11.65	22.38
	Years	3.10	1.24	0.015	0.62	5.58
	Time*Years	-0.99	1.35	0.468	-3.72	1.74
Antisocial	Fixed effects					
	Intercept	63.89	7.98	0.000	47.96	79.82
	Time	-10.00	7.93	0.215	-26.01	6.01
	Years	-1.12	1.28	0.383	-3.68	1.43
	Time*Years	3.71	1.27	0.006**	1.14	6.28

Table 2 continued.

MCMI-III Scale	Effect	Coefficient Estimate	SE	<i>p</i>	95% CI	
					Lower	Upper
Aggressive	Fixed effects					
	Intercept	66.69	11.31	0.000	44.18	89.21
	Time	-22.40	13.68	0.109	-50.01	5.22
	Years	-2.82	1.82	0.125	-6.43	0.80
	Time*Years	4.67	2.20	0.040*	0.23	9.10
Compulsive	Fixed effects					
	Intercept	50.04	5.85	0.000	38.39	61.69
	Time	0.61	6.90	0.929	-13.30	14.53
	Years	0.16	0.94	0.865	-1.71	2.03
	Time*Years	-0.91	1.11	0.417	-3.14	1.33
Negativistic	Fixed effects					
	Intercept	64.92	13.34	0.000	38.36	91.49
	Time	-32.89	15.83	0.044	-64.84	-0.94
	Years	-2.95	2.14	0.172	-7.22	1.31
	Time*Years	7.14	2.54	0.007**	2.01	12.27
Masochistic	Fixed effects					
	Intercept	69.68	13.65	0.000	42.46	96.90
	Time	-14.10	14.50	0.336	-43.37	15.17
	Years	-4.12	2.19	0.064	-8.49	0.25
	Time*Years	4.47	2.32	0.062	-0.23	9.17

Table 2 continued.

MCMI-III Scale	Effect	Coefficient Estimate	SE	p	95% CI	
					Lower	Upper
Severe Personality Pathology						
Schizotypal	Fixed effects					
	Intercept	50.76	12.01	0.000	26.87	74.68
	Time	3.74	14.77	0.801	-26.06	33.54
	Years	-0.15	1.93	0.939	-3.99	3.69
	Time*Years	1.08	2.37	0.652	-3.71	5.86
Borderline	Fixed effects					
	Intercept	55.66	11.16	0.000	33.46	77.86
	Time	-9.89	14.27	0.492	-38.69	18.91
	Years	-1.64	1.79	0.363	-5.20	1.93
	Time*Years	3.69	2.29	0.144	-0.93	8.32
Paranoid	Fixed effects					
	Intercept	58.18	11.51	0.000	35.24	81.11
	Time	-12.18	12.91	0.351	-38.23	13.87
	Years	-1.33	1.85	0.475	-5.01	2.35
	Time*Years	3.79	2.07	0.075	-0.39	7.97

Note. SE = standard error; 95% C.I. = 95% confidence interval for coefficient estimate; Time = time of measurement (i.e., T1 or T2); Years = years between measurements.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3

Change in MCMI-III Moderate and Severe Syndrome Scales Scores as a Function of Years between Measurement Time (N = 46)

MCMI-III Scale	Effect	Coefficient Estimate	SE	p	95% CI	
					Lower	Upper
Moderate Syndrome						
Anxiety	Fixed effects					
	Intercept	75.70	16.18	0.000	43.47	107.92
	Time	-31.30	19.07	0.108	-69.79	7.20
	Years	-3.38	2.60	0.197	-8.55	1.80
	Time*Years	4.85	3.06	0.121	-1.33	11.03
Somatic	Fixed effects					
	Intercept	50.83	12.89	0.000	25.16	76.49
	Time	-22.71	15.63	0.154	-54.24	8.83
	Years	-1.25	2.07	0.547	-5.37	2.87
	Time*Years	3.90	2.51	0.127	-1.16	8.97
Mania	Fixed effects					
	Intercept	50.72	10.09	0.000	30.56	70.88
	Time	-6.16	9.19	0.506	-24.72	12.39
	Years	-0.23	1.62	0.887	-3.47	3.01
	Time*Years	1.98	1.48	0.187	-1.00	4.96
Dysthymia	Fixed effects					
	Intercept	69.43	13.37	0.000	42.83	96.03
	Time	-37.70	16.82	0.030*	-71.65	-3.75
	Years	-3.38	2.15	0.120	-7.65	0.90
	Time*Years	6.74	2.70	0.017*	1.29	12.19

Table 3 continued.

MCMI-III Scale	Effect	Coefficient Estimate	SE	<i>p</i>	95% CI	
					Lower	Upper
Alcohol Dep	Fixed effects					
	Intercept	78.38	8.87	0.000	60.69	96.06
	Time	-20.21	10.12	0.052	-40.64	0.22
	Years	-3.83	1.43	0.009**	-6.67	-0.99
	Time*Years	5.45	1.63	0.002**	2.17	8.74
Drug Dep	Fixed effects					
	Intercept	60.22	8.01	0.000	44.23	76.21
	Time	-1.90	7.66	0.806	-17.36	13.56
	Years	-0.46	1.29	0.722	-3.03	2.11
	Time*Years	1.91	1.23	0.128	-0.57	4.39
PTSD	Fixed effects					
	Intercept	75.31	11.63	0.000	52.10	98.52
	Time	-41.10	11.73	0.001	-64.76	-17.44
	Years	-4.11	1.87	0.031	-7.84	-0.39
	Time*Years	6.51	1.88	0.001**	2.71	10.31
Severe Syndrome Thought Disorder	Fixed effects					
	Intercept	37.82	12.10	0.003	13.72	61.91
	Time	-16.09	13.88	0.253	-44.10	11.93
	Years	0.03	1.94	0.987	-3.84	3.90
	Time*Years	4.31	2.23	0.600	-0.18	8.81

Table 3 continued.

MCMI-III Scale	Effect	Coefficient Estimate	SE	p	95% CI	
					Lower	Upper
Major Depression	Fixed effects					
	Intercept	60.28	12.12	0.000	36.16	84.40
	Time	-33.54	15.60	0.037*	-65.01	-2.06
	Years	-2.81	1.95	0.153	-6.69	1.06
	Time*Years	5.79	2.50	0.026*	0.73	10.84
Delusional	Fixed effects					
	Intercept	37.59	12.28	0.003	13.15	62.03
	Time	4.32	14.53	0.767	-24.99	33.64
	Years	1.59	1.97	0.424	-2.34	5.51
	Time*Years	0.14	2.33	0.953	-4.57	4.85

Note. Alcohol Dep = Alcohol Dependence; Drug Dep = Drug Dependence; *SE* = standard error; 95% C.I. = 95% confidence interval for coefficient estimate; Time = time of measurement (i.e., T1 or T2); Years = years between measurements.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4

Means and Variances of Mental Health Count Variables

Variables	Mean (SD)	Variance
Days on Crisis Watch	1.01 (3.04)	9.23
Sick Call Visits	2.86 (4.62)	21.36
Mental Health Follow-ups	4.63 (7.30)	53.24
Mental Health Referrals	2.48 (2.89)	8.39
Disciplinary Infractions	5.52 (7.09)	50.22
Weighted Disciplinary Infractions	13.22 (17.68)	312.46

Table 5

Negative Binomial Regression Analysis with Time Served in Prison, Controlling for Axis I Diagnosis, Age, and Sentence Length, Predicting Mental Health Count Variables

Dependent Variables	Covariates & Predictor Variables	<i>B</i>	Wald's Λ	Odds Ratio	95% CI	
					Lower	Upper
Crisis Watch	MDD	0.727	5.017*	2.068	1.095	3.905
	Bipolar ⁺	-	-	-	-	-
	Schizophrenia	1.200	9.049**	3.321	1.519	7.259
	Age	-0.010	0.487	0.990	0.962	1.018
	Sentence Length	0.001	3.031	1.001	1.000	1.002
	Time Served	0.000	0.035	1.000	0.997	1.004
Sick Call	MDD	-0.288	1.380	0.750	0.464	1.212
	Bipolar	-0.929	3.725	0.395	0.154	1.015
	Schizophrenia	0.723	4.970*	2.061	1.091	3.892
	Age	-0.007	0.477	0.993	0.973	1.013
	Sentence Length	0.000	0.116	1.000	0.999	1.001
	Time Served	0.000	0.083	1.000	0.998	1.003
Follow-ups	MDD	-0.070	0.088	0.933	0.588	1.478
	Bipolar	-2.393	16.620***	0.091	0.029	0.289
	Schizophrenia	0.178	0.310	1.194	0.639	2.231
	Age	-0.008	0.951	0.992	0.975	1.009
	Sentence Length	0.000	0.890	1.000	1.000	1.001
	Time Served	0.001	0.461	1.001	0.998	1.003

Table 5 continued.

Dependent Variables	Covariates & Predictor Variables	<i>B</i>	Wald's Λ	Odds Ratio	95% CI	
					Lower	Upper
Referrals	MDD	0.200	0.643	1.221	0.749	1.992
	Bipolar	-1.165	4.558*	0.312	0.107	0.909
	Schizophrenia	0.607	3.359	1.835	0.959	3.513
	Age	-0.003	0.100	0.752	0.976	1.018
	Sentence Length	0.000	0.922	0.337	1.000	1.001
	Time Served	-0.001	0.626	0.429	0.996	1.002

Note. MDD = Major Depressive Disorder. *B* = unstandardized regression coefficient. Wald's Λ = Wald's statistic. 95% C.I. = 95% confidence interval for the odds ratio value.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

⁺ Singularities present in the Hessian Matrix, parameter statistics could not be estimated.

Table 6

Means and Standard Deviations of PICTS Scales

PICTS Scales	Mean	SD
Content		
Current	50.77	8.70
Historical	51.20	9.67
Criminal Thinking		
Mo	47.52	8.12
Co	52.49	9.53
En	49.68	9.93
Po	52.09	10.71
Sn	47.46	11.13
So	49.56	9.73
Ci	50.44	8.33
Ds	51.39	7.96
Factor/Special		
PRB	50.87	8.22
HOS	50.41	9.21
AST	51.20	9.01
DNH	46.31	8.81
FOC	54.30	10.71
Composite		
P	50.43	9.51
R	51.57	8.60

SD = standard deviation. Mo = Mollification. Co = Cutoff. En = Entitlement. Po = Power Orientation. Sn = Sentimentality. So = Superoptimism. Ci = Cognitive Indolence. Ds = Discontinuity. PRB = Problem Avoidance. HOS = Interpersonal Hostility. AST = Self-Assertion/Deception. DNH = Denial of Harm. FOC = Fear of Change. P = Proactive. R = Reactive.

Table 7

Multivariate Regression Analyses with Time Served in Prison, Controlling for Axis I Diagnosis, Age, and Sentence Length, Predicting the PICTS Content Scales, Criminal Thinking Scales, Factor and Special Scales, and Composite Scales

Dependent Variables	Covariates & Predictor Variable	<i>B</i>	<i>SE B</i>	95% CI	
				Lower	Upper
Content					
Current	Axis I	-1.385	0.614	-2.603	-0.167
	Age	-0.110	0.077	-0.264	0.043
	Sentence Length	-0.002	0.004	-0.010	0.005
	Time Served	0.008	0.012	-0.016	0.031
Historical	Axis I	-0.758	0.641	-2.030	0.513
	Age	-0.363***	0.081	-0.524	-0.203
	Sentence Length	0.002	0.004	-0.006	0.010
	Time Served	0.009	0.013	-0.016	0.034
Criminal Thinking					
Mo	Axis I	0.179	0.572	-0.957	1.314
	Age	-0.176	0.072	-0.319	-0.033
	Sentence Length	0.003	0.004	-0.004	0.010
	Time Served	0.015	0.011	-0.007	0.037
Co	Axis I	-1.288	0.656	-2.588	0.013
	Age	-0.216	0.083	-0.380	-0.052
	Sentence Length	-0.002	0.004	-0.011	0.006
	Time Served	0.003	0.013	-0.022	0.029

Table 7 continued.

Dependent Variables	Covariates & Predictor Variable	<i>B</i>	<i>SE B</i>	95% CI	
				Lower	Upper
En	Axis I	0.604	0.670	-0.725	1.934
	Age	-0.314***	0.084	-0.482	-0.147
	Sentence Length	0.007	0.004	0.000	0.016
	Time Served	0.004	0.013	-0.022	0.030
Po	Axis I	0.551	0.724	-0.884	1.987
	Age	-0.355***	0.091	-0.536	-0.174
	Sentence Length	0.003	0.005	-0.006	0.012
	Time Served	0.003	0.014	-0.025	0.031
Sn	Axis I	-0.657	0.797	-2.237	0.923
	Age	-0.156	0.100	-0.355	0.043
	Sentence Length	-0.002	0.005	-0.012	0.008
	Time Served	0.003	0.016	-0.028	0.034
So	Axis I	-0.549	0.651	-1.840	0.742
	Age	-0.328***	0.082	-0.491	-0.166
	Sentence Length	0.002	0.004	-0.006	0.010
	Time Served	0.002	0.013	-0.023	0.028
Ci	Axis I	-0.810	0.575	-1.950	0.329
	Age	-0.221	0.072	-0.365	-0.077
	Sentence Length	-0.003	0.004	-0.010	0.004
	Time Served	0.025	0.011	0.003	0.048

Table 7 continued.

Dependent Variables	Covariates & Predictor Variable	<i>B</i>	<i>SE B</i>	95% CI	
				Lower	Upper
Ds	Axis I	-0.834	0.561	-1.947	0.278
	Age	-0.161	0.071	-0.301	-0.021
	Sentence Length	0.000	0.003	-0.008	0.006
	Time Served	0.016	0.011	-0.006	0.037
Factor/Special					
PRB	Axis I	-1.081	0.580	-2.231	0.069
	Age	-0.149	0.073	-0.294	-0.004
	Sentence Length	0.000	0.004	-0.007	0.007
	Time Served	0.006	0.011	-0.016	0.029
HOS	Axis I	0.804	0.652	-0.490	2.098
	Age	-0.156	0.082	-0.319	0.007
	Sentence Length	0.005	0.004	-0.003	0.014
	Time Served	0.003	0.013	-0.022	0.029
AST	Axis I	-0.703	0.589	-1.872	0.465
	Age	-0.350***	0.074	-0.497	-0.203
	Sentence Length	0.006	0.004	-0.002	0.013
	Time Served	0.002	0.012	-0.021	0.025
DNH	Axis I	0.005	0.620	-1.225	1.235
	Age	-0.204	0.078	-0.359	-0.049
	Sentence Length	0.003	0.004	-0.005	0.011
	Time Served	0.000	0.012	-0.025	0.023

Table 7 continued.

Dependent Variables	Covariates & Predictor Variable	<i>B</i>	<i>SE B</i>	95% CI	
				Lower	Upper
FOC	Axis I	0.219	0.783	-1.333	1.771
	Age	-0.010	0.099	-0.206	0.185
	Sentence Length	-0.001	0.005	-0.011	0.009
	Time Served	-0.003	0.015	-0.034	0.027
Composite					
P	Axis I	-0.0463	0.630	-1.713	0.787
	Age	-0.355***	0.079	-0.513	-0.198
	Sentence Length	0.006	0.004	-0.002	0.014
	Time Served	0.003	0.012	-0.022	0.027
R	Axis I	-1.361	0.5998	-2.548	-0.174
	Age	-0.161	0.075	-0.311	-0.012
	Sentence Length	-0.002	0.004	-0.009	0.006
	Time Served	0.004	0.012	-0.020	0.027

Note. *B* = unstandardized regression coefficient. *SEB* = standard error of *B*. 95% C.I. = 95% confidence interval for *B*. β = standardized regression coefficients. Mo = Mollification. Co = Cutoff. En = Entitlement. Po = Power Orientation. Sn = Sentimentality. So = Superoptimism. Ci = Cognitive Indolence. Ds = Discontinuity. PRB = Problem Avoidance. HOS = Interpersonal Hostility. AST = Self-Assertion/Deception. DNH = Denial of Harm. FOC = Fear of Change. P = Proactive. R = Reactive.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 8

Means and Standard Deviations of CSS-M Scales

CSS-M Scales	Mean	SD
Law	5.80	4.03
Court	9.94	3.48
Police	6.79	3.27
TLV	6.66	4.53
ICO	4.43	2.30
Total	33.70	13.86

SD = standard deviation. TLV = Tolerance of Law Violations. ICO = Identification with Criminal Others. Total = Total score.

Table 9

Simple Linear Regression with Time Served in Prison, Controlling for Axis I Diagnosis, Age, and Sentence Length, Predicting the CSS-M Total

Predictor Variable & Covariates	<i>B</i>	<i>SE B</i>	95% CI		<i>B</i>
			Lower	Upper	
Axis I	0.148	0.992	-1.819	2.115	0.014
Age	-0.321	0.125	-0.570	-.073	-0.278
Sentence Length	0.002	0.007	-0.011	.015	0.036
Time Served	0.014	0.020	-0.025	.054	0.096

Note. *B* = unstandardized regression coefficient. *SEB* = standard error of *B*. 95% C.I. = 95% confidence interval for *B*. β = standardized regression coefficient.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 10

Multivariate Regression Analyses with Time Served in Prison, Controlling for Axis I Diagnosis, Age, and Sentence Length, Predicting the CSS-M Subscales

Dependent Variables	Predictor Variable & Covariates	<i>B</i>	<i>SE B</i>	95% CI	
				Lower	Upper
Law	Axis I	0.117	0.283	-0.444	0.678
	Age	-0.105	0.036	-0.176	-0.034
	Sentence Length	0.000	0.002	-0.003	0.004
	Time Served	0.004	0.006	-0.007	0.015
Court	Axis I	-0.269	0.255	-0.774	0.236
	Age	-0.032	0.032	-0.095	0.032
	Sentence Length	0.000	0.002	-0.004	0.003
	Time Served	0.005	0.005	-0.005	0.015
Police	Axis I	-0.121	0.235	-0.587	0.345
	Age	-0.072	0.030	-0.131	-0.013
	Sentence Length	0.000	0.002	-0.004	0.002
	Time Served	0.005	0.005	-0.004	0.015
TLV	Axis I	0.201	0.326	-0.446	0.848
	Age	-0.092	0.041	-0.174	-0.011
	Sentence Length	0.001	0.002	-0.004	0.005
	Time Served	0.002	0.007	-0.011	0.015
ICO	Axis I	0.221	0.162	-0.102	0.543
	Age	-0.028	0.021	-0.069	0.012
	Sentence Length	0.003	0.001	0.000	0.005
	Time Served	-0.002	0.003	-0.008	0.005

Note. *B* = unstandardized regression coefficient. *SEB* = standard error of *B*. 95% C.I. = 95% confidence interval for *B*. TLV = Tolerance of Law Violations. ICO = Identification with Criminal Others. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 11

Negative Binomial Regression Analysis with Time Served in Prison, Controlling for Axis I Diagnosis, Age, and Sentence Length, Predicting Disciplinary Infractions

Dependent Variables	Covariates & Predictor Variables	<i>B</i>	Wald's Λ	Odds Ratio	95% CI	
					Lower	Upper
DI	MDD	0.084	0.134	1.087	0.694	1.703
	Bipolar	-0.565	1.851	0.569	0.252	1.282
	Schizophrenia	0.589	3.080	1.802	0.933	3.480
	Age	-0.048	21.026***	0.953	0.933	0.973
	Sentence Length	0.000	0.135	1.000	0.999	1.001
	Time Served	0.000	0.001	1.000	0.997	1.003
Weighted DI	MDD	0.053	0.059	1.054	0.688	1.616
	Bipolar	-0.768	3.897	0.464	0.216	0.995
	Schizophrenia	0.620	3.707	1.859	0.989	3.496
	Age	-0.049	23.219***	0.952	0.933	0.971
	Sentence Length	0.000	0.201	1.000	0.999	1.001
	Time Served	0.000	0.001	1.000	0.997	1.002

Note. MDD = Major Depressive Disorder. *B* = unstandardized regression coefficient.

Wald's Λ = Wald's statistic. 95% C.I. = 95% confidence interval for the odds ratio value.

DI = disciplinary infractions.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

APPENDIX F

FIGURES

Figure 1

Scores on the Schizoid Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 2

Scores on the Depressive Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 3

Scores on the Antisocial Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 4

Scores on the Aggressive Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 5

Scores on the Negativistic Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 6

Scores on the Dysthymia Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 7

Scores on the Alcohol Dependence Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 8

Scores on the Post-Traumatic Stress Disorder Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.

Figure 9

Scores on the Major Depression Scale of the MCMI-III at T1 and T2 for Participants with “Many” Years Served in Prison Compared with Participants with “Few” Years Served in Prison

Note. “Many” and “Few” = 1 standard deviation above or below the mean number of years served in prison, with “Many” ≥ 7.98 years and “Few” ≤ 3.74 years.