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LOYOLA UNIVERSITY CHICAGO

SELF-CONTROL AS A DETERMINING FACTOR IN AFTERCARE COMPLIANCE  
AND RECIDIVISM OF SHERIDAN CORRECTIONAL CENTER RELEASEES

A THESIS SUBMITTED TO  
THE FACULTY OF THE GRADUATE SCHOOL  
IN CANDADACY FOR THE DEGREE OF  
MASTER OF ARTS

PROGRAM IN CRIMINAL JUSTICE

BY

JANA KREPEL

CHICAGO, ILLINOIS

AUGUST 2012

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## ACKNOWLEDGEMENTS

In a perfect world, thanks would be given to individuals immediately upon events that deserved them. However while writing this thesis I was overwhelmed, distracted, and not mindful of moments and events that deserved my gratitude. Luckily, I have been given the opportunity to try and make amends for that neglect in this section.

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## ABSTRACT

This study looked to Self-Control Theory to explore relationships between self-control and aftercare completion and recidivism in a cohort of Sheridan Correctional Center releases (N=604). The data set was obtained by Dr. David Olson (Olson & Rozhon, 2011) of Loyola University Chicago. Utilizing an existing inmate evaluation tool, the Client Evaluation of Self and Treatment, a new index of self-control was created, and the scales of this index became the predictor variables. After logistic regression, it was determined that none of the self-control scales were significant predictors of either aftercare compliance or recidivism. In fact, when all variables were considered, non-completion of aftercare was the strongest predictor of recidivism.

## CHAPTER ONE

### INTRODUCTION

The current study examines the influence of self-control on compliance and recidivism among a sample of inmates released from prison. Concern over the high recidivism rates of those released from prison, and the size of the institutionalized prison population in the U.S. over the past two decades makes the answer to this research question of critical importance to criminal justice policy makers and practitioners. The incarcerated population in the United States has grown exponentially since the late 1900s. Between 1980 and 1990, the national population of incarcerated individuals increased 142% (Justice Policy Institute, 2000). The combined jail and prison populations exceeded 2 million early in the twenty-first century, and continued to increase through 2007, slowing only in the most recent years (Glaze, 2011). In 2010, the prison population experienced a slight decline of 0.3%, the first drop since 1972. Glaze (2011) reported that in 2010, 1.5 million individuals were housed in state or federal prisons, and another 750,000 were housed in local jails. To put this into a global perspective, the United States leads the world in terms of the number of people incarcerated in prison, followed by China, which has 600,000 fewer prisoners (Walmsly, 2011), but almost one billion more people (Population Reference Bureau, 2012).

What has happened to create a nation where one in every 150 citizens is incarcerated (Walmsly, 2011), or defined more precisely, where one out of every 100

adults is behind bars (Pew Center on the States, 2009)? Until 1975, state and federal sentencing structures employed indeterminate sentencing time frames (Stemen & Rengifo, 2011). Convicted offenders were sentenced to a time range (i.e. 25 years to life), but the actual amount of time within that range, minus good conduct credits, was decided by parole boards in each state. Beginning in the 1970s, and through the 1990s, nineteen states removed release control from parole boards by implementing determinate sentencing, a move that was intended to remove potential bias from sentencing and release decisions (Stemen & Rengifo, 2011). However, it had the unforeseen consequence of increasing the amount of time inmates spend in prison.

Contributing to the increase in prison populations with increased sentence lengths, was a rising crime rate through the 1980s and 1990s. The United States violent crime rate increased from 548.9 (per 100,000) in 1979 to 758.2 in 1991, and property crime increased from 5,016.6 in 1979 to 5,140.2 in 1991 (U.S. Department of Justice, 2010), and as a result, increases in arrests and prison sentences for these crimes increased as well. There are several explanations for the source of this increase, ranging from the coming-of-age of the children of the baby boomers, resulting in a greater number of people in the prime age range for criminal behavior, to increased drug use, to increasing economic disparity.

Another source of growth for the prison population in the United States was the increased focus on the enforcement of drug laws that began during the early 1970s, and reached a peak during the late 1980s and early 1990s. President Nixon created the Drug Enforcement Administration (DEA) in 1973, but it was the concern over crack cocaine in

the mid-1980s and the passage of the Anti-Drug Abuse Act in 1986 (NPR, 2007) that dramatically altered the nature of drug enforcement in the United States and led to an unprecedented increase in the number of drug-law violators arrested, prosecuted, and sentenced to prison in the U.S.. The police were expected to focus on the enforcement of drug-laws and make arrests, the courts and legislatures increasingly enhanced the penalties on specific types of drugs or drug-law violators, and as a result, more and more people were sentenced for longer stays in the nation's jails and prisons.

In addition to the increased focus on drug-law violators, crowding in state correctional facilities continued following the adoption of sentencing enhancements, such as when many states adopted three-strikes laws. Three-strikes laws were designed so that if an offender was convicted of their third serious felony crime (the definition of which varied from state to state), the sentence was automatically life in prison, often with no parole option until at least 25 years was served (Caulkins, 2001). The definition of a "serious crime" varied from state to state, but violent crimes always made the list. This type of sentencing is not designed to rehabilitate offenders, but centers on incapacitation and deterrence, removing recidivists from society and making those with two strikes think about the consequences of their next crime. With recidivists behind bars for 25 to life, prisons have fewer and fewer empty beds to house new offenders. The combination of increased sentence length, a generational influx of young adults, more actions and activities defined as crimes, and stricter sentencing laws, led to prisons around the United States that are filled beyond capacity. This is the situation the nation finds itself in today.

Illinois, the location of the current study, has followed the national trend in overcrowding, with the prison population growing almost threefold from 1983 to 1999 (Olson, 2000). Illinois adopted determinate sentencing in February of 1978 (Stemen & Rengifo, 2011), and Truth in Sentencing in August of 1995 (Olson, Seng, Boulger, & McClure, 2009). While Truth in Sentencing may result in reduced sentence time overall (i.e. a judge may sentence 10 years rather than 15), it can also increase the actual time served in prison by eliminating good conduct credits. Olson, Seng, Boulger, and McClure (2009) found that actual time served for murder and Class X sex offenses actually increase, as these crimes carry the longest sentences.

While Illinois matched national overcrowding trends, it outpaces the national average in recidivism. Recidivism has been variably defined as the re-arrest, re-conviction, or re-incarceration of an individual. It is generally measured in a three-year timeframe from the day of release. The recidivism rate (as determined by re-incarceration) for 2004 releasees was 43.3% nationally (Pew Center on the States, 2011). In Illinois, 51.7% of individuals released from a state prison in 2004 returned to one within three years (Pew Center on the States, 2011). This recidivism rate reflects a variety of complex issues and policies, but oftentimes is viewed as the means by which we can gauge success or failure on the part of Illinois' correctional system. With limited bed space, Illinois' correctional centers cannot afford to continuously re-admit offenders who recidivate and have sought some innovative and substantive solutions to this problem.

In an effort to combat recidivism, Illinois and other states have implemented evidence-based rehabilitative programming within prisons since the early 2000s. One of the most notable of these efforts in Illinois is Sheridan Correctional Center's National Model Drug Prison and Reentry Program. Drug use is a well known correlate of crime (Packer et. al, 2009) and for the last century has, in fact, *been* a crime. In 2004, 56% of state prisoners in the United States were identified as being a drug abuser or drug dependent prior to their incarceration. Of these, 53% had three or more prior sentences, compared to the non-drug abusing population of which only 32% had three or more priors (Mumola & Karberg, 2006). These numbers imply that drug use is closely linked to recidivism.

The Sheridan Correctional Center, located approximately 70 miles southwest of Chicago in Sheridan, IL, was first built in 1941 as a juvenile facility. It was converted to an adult facility in 1973 and remained such until 2002, when it closed, and later reopened in 2004 in its current capacity. Dedicated to substance abuse treatment, Sheridan Correctional Center utilizes cognitive-behavioral therapies to “confront old behaviors and instill new ones” (Illinois Department of Corrections, 2010c). The four primary goals of the National Model Therapeutic Community Program that Sheridan Correctional Center uses are compassion for others, discipline and self-restraint, achievement, and responsibility for self/environment (Illinois Department of Corrections, 2010b). In addition to providing all offenders with drug treatment and rehabilitation while in prison, Sheridan builds aftercare programming into Mandatory Supervised Release (MSR) to support individual reentry efforts.

The current study uses the population served by the Sheridan Correctional Center to develop a better understanding of the role and influence of personal characteristics on subsequent recidivism and aftercare compliance of those released from prison. In doing so, the current research seeks to expand the understanding of the dynamics of recidivism through the development of several scales relating to aspects of self-control, and the incorporation of these measures into analyses of post-prison recidivism and compliance with aftercare requirements. The following chapter summarizes the relevant literature on the theory of self-control as it relates to criminal behavior, as well as the literature of the effectiveness of prison-based treatment and recidivism of those released from prison. Chapter three outlines the methodology utilized in the study and includes descriptive information on each variable. The results portion details the bivariate analyses and the logistic regression outcomes. The final chapter in the body of this paper provides interpretation of the statistical results, discussion surrounding study limitations, and avenues for future research. Raw materials for the self-control factors and a detailed procedural description of the factor analysis used to create the self-control factors are located in appendices at the end of this paper.

## CHAPTER TWO

### LITERATURE REVIEW

#### *Self-Control and Crime*

In their General Theory of Crime, better known as Self-Control Theory, Gottfredson and Hirschi (1990) state that people are all compelled to crime, but differ in the extent to which they are restrained from it. Their definition of self-control is “the differential tendency of people to avoid criminal acts whatever the circumstances in which they find themselves” (pg. 87). Instrumental to an individual developing self-control is the way in which they are brought up. Proper child rearing involves (at a minimum) monitoring a child’s actions, and punishing and correcting deviant behaviors. Deviant behaviors are not always criminal, and include such actions as insubordination (toward parents, teachers, or other authority figures), fighting, deception, and truancy.

This seemingly simple formula for raising well-socialized children can break down in one of four ways:

1. The parent or parents have no real care or concern for the child and do not attend to its actions
2. The parent or parents are too busy or exhausted to properly monitor a child’s behavior
3. The parent or parents do not recognize deviant behaviors and thus cannot appropriately discipline or correct the child

4. The parent or parents do not have the inclination or means to punish or correct deviant behavior even when it is discovered

If one or more of these negligent parental behaviors occur routinely as a child grows up, they have a diminished chance of being properly socialized and will be more likely to have low self-control. Gottfredson and Hirschi (1990) were quick to disavow that low or lack of self-control could be “produce[d] by training, tutelage, or socialization” (pgs. 94-95) but in fact is a parentally unforeseen consequence in the “absence of nurturance, discipline, and training” (pg 94).

Self-control, once instilled by the family, is assumed to be a permanent condition. While they believed self-control cannot be un-learned, Gottfredson and Hirschi (1990) felt that it does “set” at around 10 or 12. Once an individual reaches this critical point, familial socialization does little to create further self-control. However, socialization from other sources (knowledge of legal and penal systems, career regulations, general maturation etc.) will slowly raise the levels of self-control of most people over time, although not by much. Gottfredson and Hirschi (1990) noted that those that begin with high self-control rarely, if ever, devolve into those with low self-control. Thus, “the low self-control group continues over time to exhibit low self-control. Its size, however, declines” (pg. 108).

As stated previously, low self-control is not analogous to criminality. Two manifestations of low self-control are an unwillingness or inability to delay gratification and poor foresight into the consequences of one’s actions. This means that people with low self-control are more likely to smoke, drink, have illicit sexual relations, gamble, be

accident prone, and get into fights *in addition* to having an increased likelihood of engaging in criminal activity. Expanding on the criminal component, Gottfredson and Hirschi (1990) wrote that criminals will not be specialists but generalists, taking the opportunities available to them that will most efficaciously serve their short-term needs. They point to the criminal history records of offenders from many studies as evidence that most criminals have multiple types of convictions. Self-Control Theory says individuals that commit certain types of crimes repetitively do so only because that particular method is consistently available as the quickest means to an end. If the method is no longer available (homes install alarm systems, drug suppliers get arrested), the individual will meet his needs in the next easiest way. Thus, labels such as burglar, drug dealer, and rapist are misleading. Unfortunately, the general public, policy makers, and the media are quick to utilize labels. This could be because law enforcement often lists only the most serious of multiple offenses committed during a single incident. When looking over crime reports, pieces of the story are missing or only briefly referenced. It could also have to do with the “newsworthiness” of lesser crimes. The public hears (and therefore worries) about serious crimes, and votes for policy makers who take a strong stance against these crimes. This affinity for criminal labeling leads to incorrect assumptions about both the causes of and remedies for crime.

Gottfredson and Hirschi (1990) argue that self-control is set at a young age and stays consistent throughout life, which makes the theory an interesting lens for examining programming. The elements of self-control are:

1. Ability to delay gratification

2. Caution
3. Cognitive and verbal as opposed to active and physical
4. Long-term planning and foresight
5. Ability to learn and master manual or academic skills
6. Empathy
7. Tolerance for frustration
8. Ability to find alternative methods to deal with stressors
9. Creates lasting relationships with friends and family

It follows then, that individuals with low self-control will seek instant gratification, display risky behavior patterns, be short sighted and short fused, impulsive, and prone to violence. Given the opportunity, individuals with these characteristics will be more likely to commit crimes and engage in analogous behaviors such as drug use, alcohol abuse, and risky sexual encounters (Gottfredson & Hirschi, 1990). With better understanding of self-control's relationship to recidivism and aftercare completion, methods of supervision can be tailored to improve these outcomes for released offenders and their communities.

#### *Self-Control and Maturation*

One aspect of Self-Control Theory that has been questioned in the literature is Gottfredson and Hirschi's (1990) claim that self-control is set at a young age. They believe individuals that have low self-control will gain it over time with increased life experience, but only proportionally relative to the rest of the population. In essence, once low, always low. They maintain that programs to help improve self-control after the age

when its relative position is set, between 10 and 12, will not be useful; the way to ensure cessation of future deviance is to eliminate opportunities for future crime. However, researchers in biology and psychology believe the brain continues changing throughout adolescence and into young adulthood. Romer, Duckworth, Sznitman, and Park (2010) found the adolescent brain is too immature to adequately control impulses that relate to self-control such as risk taking behaviors and delaying gratification.

Impulsivity, another component of self-control, was shown to be related to both general and serious delinquency (White, et. al., 1994). Shannon et. al. (2011) looked in depth at impulsivity in incarcerated juveniles and normal control subjects. They found that the section of the brain controlling motor planning was similar across younger normal controls and older, highly impulsive incarcerated juveniles. They concluded that it was not a flaw or difference in the brains of highly impulsive individuals, but rather a delay in the normal physical maturing process.

Physiological changes in the brain occur through adolescence (Luna et.al., 2004; Casey, Galvin, & Hare, 2005). The prefrontal cortex controls goal-oriented behaviors and inhibition (Casey, Tottenham, & Fosella, 2002; Tamm, Menon, & Reiss, 2002), two components of Gottfredson & Hirschi's (1990) construct of self-control. Using these ideas, Iselin and DeCoster (2009) tested both incarcerated and non-incarcerated adolescents (12-18) and young adults (18-23) on proactive and reactive control. Participants were directed to click a button when the letter X followed the letter A as they watched a computer screen. The researchers found that adolescents had higher error rates than young adults in the reactive control condition, when the participant clicked after

seeing A followed by Y. This suggests that reactive control can be improved with practice, training, or intervention, at least between the ages of 12 and 18. It was discussed that a diagnosis of ADHD had more of an effect than age on proactive control (when a participant clicked when B was followed by X) and could be indirectly influential on criminal responsibility. They also discovered “incarcerated adolescents were less sensitive to context information than were the control young adults” (Iselin & DeCoster, 2009, pg. 200). These findings taken together corroborate Gottfredson and Hirschi’s (1990) claim that, while individual self-control remains stable in relation to others in the population, it does in fact increase slightly over time as one matures. What these findings do not support is the age at which self-control is set if indeed it ever sets. Another study with similar findings, conducted by Davidson, et. al. (2006), stated that one aspect of mature cognition is self-control. They define self-control as resisting inappropriate impulses, acting on choice, and making appropriate responses. In tasks designed to have a subject resist impulses, they found that older subjects performed better.

A study of male sex offenders incorporated Self-Control Theory (Gottfredson & Hirschi, 1990) when looking to explain recidivism differences between different age groups of rapists and child molesters. Hanson (2002) speculated that as an individual ages and gains higher psychological functioning and self-control, he will commit fewer sex offenses. The meta-analysis of ten studies’ outcomes supported this idea, and although none of the studies looked at self-control explicitly, it was inferred. A similar finding came from Packer, et. al. (2009). This study *did* utilize a specific measure of self-

control. There was a correlation between age and self-control, with older individuals exhibiting higher levels of self-control and lower levels of temper. A major drawback to this study was its small sample size. Only 50 individuals were included in the analysis.

### *Self-Control and Drug Use*

Gottfredson & Hirschi (1990) maintain that self-control contributes to individuals' decisions to abuse drugs, an act they grouped with risky behaviors and accidents, and termed "analogous to crime" (pg. 91). Goldstein et. al. (2007) performed a study comparing cocaine users with non-users in a forced-choice task with monetary rewards. All participants completed a self-control measure prior to beginning the task. Increasing monetary rewards for rapid, correct task response increased task reaction time for non-users, but did not in cocaine users. In other words, non-users paid more attention than users to the task at hand when monetary rewards increased. The score on the self-reported self-control measure correlated positively with response times. This finding implicates self-control as being an important factor in task completion and focus in drug addicted individuals. There is another potential reason for cocaine users not increasing their response time when presented with monetary stimulus. Lane et. al. (2007) determined that slowed response time in cocaine users is linked to a disruption in visual information processing. Drug users might not have had the capability to increase their response time. This would modify the Goldstein et. al. (2007) finding and imply that self-control correlates with cocaine use.

Several studies have found that low self-control might contribute to illicit drug use, difficulty abstaining from drug use after recovery, and other substance abuse

problems. Packer, et. al. (2009) found correlations between levels of self-control and crimes of drug use and acquisition. In an evaluation of male offenders who went through Treatment Alternatives for Safe Communities (TASC) between 1994 and 1995, Longshore, et. al. (2004) found measured drug use was higher for those with low self-control. Further, Walter's (2000) meta-analysis of 17 studies showed behavioral self-control interventions were found to be better than non-abstinence based interventions in reducing problematic drinking. Similarly, a study of recovering addicts found that lower impulsivity and higher self-control led to longer periods of abstinence while in communal living homes (Ferrari, Stevens, & Jason, 2009). Gottfredson and Hirschi (1990) considered impulsivity to be a part of the self-control complex, so this finding is consistent with Self-Control Theory. Another study found that self-control had a buffering effect on adolescent substance abuse in a sample of 1,800 6th – 9th graders. Adolescents with higher self-control were less likely to be substance abusers in the presence of risk factors for substance abuse: family problems, personal events, and peer substance use (Wills & Ainette, 2008). Across studies with varying measures of drug use, self-control has emerged as an important concept to understanding individuals' decisions and behaviors.

### *Self-Control versus Psychopathic Deviancy*

Psychopathic deviancy is a construct that, at the outset, very much resembles self-control. The psychopath does not plan ahead, does not foresee consequences, and lacks self-restraint. He has a short fuse like the individual with low self-control, but also craves power and prestige. The major difference between psychopaths and individuals

with low self-control is that psychopathic deviants do not feel shame or anxiety, and thus have no concern for the opinion of others (Lynam & Widiger, 2007).

The Hare Psychopathy Checklist – Revised (PCL-R) is an instrument that is used extensively in the field to measure psychopathy (Lynam & Widiger, 2007; Douglas, Yeomans, & Boer, 2005), a term used to describe a set of personality traits and socially deviant behaviors. The PCL-R is a validated instrument with proven utility in diagnosing male offenders (Sevecke, et. al., 2009). Those diagnosed with psychopathy are highly likely to recidivate and are highly unlikely to respond to treatment (ShIPLEY & Arrigo, 2001).

Psychopathy is not listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 2000). The complex of symptoms the PCL-R labels as psychopathy is often diagnosed as antisocial personality disorder (ASPD). Hart and Hare (as cited in Shipley & Arrigo, 2001) found that one major problem with an incorrect diagnosis of ASPD is the exclusion of certain interpersonal and affective symptoms such as deceitfulness, grandiosity, and lack of remorse. This leads to an abundance of inmates diagnosed with ASPD, but a minority of these actually meet the additional criteria for psychopathy. Shipley and Arrigo (2001) expect that ASPD might be used as a catchall term by prison evaluators to single out difficult inmates or those that seem resistant to treatment.

When psychopathy is correctly identified, it correlates with recidivism and treatment resistance (Shipley & Arrigo, 2001). However, this paper chooses not to use psychopathy's set of criteria as a lens for viewing aftercare compliance and recidivism.

The reason behind this decision is twofold. First, some of the items in the PCL-R directly measure criminal behavior in the forms of juvenile delinquency and criminal versatility (Edens, Boccaccini, & Johnson, 2010). As this study is interested in measuring predictors of future crime, using the PCL-R would be tautological. Realizing that there are other instruments for measuring the concept of psychopathic deviancy that might not include items relating to criminal behavior brings us to the second reason for not utilizing the concept. The insidious components of psychopathy, predatory manipulation, callousness, and lack of remorse, are at the interface of criminal justice and psychology. In order to correctly diagnose an individual with psychopathic deviancy, one must be trained in the use of the PCL-R or an alternate instrument. The scope of the current study cannot encompass mental health in this capacity, and will focus solely on the innate, but non-malicious trait of low self-control.

### *Self-Control and Recidivism*

Low self-control was found to be a predictor of recidivism in male and female graduates from boot camp (Benda, 2003; Benda, Toombs, and Corwyn, 2005). It was a stronger predictor for men than for women, but when self-control and gender were considered together, self-control maintained its predictor status. Men with low self-control were 26% more likely to be arrested on a felony charge or parole violation than were men with higher self-control. Packer et. al. (2009), who found correlations between self-control and criminal thinking, corroborates this finding.

DeLisi et. al. (2008) discuss the probability that offenders with low self-control that are under the control of correctional facilities lack the skills to follow institutional

rules and comply with sanctions. The correctional system in its current capacity sets these individuals up for failure unless it utilizes cognitive-behavioral techniques in treatment. In their study of male parolees in the Midwest, those with low self-control were more likely to retaliate against other inmates, use force against correctional staff, and exhibit other non-compliant behaviors. Similarly, Archer and Southfall (2009), found that low self-control was a predictor of bullying behavior in prison inmates. They also found that when inmates saw benefits to bullying behavior, they were more likely to engage in such behavior. The individual costs of bullying behavior in a prison setting include loss of privileges, segregation, and reduced chances for parole. Additionally, Archer and Southfall (2009) determined that regardless of size and strength, the same individuals who bullied others were more likely to be victims of bullying themselves. This is contrary to “common knowledge” that physically inferior individuals are victimized while larger and stronger individuals are perpetrators of bullying behavior. In a given inmate’s cost-benefit analysis of bullying behaviors (if indeed they go through this thought process), costs are often not considered (Archer & Southfall, 2009). This fits with Gottfredson and Hirschi’s (1990) theory that individuals with low self-control are quick to see short-term benefits, without thinking about long-term consequences.

In a study of male juvenile delinquents, Langton (2006) found that low self-control made it highly likely that a juvenile would violate the terms of their parole. As she accounted for age, race, education, substance abuse, peers, antisocial behavior, personal achievement, and elements of the initial crimes, the analysis held many known recidivism predictors constant. Low self-control, while not the strongest predictor, was a

significant contributing factor. Age, number of crime partners, and violent crime were stronger predictors than self-control, although each was viewed in a separate model. Models were run looking at self-control and personal demographic information (age, race, grade level, etc.), self-control and dynamic personal variables (substance abuse, peers, personal achievement, etc), and self-control and static variables relating to parole failure (offense type, first time offense, etc.). Age, number of criminal partners, and violent crime were not put in the same model to see if they maintained predictor status when the others were included. This finding seems in opposition to Gottfredson and Hirschi (1990), who posited that self-control would outweigh all other factors in predicting crime. However, they allow that self-control, once set, will increase marginally with age, so the model showing age as a predictor might in fact be in accordance with Self-Control Theory. The second model might also fit with Self-Control Theory. Gottfredson and Hirschi (1990) believed that individuals with low self-control (and hence predisposed to crime) tend to associate with each other. They are clear that low self-control comes first, then like individuals find each other, as opposed to social learning theories that speak of peer pressure as a reason for crime.

A created measure of self-control was used by DiLisi and Vaughn (2008) to predict career criminality in juveniles. Gottfredson and Hirschi (1990) wrote that they did not believe in career criminality. However, they do in fact believe in chronic criminality which is what DiLisi and Vaughn (2008) were actually studying. The difference being, “career criminality” assumes specialization while “chronic criminality” implies general repeat offending. What Gottfredson and Hirschi (1990) took issue with

was criminal specialization. They point out the high occurrence of many and varied crimes in the histories of most criminals, stating that “the specific ‘criminal career’ will tend to quickly run its course and to be followed by offenses whose content and character is likewise determined by convenience and opportunity” (pg. 92). Therefore, DiLisi and Vaughn’s (2008) results are consistent with Gottfredson and Hirschi’s (1990) theory. They found self-control was a better predictor of career/chronic criminality than age, race, gender, socioeconomic status, mental illness, ADHD diagnosis, and trauma experience. Other studies of juveniles have also found self-control to be a contributing factor to parole/probation failure, substance abuse, association with deviant peers, and general deviant behavior (Connor, Stein, and Longshore, 2009; Langton, 2006; McGloin, & O’Neill Shermer, 2009; Winfree & Bernat, 1998; Morris, Wood, & Dunaway, 2006; Cretacci, 2008).

Risk seeking behavior is listed as a dimension of low self-control (Gottfredson & Hirschi, 1990; Wiebe, 2006) and has been found to be a predictor of both violent and property crimes (Connor, Stein, and Longshore, 2009). In their study of adolescents involved in Treatment Alternatives to Street Crime (TASC), Connor, Stein, and Longshore (2009) also found risk seeking to be predictive of future violent and property crimes, or recidivism. Mullings, Marquart, and Hartley (2003) found that women with prior incarcerations were three times more likely to exhibit sexual and drug risk taking behaviors. Risk taking in this instance was measured by use of alcohol, tobacco, and/or marijuana. These studies indirectly point to an increased likelihood for recidivism, as the

participants in both often had prior incarcerations or contact with the criminal justice system.

### *Self-Control and Aftercare Completion*

Non-compliant behavior is associated with low self-control (Gottfredson & Hirschi, 1990; DeLisi et. al., 2008). It follows therefore, that individuals with low self-control would be unlikely to comply with the aftercare programming mandated by facilities like Sheridan Correctional Center. It has been shown that successful completion of aftercare reduces recidivism (Krepel & Olson, 2010; Hiller, Knight, & Simpson, 1999; Martin, Butzin, Saum, & Inciardi, 1999), and it is thus an important variable to understand when looking at the recidivism patterns of released offenders. However, the literature is strangely silent on this topic. In a study that looked at impulsivity in participants of drug treatment programs that were also diagnosed with Anti-Social Personality Disorder (ASPD) Sargeant et. al. (2012) found that ASPD was related to low control, which led to shorter drug-free periods. The studied population was not necessarily convicted criminals, just general substance abusers. Another study looked at the self-control and criminal thinking of drug users in court mandated treatment (Packer, et. al. 2009), but did not make the connection to treatment failure. Many researchers have studied time to relapse and relapse prevention of substance abusers, both legal offenders and otherwise, but treatment failure is not failure to attend and participate in mandated treatment.

*Additional Factors Associated with Recidivism and Aftercare Completion*

The control variables included here reflect those that other research has indicated influence aftercare completion and recidivism. They are included as controls only, and are intended to provide a substantive baseline for statistical modeling. Control variables include demographics (age at release, race, marital status, gang affiliation), and criminal history (crime class, crime type, prior prison, time served).

Age, race, and gender have so often been tied to recidivism and aftercare non-completion (Jung, Spjeldnes, & Yamatani, 2010; Kowalski & Caputo, 1999; Klinkenberg & Calsyn, 1997; Benda, Toombs, & Corwyn, 2005) that they have become necessary control variables in any criminal justice related research. As this study involves male prisoners only, gender is not an issue. An additional two demographic variables, marital status and gang affiliation, are also included. Gottfredson and Hirschi (1990) wrote that individuals with low self-control would be unlikely to make lasting attachments, and therefore would be unlikely to be married. Also, as explained earlier, individuals with low self-control tend to associate with each other, which would create an increased likelihood of gang affiliation. The final demographic variable, release location, is specific to Sheridan Correctional Center. Cook County has several rehabilitation centers, halfway houses, and outpatient treatment facilities. Other locations in Illinois may not have this variety, leaving parole agents and case managers few options for post-release treatment placement.

Prior prison terms have been linked to recidivism in arsonists (Dickens et. al., 2009), young female prisoners (Kjelsberg, Rustad, & Karnik, 2009), serious juvenile

offenders (Mulder et.al., 2011), burglars (Bartell & Winfree, 1977), and criminals with varying criminal histories and convictions (Walker, Farrington & Tucker, 1981). Crime class is an additional factor researchers investigate as cause for recidivism. It is very common to see offenders grouped as violent versus non-violent, property versus interpersonal, or misdemeanor versus felon. This type of criminal grouping is contrary to Self-Control Theory, and it is hypothesized that these variables will have no effect on aftercare completion or recidivism once self-control is included in the model.

### *Current Study*

Beginning with the theory that low self-control is the reason for crime, this study will first look at how self-control affects compliance with mandated aftercare among a cohort of inmates released from a prison-based substance abuse treatment program. In keeping with Gottfredson and Hirschi's (1990) Self-Control Theory, it is hypothesized that those individuals with low self-control, as determined by scale scores, will be less likely to comply with aftercare after other factors are taken into consideration. This hypothesis extrapolates from the current literature, which says that low self-control is associated with incarcerated offender non-compliance (DeLisi et. al, 2008).

The second and third hypotheses set forth that low self-control will be a predictor of recidivism both 1) in itself and 2) when aftercare completion is included in the model. Aftercare non-completion is a known predictor of technical violations leading to a return to prison (Olson & Rozhon, 2009; Olson & Krepel, 2010), but Gottfredson and Hirschi (1990) posit that the individual trait self-control is the true predictor of crime.

If crime is the result of low self-control, it can be assumed that prison populations are inherently low in self-control. This study aims to look at the variation in self-control among this population and to provide helpful insight to individual-level reasons behind aftercare non-/completion in Sheridan Correctional Center releasees. There might be reason to further emphasize the self-control component of the programming offered at Sheridan Correctional Center and other therapeutic communities to promote positive outcomes both for participants and the communities they are released into.

## CHAPTER THREE

### METHODS AND ANALYSIS

#### *Methodology*

The sample consisted of 604 inmates released from the Sheridan Correctional Center and was a sub-sample from a larger evaluation of the Sheridan Correctional Center program completed by Olson & Rozhon (2011). Illinois currently operates one of the largest prison systems in the country. There are 36 facilities in operation with four reception/classification centers, four female-only facilities, eight adult transition facilities (ATCs), and six work camps. Illinois has an average daily prison population of 45,551 individuals. For further detail regarding Illinois' prison facilities, see Illinois Department of Corrections (2010a). All prisoners in Illinois are processed through one of four Reception & Classification centers, and are screened for Sheridan eligibility. The first criterion is that the offender needs substance abuse treatment. They must also be appropriate for placement in a minimum or medium security facility, and have a projected sentence length of six to 24 months. This is to allow enough exposure to the therapies and treatments so as to receive an effective dose of the interventions. Three conditions exist that automatically disqualify an inmate from entering Sheridan Correctional Center. These are a current or past offense of murder, a current or past offense of criminal sexual assault, or a diagnosis of severe mental illness. The final step

is to have each individual sign Sheridan's contract, as participation in the program is voluntary (Olson, Juergens, & Karr, 2004).

The 604 sample individuals from Sheridan Correctional Center were relatively similar to the rest of Illinois' prison population, with some differences. Sheridan inmates were more often African American (66.4% v. 58.4%) and less likely Caucasian (22.5% v. 28.3%). They were also slightly younger, approximately 33 years old, than the rest of Illinois' inmates who were approximately 35 (Illinois Department of Corrections, 2010a). The Sheridan sample was even further removed from the national prison population which, in 2009, was 39% African American, 33.2% Caucasian, and 21% Hispanic (West, Sabol, & Greenman, 2010).

One of the most significant sources of data for the current study was the assessment administered at various stages of treatment participation, which contained questions that were to be used in the development of the self-control dimensions that are the focus of the analyses. Upon entry to Sheridan, inmates complete an assessment of behavioral and treatment readiness using an instrument called the Client Evaluation of Self and Treatment (CEST). CEST was developed by researchers and clinicians at the Texas Christian University Institute for Behavioral Research (IBR), has been used extensively in clinical settings, and been validated through several studies (Joe et al., 2002; Knight et al., 2006). The CEST is administered to participants at Sheridan at different program stages. In addition to the initial assessment, done during the orientation phase, those that stay at Sheridan long enough to complete the second phase (regular treatment) complete the CEST again, and for those that stay at Sheridan the

longest, and complete the final treatment phase that focuses more on vocational programming, they will complete the CEST a third time prior to the completion of their prison sentence and discharge from the facility. Inmates leave Sheridan for any number of reasons, including sentence completion and release onto mandatory supervised release (MSR), or transfer to another institution for infractions or refusal to participate in treatment. To select the sample for the current study, there were three criteria used: completion of the second CEST assessment, successful discharge from the prison-phase of the program, and release from prison with sufficient follow-up time to perform recidivism analyses. Because the CEST assessment changed and was not consistently utilized during the early stages of the Sheridan program's implementation, the final sample included 604 Sheridan participants who completed the second CEST assessment, were released from prison between fiscal years 2009 and 2010, and had complete recidivism information through June 2011.

### *Measures*

#### Outcome Variables

In this study, there were two outcome measures. The first, completion of aftercare, was a dichotomous nominal variable, with non-completion coded as zero and completion coded as one. All participants released from Sheridan are required to participate in aftercare following their release onto MSR. Aftercare completion has been shown to have positive effects on recidivism and parole violations in evaluations of prison-based programs in other states as well as in Illinois (Zhang, Roberts, & Callanan, 2006; Olson & Rozhon, 2011; Olson & Krepel, 2010). The second outcome, recidivism,

was also measured by a dichotomous nominal variable. Recidivism has historically been measured as a new arrest, a new conviction, or a return to jail or prison. This study focused on the most expensive and consequential form of recidivism, returns to prison. Returns were not differentiated by reason, so a technical violation of parole (not attending mandated drug treatment, new arrests, and other violations of mandatory supervised release) were included with readmissions resulting from a new conviction and sentence to prison. No return to prison as of June 30, 2011 was coded as zero and any return was coded as one. As seen in Table 1, the majority (77%) of those included in the sample completed post-Sheridan aftercare requirements, while just under one-quarter (23%) failed to complete their required aftercare. Similarly, almost two-thirds (64%) did not return to prison after their release, whereas 36% were returned to prison (i.e. recidivated) during the follow-up period.

Table 1. Outcome Variable Descriptive Statistics

	<i>Frequency</i>	<i>Percent</i>			<i>Frequency</i>	<i>Percent</i>
<b>Recidivism</b>				<b>Aftercare Completion</b>		
Yes	215	35.6%		Yes	465	77.0%
No	389	64.4%		No	139	23.0%
Total	604	100.0%		Total	604	100.0%

### Independent Variable

#### *CEST Instrument*

As described earlier, one of the instruments used to assess inmates at Sheridan Correctional Center came from Texas Christian University's Institute of Behavioral Sciences (TCU/IBR), specifically the self-reported Client Evaluation of Self and Treatment (CEST). Sheridan also uses a criminal thinking index (created by TCU/IBR as

well) to obtain a broader range of information. Any reference to the CEST in this paper includes this additional index. There are 166 questions in the CEST instrument and each is measured on a 5-point, Likert scale with 1=Strongly Disagree and 5=Strongly Agree. The order of the questions is randomized on the form, but the 166 questions make up 24 complete scales, which are further grouped into five categories: criminal thinking, social functioning, psychological functioning, treatment needs and motivation, and treatment engagement. The CEST proper, and the additional criminal thinking index, have both been tested for internal reliability and validity (Joe et al., 2002; Knight et al., 2006). Inmates at Sheridan Correctional Center are administered the CEST at three distinct points during their participation in the program: upon admission, when they graduate to the first full phase of the treatment program, and finally upon their progression into the final phase of the program.

### *Factor Analysis*

To create the self-control dimension scales a principal components factor analysis was performed. Factor analysis allows the researcher to identify the unique and shared variance of a set of items, as they relate to an underlying latent construct (Kremelberg, 2011). In other words, items that are strongly correlated can be summarized into a smaller amount of variables via factor loadings. All of the items to be included in the final scales were run through a principal components factor analysis using an Oblimin rotation. This rotation checks if the resulting factors are correlated. The Oblimin rotation determined that all correlations were below zero, so a Varimax rotation was performed to *increase* correlations among items within factors and reduce correlations between factors.

This process reduces ambiguity among factors. Factorability of the items must be determined by a KMO test of 0.4 or above. This correlation matrix had a KMO test of 0.895, meaning it was indeed factorable. Bartlett's test of sphericity was significant allowing the null hypothesis (that the matrix has no factors) to be rejected. There were nine factors with eigenvalues above 1.00, meeting the Kaiser eigenvalue test. The greatest eigenvalue was 5.38. See Table 2 for full detail.

### *Self-Control Dimensions*

The predictor variables include eight scales measuring some of the dimensions of self-control proposed by Gottfredson and Hirschi (1990) and were created using Sheridan Correctional Center releasees' responses to 42 items in the CEST (see Appendices A and B). The 42 items fell into eight scales that represent different aspects of self-control: aggression, family and friend relationships, criminal thinking, foresight, analytical thinking, risk taking, empathy, and caution. The family and friend relationship scale was removed due to bimodality (see Appendix B). See Table 3 for a summary of the remaining seven scales. Because the factor analysis created standardized regression scores for each scale, all have a mean of 0.0 and a standard deviation of 1.0. As they are set up, higher scores on the aggression, criminal thinking, foresight, analytical thinking, and risk-taking scales can be interpreted as higher levels of these traits. On the other hand, higher scores on the empathy and caution scales translate to mean lower levels of these traits.

### Control Variables

Although the primary interest of this research was to examine the relationship between self-control and aftercare completion and recidivism, the findings from the literature review indicate that other factors should be included in the analysis as control variables. Included among these were demographic and socio-economic characteristics, time served, and characteristics of the current conviction offense. Time served at the Sheridan Correctional Center, time at risk for recidivism, age at release, race, marital status, gang involvement, the location where offender will be released into, prior prison terms, current crime felony class, and current crime type were all statistically controlled for in the multivariate analyses. Among the control variables included in the analyses, all except three were nominal/categorical. The number of prior prison sentences was recoded from a ratio-level to an ordinal variable. Time served at the Sheridan Correctional Center, measured in months, and age at release, measured in years, are both interval-level variables. Table 4 summarizes the descriptive statistics for these control variables.

While the sample size (604) allowed for relaxation of normality assumptions, the continuous variables were examined to be thorough. Normality can be assumed if the skewness statistic is within  $\pm 1$  (Schwab, 2007). Time served at Sheridan Correctional Center had a standard error of skewness of 0.099 and a skewness statistic of 0.870, and thus was normally distributed. Similarly, time at risk had a standard error of skewness of .099, a skewness statistic of 0.346, and no significant normality issue. As with the others, age at release had a standard error of skewness of 0.099 and a skewness statistic of 0.629, which also indicated normality in the distribution. Thus, all continuous variables were

Table 2. Self-Control Index – Factor Analysis Results

	<b>Aggression</b>	<b>Family and Friend Support*</b>	<b>Criminal Thinking</b>	<b>Foresight</b>	<b>Analytical Thinking</b>	<b>Risk- Taking</b>	<b>Empathy</b>	<b>Caution</b>
Your temper gets you into fights or other trouble	0.813							
You have a hot temper	0.804							
You get mad at other people easily	0.767							
You have urges to fight or hurt others	0.692							
You sometimes try to get even rather than forgive and forget	0.646							
If someone disrespects you then you have to straighten them out, even if you have to get physical with them to do it	0.618							
When people tell you what to do, you become aggressive	0.573							
You feel you have to pay back people who mess with you	0.549							
You like others to feel afraid of you	0.522							
You have carried weapons like knives or guns	0.467							
You sometimes feel resentful when you do not get your way	0.41							

Table 2 Con'd. Self-Control Index – Factor Analysis Results

	<b>Aggression</b>	<b>Family and Friend Support*</b>	<b>Criminal Thinking</b>	<b>Foresight</b>	<b>Analytical Thinking</b>	<b>Risk-Taking</b>	<b>Empathy</b>	<b>Caution</b>
You have people close to you who help you develop confidence in yourself		0.737						
You have people close to you who expect you to make positive changes in your life		0.739						
You have close family members who want to help you stay away from drugs		0.722						
You have people close to you who motivate and encourage your recovery		0.693						
You have people close to you who respect you and your efforts		0.684						
You have people close to you who understand your situation and problems		-0.67						
You have people close to you who can always be trusted		0.671						
You have good friends who do not use drugs		0.55						
It is ok to commit a crime in order to pay for the things you need			0.757					

Table 2 Con'd. Self-Control Index – Factor Analysis Results

	<b>Aggression</b>	<b>Family and Friend Support*</b>	<b>Criminal Thinking</b>	<b>Foresight</b>	<b>Analytical Thinking</b>	<b>Risk-Taking</b>	<b>Empathy</b>	<b>Caution</b>
It is ok to commit a crime in order to live the life you deserve			0.729					
The only way to protect yourself is to be ready to fight			0.49					
You find yourself blaming the victims of some of your crimes			0.509					
You make good decisions				0.643				
You have trouble making decisions <b>R</b>				0.604				
You make decisions without thinking about consequences <b>R</b>				0.629				
You plan ahead				0.6				
You analyze problems by looking at all the choices				0.529				
You think about what causes your current problems					0.745			
You think about probable results of your actions					0.682			
You consider how your actions will affect others					0.581			
You think of several ways to solve a problem					0.547			

Table 2 Con'd. Self-Control Index – Factor Analysis Results

	<b>Aggression</b>	<b>Family and Friend Support*</b>	<b>Criminal Thinking</b>	<b>Foresight</b>	<b>Analytical Thinking</b>	<b>Risk-Taking</b>	<b>Empathy</b>	<b>Caution</b>
You like to take chances						0.743		
You like the "fast" life						0.666		
You like to do things that are strange or exciting						0.608		
You like friends who are wild						0.616		
You get upset when you hear about someone who has lost everything in a natural disaster <b>R</b>							0.722	
You worry when a friend is having problems <b>R</b>							0.667	
Seeing someone cry makes you sad <b>R</b>							0.645	
You feel people are important to you <b>R</b>							0.419	
You are very careful and cautious <b>R</b>								0.751
You avoid anything dangerous <b>R</b>								0.701
Eigenvalue	5.38	4.271	2.604	2.362	2.283	2.194	1.865	1.638
% of Variance	12.809	10.169	6.2	5.625	5.435	5.225	4.442	3.901
Cronbach's Alpha	0.881	0.658	0.747	0.71	0.672	0.714	0.642	0.643

\*The Family and Friend Support scale was not utilized in this analysis.

Table 3. Scale Distribution

	<b>Skewness (S.E)</b>	<b>Minimum Score</b>	<b>Maximum Score</b>
<b>Aggression</b>	0.206(.098)	-2.80	3.44
<b>Criminal Thinking</b>	-0.124(.098)	-3.35	2.89
<b>Foresight</b>	-0.295(.098)	-4.29	3.38
<b>Analytical Thinking</b>	0.010(.098)	-2.56	2.66
<b>Risk-Taking*</b>	-0.368(.098)	-3.00	2.91
<b>Empathy</b>	0.465(.098)	-3.24	3.83
<b>Caution</b>	-0.231(.098)	-4.72	2.85

\* Outlier replacement has been performed on this scale (See Appendix B)

included in bivariate and multivariate analysis without transformation or replacement of outliers.

The majority of the sample was single (84.3%), two-thirds were African American (66.4%), and just over half (59.3%) were not affiliated with a gang. The majority of the sample (63.6%) had a current offense of a Class 1 or 2 felony, and only about one-third (31%) were in prison for a Class 3 or 4 felony, the least serious felony offense classes in Illinois. In terms of the nature of the current crime, the modal category was a drug-law violation (38.1%), followed by a property crime (32.5%), and then crimes against persons/violent offenses (28.5%). Only 36.8% of the sample had never previously been in prison, and most of the sample had been in prison before. More than a quarter (28.0%) had been in prison once before, and 35.3% had been in prison two or more times before their current conviction and sentence to Sheridan.

Of the nine factors suggested by eigenvalues greater than 1.00, eight were used. The ninth factor was redundant. None of the items had their highest loading there, and its inclusion did not increase the percent of total variance explained. Thus, it was removed, leaving the study with eight dimensions of self-control. The eight factors are

Table 4. Control Variable Descriptive Statistics

	<i>Frequency</i>	<i>Percent</i>		<i>Frequency</i>	<i>Percent</i>
<b>Time Served (months)</b>			<b>Location</b>		
Mean: 13	SD: 3.4		Cook County	309	51.20%
Median: 12	SE: 0.14		Other Illinois	295	48.80%
Range: 6-24			Total	604	100%
<b>Time at Risk (days)</b>			<b>Marital Status</b>		
Mean: 565	SD: 130.4		Single	509	84.30%
Median: 553	SE: 5.3		Married	94	15.60%
Range: 365-946			Total	603	99.90%
<b>Age at Release (years)</b>			<b>Gang</b>		
Mean: 33.1	SD: 9.8		Affiliated	246	40.70%
Median: 31	SE: 0.4		No Affiliation	358	59.30%
Range: 18-71			Total	604	100.00%
<b>Race</b>			<b>Crime Class</b>		
White	136	22.50%	X	33	5.50%
African-American	401	66.40%	1 or 2	384	63.60%
Hispanic	67	11.10%	3 or 4	187	31.00%
Total	604	100.00%	Total	604	100.00%
<b>Prior Prison</b>			<b>Crime Type</b>		
None	222	36.80%	Person	172	28.50%
1	169	28.00%	Property	196	32.50%
2+	213	35.30%	Drug	230	38.10%
Total	604	100.00%	Other	6	1.00%
			Total	604	100%

aggression (Cronbach's  $\alpha=.881$ ), family and friend support (Cronbach's  $\alpha=.658$ ), criminal thinking (Cronbach's  $\alpha=.747$ ), foresight (Cronbach's  $\alpha=.710$ ), analytical thinking (Cronbach's  $\alpha=.672$ ), risk-taking (Cronbach's  $\alpha=.714$ ), empathy (Cronbach's  $\alpha=.642$ ), and caution (Cronbach's  $\alpha=.643$ ). The Cronbach's alpha scores reported in

Table 1 estimate the internal consistency of each scale. The general rule is that Cronbach's alpha should be above 0.7 for a scale to be considered reliable (Nunnally, 1978), but in practice, lower alpha values are common (Hanneman, 2006). See Table 3 in the following chapter for more detail. The family and friend support scale was bimodal, and transformations did not correct the issue (see Appendix B), therefore, it was removed from this analysis.

### *Methods of Data Analysis*

#### *Bivariate Analysis*

Bivariate statistics were run on the two outcome variables, aftercare completion and recidivism, as they relate to self-control using independent samples t-tests. This test compares the means of two groups (yes and no, for aftercare completion and recidivism in this case). T-tests were also run on aftercare completion and recidivism as they relate to age at release and time served. Chi-square tests were run to examine the bivariate relationships between the remaining controls and the outcome variables. A Chi-square identifies the differences between observed and expected values within categorical variables. Significance levels falling below an alpha of 0.05 were considered statistically significant for this study. This value means that the test had a 5% or lower chance of seeing the same test value if there was actually no association between the given variables (Bachman & Paternoster, 2009). As both hypotheses are directional, one-tailed tests were used when looking at all predictor variables as they relate to the outcome variables. Additionally, enough research has been amassed showing that aging reduces recidivism so one –tailed tests were used to view this variable's relationship to outcome

variables as well. Using one-tailed tests means the p-values output by SPSS (two-tailed tests by default) were divided by two to obtain the one-tailed p-value. To assess the strength of relationships, when Phi and Cramer's V values are between 0.29 and 0.59 the association between variables was interpreted as being moderate in strength (Bachman & Paternoster, 2009).

### Multivariate Analysis

Three logistic regression models were developed, one for each of the different outcome variables, and an additional model for recidivism with aftercare completion included in the control variable set. The prediction models included control and predictor variables found to be significant in bivariate analysis. Due to literature suggesting the importance of each control variable, those that were not significant in bivariate analyses were included as well. Wald statistics were compared among predictor and control variables to identify the strongest contributor to explaining the variance in the outcome variables. As with the bivariate statistics, significance above an alpha of 0.05 were considered statistically significant. As with the bivariate results, one-tailed p-values were used in the logistic regressions for the predictor variables and age at release.

## CHAPTER FOUR

### RESULTS

#### *Bivariate Analysis*

To begin the bivariate analysis, relationships were explored between the self-control scales and the two outcome variables. T-tests were performed because the self-control dimension scales were ratio level and the outcome variables were both dichotomous. Aggression, criminal thinking, and risk-taking, were significantly correlated with individual outcome variables.

The outcome variable aftercare completion was correlated with the risk-taking scale score. Individuals with higher scores were more likely to complete aftercare. This is counterintuitive, and discussed in the next chapter. The outcome variable recidivism was significantly correlated with scores on both the aggression and criminal thinking scales. Those scoring higher on these scales were more likely to return to prison. Results are displayed below in Table 5.

The next set of analyses was performed on the control variables and the outcome variables. Based on the literature review, it was expected that certain relationships between the control and outcome variables would be seen. Chi-square tests were performed for each nominal and ordinal control variable when comparing them with aftercare completion and recidivism. Cramer's V was calculated for those variables with

Table 5. Bivariate Analysis of Self-Control Scales

	<b>Aggression</b>	<b>Criminal Thinking</b>	<b>Foresight</b>	<b>Analytical Thinking</b>	<b>Risk-Taking</b>	<b>Empathy</b>	<b>Caution</b>
<b>Aftercare Completion</b>							
No	0.12	0.101	0.11	-0.084	-0.138	0.077	0.064
Yes	-0.037	-0.024	-0.02	0.014	0.039	-0.022	-0.032
	t=1.624	t=1.293	t=1.347	t=-1.026	t=-1.726*	t=1.023	t=.999
<b>Recidivism</b>							
No	-0.077	-0.05	-0.007	-0.04	0.028	-0.03	-0.036
Yes	0.137	0.104	0.04	-0.049	-0.056	0.058	0.038
	t=-2.557*	t=-1.803*	t=-.553	t=-1.046	t=1.041	t=-1.042	t=-.884

\* Significant at  $p < 0.05$  (one-tailed)

\*\* Significant at  $p < 0.01$  (one-tailed)

more than two categories, and Phi was calculated for variables with two response categories in order to measure the strength of statistical relationships that were seen in the Chi-square tests. Independent samples t-tests were performed for the continuous variables age, time served, and time at risk when compared with aftercare completion and recidivism. Results of the bivariate analyses are summarized in Table 5 and 6 and are discussed below.

The bivariate statistics show that older individuals and those from Cook County were more likely to complete aftercare. Crime type was also related to aftercare completion, but the nature of the Chi-square test does not allow speculation about which crime types related more or less than others. The other six control variables were not significantly correlated with aftercare completion. Similarly, older individuals, those that served longer sentences at Sheridan Correctional Center, and those with a longer time at risk evidenced statistically lower rates of recidivism. Neither crime type nor the rest of the control variables were significant in relation to recidivism.

As explained in the methods section, predictor and control variables that did not have bivariate significance were included in the multivariate analysis. This decision was made due to the prevalence of literature available regarding the controls, and the intimate relevance the predictor variables have to the research questions.

### *Multivariate Analysis*

The final step in determining the magnitude of the effect self-control has on aftercare completion and recidivism is to use multivariate statistics. Multivariate statistics isolate the effects of the control and predictor variables on the outcome variables. Logistic

Table 6. Bivariate Analysis of Outcome Variable Recidivism

	Recidivism		Total	Percent of Total Sample
	Yes	No		
	N= 215	N= 389		
	M: 12.6	M: 13.3		
<b>Time Served (months)</b>			F: 4.518	Pearson's R: -.101*
<b>Time at Risk</b>	M: 552	M: 589	F: 0.127	Pearson's R: .136**
<b>Age at Release (years)</b>	M: 30.9	M: 34.3	F: 0.946	Pearson's R: -.164††
<b>Race</b>	$\chi^2 = 0.29$ , df= 2 p= .865, Not Significant			
African American	35.90%	64.10%	401	66.40%
Caucasian	33.80%	66.20%	136	22.50%
Hispanic	37.30%	62.70%	67	11.10%
<b>Prior Prison</b>	$\chi^2 = 2.34$ , df= 2 p= .311, Not Significant			
0	32.00%	68.00%	222	36.80%
1	36.10%	63.90%	169	28.00%
2+	39.00%	61.00%	213	35.30%
<b>Crime Class</b>	$\chi^2 = .23$ , df=2 p= .892, Not Significant			
X	36.40%	63.60%	33	5.50%
1 or 2	34.90%	65.10%	384	63.60%
3 or 4	36.90%	63.10%	187	31.00%
<b>Crime Type</b>	$\chi^2 = 6.16$ , df=3 p= .104, Not Significant			
Person	41.90%	58.10%	172	28.50%
Property	35.70%	64.30%	196	32.50%
Drug	30.40%	69.60%	230	38.10%
Other	50%	50%	6	1%
<b>Marital Status</b>	$\chi^2 = .621$ , df= 1 p= .431, Not Significant			
Single	36.10%	63.90%	509	84.40%
Married	31.90%	68.10%	94	15.60%
<b>Gang</b>	$\chi^2 = .01$ , df= 1 p= .922, Not Significant			
Affiliated	35.80%	64.20%	246	40.70%
No Affiliation	35.40%	64.60%	358	59.30%
<b>Location</b>	$\chi^2 = 1.84$ , df= 1 p= .173, Not Significant			
Cook County	35.60%	64.40%	309	51.20%
Other Illinois	32.90%	67.10%	295	48.80%

\* Significant at p&lt; 0.05 (two-tailed)

† Significant at p&lt; 0.05 (one-tailed)

\*\* Significant at p&lt; 0.01 (two-tailed)

† Significant at p&lt; 0.01 (one-tailed)

Table 7. Bivariate Analysis of Outcome Variable Aftercare Completion

	Aftercare Completion			Percent of Total Sample
	Yes	No	Total	
	N= 465	N= 139	N=604	
<b>Time Served (months)</b>	M: 13.1	M: 12.9	F: 4.317	Not Significant
<b>Time at Risk</b>	M: 570	M: 564	F: 0.001	Not Significant
<b>Age at Release (years)</b>	M: 33.7	M: 30.9	F: 1.54	Pearson's R: .122††
<b>Race</b>	$\chi^2 = 1.86$ , df= 2 p= .395, Not Significant			
African American	76.10%	23.90%	401	66.40%
Caucasian	76.50%	23.50%	136	22.50%
Hispanic	83.60%	16.40%	67	11.10%
<b>Prior Prison</b>	$\chi^2 = 3.79$ , df= 2 p= .151, Not Significant			
0	73.40%	26.60%	222	36.80%
1	76.30%	23.70%	169	28.00%
2+	81.20%	18.80%	213	35.30%
<b>Crime Class</b>	$\chi^2 = .449$ , df= 2 p= .799, Not Significant			
X	72.70%	27.30%	33	5.50%
1 or 2	77.60%	22.40%	384	63.60%
3 or 4	76.50%	23.50%	187	31.00%
<b>Crime Type</b>	$\chi^2 = 7.04$ , df=3 p< .1, Not Significant			
Person	71.50%	28.50%	172	28.50%
Property	79.10%	20.90%	196	32.50%
Drug	80%	20%	230	38.10%
Other	50%	50%	6	1%
<b>Marital Status</b>	$\chi^2 = .017$ , df= 1 p= .896, Not Significant			
Single	77.20%	22.80%	509	84.40%
Married	76.60%	23.40%	94	15.60%
<b>Gang</b>	$\chi^2 = .02$ , df= 1 p= .904, Not Significant			
Affiliated	77.20%	22.80%	246	40.70%
No Affiliation	76.80%	23.20%	358	59.30%
<b>Location</b>	$\chi^2 = 7.45$ , df= 1 p< .01, Phi=.111**			
Cook County	81.60%	18.40%	309	51.20%
Other Illinois	72.20%	27.80%	295	48.80%

\* Significant at p&lt; 0.05 (two-tailed)

† Significant at p&lt; 0.05 (one-tailed)

\*\* Significant at p&lt; 0.01 (two-tailed)

† Significant at p&lt; 0.01 (one-tailed)

regression was the test utilized in this study as both outcome variables were dichotomous. This method generates two blocks with each test; one looks at only the control variables, and the other inserts the predictor variables. Logistic regression highlights the effect of each control or predictor variable, while holding all others constant. Three logistic regression models were tested, the first with aftercare completion as the outcome, the second with recidivism as the outcome, and third with aftercare completion used as an additional control and recidivism used as the outcome. This was because aftercare completion has been shown to predict recidivism (Olson, Rozhon, & Powers, 2009). See Tables 7-9 for regression results.

Model 1 uses aftercare completion as the outcome variable. In this model, two of the nine control variables and none of the main predictors were significant. Location of release is the strongest predictor, showing individuals in Cook County are 80% more likely to complete aftercare. The other significant predictor is age at release. For every year older an inmate is, the odds of completing aftercare increases 3%.

The addition of the self-control scales improved the predictive value of Model 1 by 0.2%. The Nagelkerke  $R^2$  value for the full model was 0.088, meaning that all of the variables included only accounted for 8.8% of the variance in aftercare completion. After all variables were added, the model correctly predicted 77.6% of the cases.

Model 2 used recidivism as the control variable. Two of the seven independent variables and four of the nine control variables were found to be significant in Model 2. Scores on the aggression and criminal thinking scales were both predictors of recidivism. The increase of one point on either scale increased the odds of recidivism by 17%. While

Table 8. Model 1 - Aftercare Completion as Outcome

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Exp(B)</b>
<b>Race</b>				
Caucasian			3.141	
African American	-0.241	0.287	0.705	0.786
Hispanic	0.381	0.427	0.795	1.464
<b>Marital Status</b>	-0.269	0.289	0.869	1.309
<b>Gang Status</b>	0.141	0.236	0.358	0.869
<b>Location</b>	0.6	0.229	6.887**	1.451
<b>Prior Prison</b>				
0			0.339	
1	0.095	0.263	0.13	1.09
2+	0.181	0.314	0.332	1.198
<b>Crime Class</b>				
Class X			1.283	
Class 1-2	0.28	0.47	0.355	1.323
Class 3-4	0.034	0.517	0.004	1.035
<b>Crime Type</b>				
Person			2.742	
Property	0.126	0.275	0.209	1.134
Drug	0.159	0.263	0.364	1.172
Other	-1.235	0.899	1.886	0.291
<b>Age at Exit (years)</b>	0.029	0.013	4.720 †	1.03
<b>Time at Risk (days)</b>	-0.001	0.001	-0.427	0.999
<b>Time Served (months)</b>	-0.002	0.011	0.036	0.998
<b>Self-control Scales</b>				
Aggression	-0.105	0.104	1.024	0.901
Criminal Thinking	-0.154	0.102	2.304	0.857
Foresight	-0.096	0.104	0.851	0.909
Analytical Thinking	0.143	0.103	1.096	1.153
Risk Taking	0.149	0.103	2.119	1.161
Empathy	-0.092	0.101	0.822	0.912
Caution	-0.071	0.107	0.444	0.931

Note: Model 1 is significant at  $p < .001$

\*Significant at  $p < 0.05$  (two-tailed)

\*\* Significant at  $p < 0.01$  (two-tailed)

† Significant at  $p < 0.05$  (one-tailed)

† Significant at  $p < 0.01$  (one-tailed)

Table 9. Model 2 – Recidivism as Outcome, Aftercare not Controlled

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Exp(B)</b>
<b>Race</b>				
Caucasian			0.333	
African American	0.038	0.268	0.021	1.039
Hispanic	0.195	0.363	0.289	1.216
<b>Marital Status</b>	0.07	0.264	0.07	0.933
<b>Gang Status</b>	0.33	0.211	2.451	0.719
<b>Location</b>	0.177	0.205	0.75	1.194
<b>Prior Prison</b>				
0			14.989**	
1	0.43	0.245	3.082	1.536
2+	1.13	0.293	14.823**	3.095
<b>Crime Class</b>				
Class X			0.476	
Class 1-2	-0.239	0.446	0.287	0.787
Class 3-4	-0.331	0.491	0.454	0.718
<b>Crime Type</b>				
Person			2.859	
Property	-0.122	0.247	0.245	0.885
Drug	-0.342	0.238	2.064	0.71
Other	0.522	0.899	0.337	1.685
<b>Age at Exit (years)</b>	-0.052	0.012	18.321 † †	0.949
<b>Time at Risk (days)</b>	0.002	0.001	5.181*	1.002
<b>Time Served (months)</b>	-0.038	0.018	4.386*	0.963
<b>Self-control Scales</b>				
Aggression	0.158	0.092	2.922 †	1.171
Criminal Thinking	0.157	0.091	2.979 †	1.17
Foresight	0.011	0.093	0.015	1.011
Analytical Thinking	0.046	0.093	0.241	1.047
Risk Taking	-0.114	0.094	1.455	0.892
Empathy	0.048	0.09	0.283	1.049
Caution	0.054	0.092	0.348	1.056

Note: Model 2 is significant at  $p < .001$ \* Significant at  $p < 0.05$  (two-tailed)† Significant at  $p < 0.05$  (one-tailed)\*\* Significant at  $p < 0.01$  (two-tailed)† Significant at  $p < 0.01$  (one-tailed)

these scales were significant, they were not the *most* significant variables in the regression. All four control variables had larger Wald values than the predictor variables. Of the significant control variables, age at release was the strongest predictor, followed by prior prison sentences, time at risk, and time served. For every year older at release, the odds of recidivating decreased 5.1%, and for each additional month served at Sheridan Correctional Center an inmate's odds of returning decreased 4.7%. Time at risk in the community showed an opposite effect, with every additional day at risk bringing a 0.2% chance to recidivate. This translates to a 6% increase in recidivism for each month at risk. Those with one prior prison term had 60% increased odds of recidivating than those with none, and those with two or more prior prison terms increased *their* odds of returning to prison by 220% over those with none.

The addition of the self-control scales improved the predictive value of Model 2 by 1.4%. The Nagelkerke  $R^2$  value for the full model was 0.138, meaning that all of the variables included only accounted for 13.8% of the variance in recidivism. After all variables were added, the model correctly predicted 67.7% of the cases.

Model 3 included aftercare completion with the control variables. In this iteration, none of the predictor variables were significant, and five of the nine control variables were significant. Due to the one-tailed assumption for the predictor variables, the aggression and criminal thinking scales approached significance. The p-values output by SPSS were 0.124 and 0.132 respectively, and they were read as 0.062 and 0.066. This being said, aftercare completion was the strongest predictor of recidivism. Those that completed the aftercare mandated by Sheridan Correctional Center held 68.5% lower

odds to recidivate. Prior prison sentences was the second strongest predictor in Model 3. Those with two or more past sentences had a 246% increase in their odds to recidivate than those with no prior prison sentences. Individuals with one prior prison sentence did not differ significantly from those with no prior prison experience. Age at release and time served both had an inverse relationship with recidivism. As an offender ages or spends more time at Sheridan Correctional Center, he decreases his odds of returning by 4.8% and 4.1% respectively. Time at risk was the final and weakest control variable to be significant. Releasees that were at risk for one additional day were at 0.2% increased odds to recidivate. This translates to 6% greater odds over one more month at risk.

The addition of the self-control scales improves the predictive value of Model 3 by 0.2%. The Nagelkerke  $R^2$  value for the full model is 0.195, meaning that all of the variables included only account for 19.5% of the variance in recidivism. After all variables are added, the model correctly predicts 69.7% of the cases, an increase of 2.0% over Model 2. Wald values show that aftercare completion is a stronger predictor of recidivism than any of the self-control scales on their own, but Wald values are subjective and dependent on the individual model. The fact that the addition of aftercare completion improves the fit of Model 3 over Model 2 by 2.0% and the addition of all of the self-control scales only improves the fit of Model 3 by 0.2% gives a clearer picture of how much stronger the effect of aftercare is on the outcome variable. The self-control scales moved further from significance with the addition of aftercare completion into the model. However, aggression and criminal thinking still approached significance with p-values of .062 and .066 (one-tailed) respectively.

Table 10. Model 3 – Recidivism as Outcome, Aftercare Completion Included

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Exp(B)</b>
<b>Race</b>				
Caucasian			0.912	
African American	-0.045	0.274	0.027	0.956
Hispanic	0.248	0.369	0.452	1.281
<b>Marital Status</b>	0.022	0.269	0.007	1.022
<b>Gang Status</b>	-0.382	0.216	3.11	0.683
<b>Location</b>	0.321	0.212	2.288	1.379
<b>Prior Prison</b>				
0			16.772**	
1	0.473	0.252	3.52	1.605
2+	1.243	0.305	16.596**	3.464
<b>Crime Class</b>				
Class X			0.71	
Class 1-2	-0.185	0.462	0.16	0.831
Class 3-4	-0.35	0.508	. 475	0.705
<b>Crime Type</b>				
Person			2.257	
Property	-0.122	0.253	0.233	0.885
Drug	-0.339	0.245	1.924	0.712
Other	0.225	0.921	0.06	1.253
<b>Age at Exit</b>	-0.049	0.012	15.668 † †	0.952
<b>Time Served (months)</b>	-0.042	0.018	5.204*	0.959
<b>Time at Risk (days)</b>	0.002	0.001	4.62*	1.002
<b>Aftercare Completion</b>	-1.156	0.219	27.924**	0.315
<b>Self -control Scales</b>				
Aggression	0.146	0.095	2.364	1.157
Criminal Thinking	0.14	0.093	2.264	1.15
Foresight	-0.002	0.095	0	0.998
Analytical Thinking	0.071	0.094	0.571	1.074
Risk Taking	-0.087	0.097	0.801	0.917
Empathy	0.031	0.092	0.11	1.031
Caution	0.042	0.094	0.202	1.043

Note: Model 3 is significant at  $p < .001$ \* Significant at  $p < 0.05$  (two-tailed)\*\* Significant at  $p < 0.01$  (two-tailed)† Significant at  $p < 0.05$  (one-tailed)† Significant at  $p < 0.01$  (one-tailed)

## CHAPTER FIVE

### DISCUSSION

This paper used criminological theory to explore potential relationships between the personality trait of self-control and the aftercare completion and recidivism of Sheridan Correctional Center releases. It was hypothesized that individuals with low self-control would be less likely to complete mandated aftercare. A second hypothesis posited that low self-control would be a predictor of increased recidivism. These hypotheses were derived from Gottfredson and Hirschi's (1990) self-control theory and the information gathered from a review of the relevant literature. A third hypothesis was induced from the first two. Self-control was expected to be the dominant predictor of recidivism when aftercare completion was included in the logistic regression. Acknowledging that aftercare completion is a predictor of recidivism, and that self-control is antecedent to both, it follows that self-control would predict recidivism when the effects of aftercare completion are removed. After completion of the multivariate analyses, only the second hypothesis was supported by data from this sample. None of the seven dimensions of self-control predicted successful completion of aftercare, and when aftercare completion was added to the model as a control, the self-control dimensions were not the most significant. The second hypothesis proved partially correct: two of the dimensions of self-control were statistically significant in the model

predicting recidivism. These relationships were not statistically significant in the presence of aftercare completion.

The results from the bivariate analyses were unexpected. Almost none of the predictor variables were correlated with the outcome variables. Of the seven predictors, only the aggression and criminal thinking scales were correlated with recidivism. Risk-taking was significantly correlated with aftercare completion, with individuals scoring higher on the scale being more likely to complete their mandated aftercare. At first this result seems counterintuitive, but this might be because people tend to view risk-taking behavior in a negative light. Perhaps risk-taking individuals are more likely to take a risk to change their lives in a positive way.

The relationship between risk-taking scale score and recidivism did not hold up in the multivariate analysis. This finding means that the scale components of self-control (outside of aggression and criminal thinking) do not vary significantly with recidivism or aftercare completion in this sample. This result can be explained, as Gottfredson and Hirschi (1990) looked at self-control as an entire construct, and this study utilized a group of attributes that only accounted for 43.6% of the self-control conglomerate. Additionally, in a paper discussing other researcher's commentary on their theory, Gottfredson and Hirschi (1993, pg. 48) explain that "control theories predict only modest validity for survey methods" leading to the downplaying of potential correlations. It could be that the "almost significant" correlations discovered in the logistic regressions are weightier than their p-values signify.

Age at release and location of release were the only control variables correlated with aftercare completion, and age at release and time served were the only controls correlated with recidivism. The bivariate analysis suggested that clients that completed aftercare were older on average than those that did not. It is possible that individuals that are completing treatment at an older age are more prepared to give up a drug-using and criminal lifestyle. However, the average age difference between groups was small, and age at release remained significant in multivariate analysis. Overall, more releases completed aftercare than did not, though where the clients returned was a significant factor. Returning to Cook County may have meant returning to a community with a greater number of aftercare resources. Cook County is the largest and most populated county of Illinois, and as a result, offers a larger variety of community organizations available to assist clients in re-entry and treatment completion. The strength of this relationship, however, was weak.

The literature suggested that all of the control variables would be related to the outcome variables in this study. The failure of demographic and current conviction variables to be significant may be due to the size or homogeneity of the sample. Individuals incarcerated at Sheridan are drug addicted felons with very selective criminal histories. The sample was further narrowed by selecting only individuals that that successfully completed Sheridan's orientation *and* completed the second round of the CEST. It is expected that they will have a different base level of self-control than other populations, including general population offenders.

While not all of the control and predictor variables were significant in the bivariate analysis, all of them were included in the logistic regression. All controls were included because of their incorporation in almost all literature used in this research. All of the self-control scales were included to provide the most comprehensive picture of self-control possible. Self-control theory also states that self-control would prevail as the reason for criminal behavior when all other factors are held constant.

The model predicting recidivism without controlling for aftercare completion (Model 2) had six variables (four control and two predictor) come in as significant. Significant regressors include age at release, prior prison terms, time at risk, time served, aggression scale score, and criminal thinking scale score. Scores on the aggression and criminal thinking scales indicate that individuals having increased levels of these traits are more likely to recidivate. High levels of aggression might be akin to Gottfredson and Hirschi's (1990) concept of low frustration tolerance. Individuals that do not have enough self-control to deal with stressors will lash out in potentially criminal ways. The criminal thinking scale included items surrounding the justification of criminal acts. This type of justification or rationalization de-criminalizes certain actions in the mind of an offender, but will not change how society views these actions. Packer et. al. (2009) discovered similar association between criminal thinking and recidivism.

Age at release impacted recidivism the most of the significant variables. This is consistent with the bivariate results, and might even be consistent with self-control theory. The fact that age was negatively correlated with recidivism (as individuals age they are less likely to return to prison) might lend support to the idea that self-control

does in fact increase with age. The data does not identify the changes in socialization leading to slightly increased self-control that Gottfredson and Hirschi (1990) speak of versus the continuing brain maturation leading to increased self-control indicated by the psychobiological literature (Romer, Duckworth, Sznitman, and Park, 2010; Luna et.al., 2004; Casey, Galvin, & Hare, 2005).

Time served and prior prison were also predictors of recidivism in Model 2. Although multicollinearity did not exist between age and these two variables, it should be noted that longer time served and greater prior prison sentences may be associated with older offenders. The longer sentence an individual serves, the older he is likely to be at release. Additionally, judges look at criminal history when sentencing offenders. Longer sentences are given to those with more extensive backgrounds. In this context, greater time served predicts a decrease in the odds of an individual recidivating. This could be due to increased time in the actual in-facility treatment program and a greater chance of observing the consequences of other inmates' self-control lapses.

While time served inside the Sheridan Correctional Center leads to a reduction in the odds of recidivism, time served outside the Sheridan Correctional Center (time at risk) leads to an *increase* in these odds. This is simply because the longer one is out of prison, the more opportunities they have to engage in criminal behavior.

Model 3 was the same as Model 2, but also controlled for aftercare completion. As a control variable, aftercare completion came in as the strongest predictor of recidivism. This finding disproves the third hypothesis of this study that self-control would prevail as the premier predictor of recidivism, even when aftercare completion was

included in the model. The four predictors that were significant in the model *not* controlling for aftercare completion are also significantly predictive in Model 3. This confirms them as predictors in this particular sample. The aggression and criminal history scale scores almost come into significance in the presence of aftercare completion, but do not quite meet the required p-value. This finding is interesting because it says that the post-prison drug treatment programming does more to prevent recidivism than any single personality characteristic.

In this sample, the measures of self-control are not factors in aftercare completion or recidivism. The majority of the factors never came in as significant (at any level of analysis), and in the presence of aftercare completion, none was significant. This result may be due to the predictive value/fit of the latent construct itself. When all eight initial scales were included, the index only accounted for 53.8% of self-control (see Appendix B). Then, one of the scales (connection with family and friends) was removed because it was bimodal. Removing this scale from the index brought the variance explained down to 43.6%. There are quite obviously aspects of the construct that these eight scales do not account for. A few dimensions of Gottfredson and Hirschi's (1990) self-control concept not measured by the CEST are ability to delay gratification and academic aptitude.

### *Practical Analysis*

This study did not utilize a control group, so it is vulnerable to internal validity problems. Because the CEST instrument is given to inmates multiple times during their stay at Sheridan, history effects should be minimized. Maturation is a potential concern in this study. As discussed above, as individuals age, their brains mature potentially

leading to increased self-control. This maturation effect is not expected to occur to the same extent in each person and may be an avenue for further research. There can be no instrumentation effect as the same measure was used to test inmates each time and scores were interpreted in a standard way. There is also an element of triangulation in the measure of self-control as it was created using multiple aspects of the self-control concept. However, because the same instrument is used, testing effects and demand characteristics are very possible. Even though this study looks at data from a single instance of the CEST, it is the second time seeing it for each individual. They have been through orientation, and understand more fully what is expected of them while in the Sheridan Correctional Center program. When inmates are administered a test regarding their personality and behavioral patterns, they may answer as they believe the interviewer wishes in order to get out of disliked programming, be admitted to other programming, or to reduce time spent in prison. However, Sheridan does not award “good time” for completing these surveys in certain ways, and this fact is relayed to inmates. Some selection bias and attrition might come up in this study because, while all inmates were required to participate in the surveys, some may have left Sheridan prior to the completion of the second round of testing. This could be due to sentence completion and release or rule infractions severe enough to require an inmate to leave Sheridan for a higher security facility. The latter scenario would lead to the exclusion of individuals on the lower end of self-control.

In addition to the selection bias issues, measurement limitations of the dependent variable need to be considered. Much prior research has used new crimes as a measure of

recidivism. This study utilizes a measure of recidivism that encompasses a return to prison for *any* reason including technical violations. This wider scope is appropriate when investigating self-control theory. Gottfredson and Hirschi (1990) did not just theorize about criminal behavior, but said that those with low self-control would be more impulsive, less cautious, and have less foresight. These characteristics can lead to noncompliance with rules such as failure to notify a parole officer of a change in address, forgetting to appear at a Narcotics Anonymous meeting, or being late for a mandatory curfew, all of which are considered technical violations. Using a definition of recidivism that includes only new crimes looks at criminality, but using a definition that encompasses both new crimes and technical violations looks at a lifestyle/behavior pattern. Therefore, the measure currently in place may be more valid than one that focuses only on new crimes.

This study has restrictions to generalizability. The sample individuals were all felons with substance abuse problems. While many inmates are substance abusers, not all of them are. Self-control may play a larger or smaller part in a non-drug-addicted population, as their brain chemistry is not changed by substances of abuse. The criminal history of Sheridan inmates is also selected to exclude sex offenses and murder charges. The criminal history of the average prison inmate is widely varied, and by eliminating individuals based on certain charges further removes the Sheridan Correctional Center population from the rest of the national and state-level prison population. Results of this study cannot be applied to female prisoners either. There were no females in the sample, and therefore gender was not accounted for in the analysis. Beyond prison populations,

this study cannot be extended to the general population. The calculated values of the self-control scales were taken from a population that, by Gottfredson and Hirschi's (1990) thinking, has low-self control to begin with. They are not calibrated to the general population, which likely has a larger variation in self-control.

With the above restraints in mind, in this sample, self-control theory as outlined by Gottfredson and Hirschi (1990) does not hold true in this study. Age was consistently a stronger predictor of recidivism than any of the self control scales, and aftercare completion was the most impactful when all variables were held constant. This is not to say that self-control theory fails entirely. The results of this study call into question the age at which self-control is set, if there is such an age at all. As explained in the literature, the brain undergoes changes at least through the end of adolescence. Personality traits like self-control have the opportunity to continue developing, and this study suggests that they do.

This study can be seen as a starting point for understanding the type of individuals in Sheridan Correctional Center. There are several avenues whose further investigation would enhance these results. The first would be the predictor variable itself. The factors utilized in this study did not explain enough of the variance in the concept of self-control to be considered adequate. Gottfredson and Hirschi (1990) broke self-control into multiple traits, and the factor analysis corroborates this type of break-down by reporting more than one factor. Discovery of the other 56.7% of the self-control construct would greatly enhance the understanding of the effects of self-control on aftercare completion and recidivism.

Another area for further exploration is the labeling aspect of crime, dismissed by self-control theory. While Gottfredson and Hirschi (1990) felt that all types of crime are committed by the same types of individuals, current policy decisions and programming tend to differentiate between violent and non-violent offenders. Further inquiry into differences in self-control between violent and non-violent offenders or sex offenders versus other criminals might reveal crucial differences in these populations. If these characteristics exist, they need to be discovered and used to target those that require more intensive incarceration therapies or re-entry services.

Increased or more focused re-entry services could aid in completion rates for aftercare, the strongest predictor of recidivism in this sample. The rate of compliance with aftercare by Sheridan Correctional Center releasees might be artificially inflated because the treatment in this study is a condition of the individual's parole. Investigation into compulsory versus recommended aftercare and re-entry programming would be enlightening. There is currently a study being done at the Cook County Jail that includes individuals from general population, boot camp, and other alternative sanctions. The participants are assessed and offered possible treatments and reentry services upon release, but the treatments are not always conditions of probation. In fact, the individuals released directly from the jail might not have a probation period afterward at all. While the populations are not similar in terms of crime type (and likely crime history) individuals could be matched on other demographic characteristics and preliminary data could be gathered on aftercare completion between those that are required to attend and

those that are not. If similar studies are available using prison populations, these would be better to use for comparison.

### *Conclusion*

This study intended to investigate the relationship between the personality trait of self-control, and aftercare completion and recidivism in Sheridan Correctional Center releases. In the sample of 604 individuals, two scales used to measure self-control were significant predictors of recidivism, but only when aftercare completion was not included in the model. Due to the exploratory nature of this study, it is worth noting that the aggression and criminal thinking scales approached significance after aftercare completion was included as a variable.

APPENDIX A  
CEST MATERIALS

## TCU CTSFORM Scales and Item Scoring Guide

Scoring Instructions. Numbers for each item indicate its location in the administration version, in which response categories are 1=Strongly Disagree to 5=Strongly Agree; ® designates items with reflected scoring. Scores for each scale are obtained by summing responses to its set of items (after reversing scores on reflected items by subtracting the item response from “6”), dividing the sum by number of items included (yielding an average) and multiplying by 10 in order to rescale final scores so they range from 10 to 50 (e.g., an average response of 2.6 for a scale becomes a score of “26”).

### A. Entitlement (EN)\*

- 9. You have paid your dues in life and are justified in taking what you want.
- 22. You feel you are above the law.
- 23. It is okay to commit crime in order to pay for the things you need.
- 24. Society owes you a better life.
- 32. Your good behavior should allow you to be irresponsible sometimes.
- 33. It is okay to commit crime in order to live the life you deserve.

### B. Justification (JU)\*

- 7. You rationalize your actions with statements like “Everyone else is doing it, so why shouldn’t I?”
- 11. When being asked about the motives for engaging in crime, you point out how hard your life has been.
- 16. You find yourself blaming the victims of some of your crimes.
- 25. Breaking the law is no big deal as long as you do not physically harm someone.
- 26. You find yourself blaming society and external circumstances for the problems in your life.
- 35. You justify the crimes you commit by telling yourself that if you had not done it, someone else would have.

### C. Power Orientation (PO)\*

- 4. When people tell you what to do, you become aggressive.
- 10. When not in control of a situation, you feel the need to exert power over others.
- 13. You argue with others over relatively trivial matters.
- 14. If someone disrespects you then you have to straighten them out, even if you have to get physical with them to do it.
- 15. You like to be in control.
- 20. You think you have to pay back people who mess with you.
- 28. The only way to protect yourself is to be ready to fight.

#### D. Cold Heartedness (CH)

- 1. You get upset when you hear about someone who has lost everything in a natural disaster. ®
- 6. Seeing someone cry makes you sad. ®
- 12. You are sometimes so moved by an experience that you feel emotions that you cannot describe. ®
- 17. You feel people are important to you. ®
- 27. You worry when a friend is having problems. ®

#### E. Criminal Rationalization (CN)

- 5. Anything can be fixed in court if you have the right connections.
- 8. Bankers, lawyers, and politicians get away with breaking the law every day.
- 18. This country's justice system was designed to treat everyone equally. ®
- 19. Police do worse things than do the "criminals" they lock up.
- 30. It is unfair that you are locked-up for your crimes when bank presidents, lawyers, and politicians get away with their crimes.
- 34. Prosecutors often tell witnesses to lie in court.

#### F. Personal Irresponsibility (PI)

- 2. You are locked-up because you had a run of bad luck.
- 3. The real reason you are locked-up is because of your race.
- 21. Nothing you do here is going to make a difference in the way you are treated.
- 29. You are not to blame for everything you have done.
- 31. Laws are just a way to keep poor people down.
- 36. You may be a criminal, but your environment made you that way.

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\*Revised "Psychological Inventory of Criminal Thinking Styles (PICTS)" scale, taken from Walters, G. D. (1998). [Changing lives of crime and drugs: Intervening with substance- abusing offenders. New York: John Wiley & Sons.]

## TCU SOCFORM Scales and Item Scoring Guide

Scoring Instructions. Numbers for each item indicate its location in the administration version with response categories 1=Disagree Strongly to 5=Agree Strongly; and reflected scoring designated by ®. Scores for each scale are obtained by summing responses to its set of items (after reversing scores on reflected items by subtracting the item response from “6”), dividing the sum by number of items included (yielding an average) and multiplying by 10 in order to rescale final scores so they range from 10 to 50 (e.g., an average response of 2.6 for a scale becomes a score of “26”).

Note. Special scoring for “D. Social Desirability”: Items 2, 7, 14, 23 are scored 1=Agree Strongly or Agree and 0=Uncertain, Disagree or Strongly Disagree. Items 4, 11, 19, 22, 27, 32, 35 are scored 1=Disagree Strongly or Disagree, and 0=Uncertain, Agree or Strongly Agree. All of the items in the scale are then summed to get the Social Desirability score. Higher scores on this index tend to indicate questionable results for the entire questionnaire. In addition, special item 29 provides for a response accuracy check and should be marked “Agree” (4) to indicate the respondent read and understood the question.

### SOCIAL FUNCTIONING SCALES

#### A. Hostility (HS)

- 8. You have carried weapons, like knives or guns.
- 10. You feel a lot of anger inside you.
- 12. You have a hot temper.
- 13. You like others to feel afraid of you.
- 15. You feel mistreated by other people.
- 24. You get mad at other people easily.
- 28. You have urges to fight or hurt others.
- 36. Your temper gets you into fights or other trouble.

#### B. Risk Taking (RT)

- 3. You only do things that feel safe. ®
- 16. You avoid anything dangerous. ®
- 18. You are very careful and cautious. ®
- 26. You like to do things that are strange or exciting.
- 30. You like to take chances.
- 33. You like the “fast” life.
- 34. You like friends who are wild.

#### C. Social Support (SS)

- 1. You have people close to you who motivate and encourage your recovery.
- 5. You have close family members who want to help you stay away from drugs.

- 6. You have good friends who do not use drugs.
- 9. You have people close to you who can always be trusted.
- 17. You have people close to you who understand your situation and problems.
- 20. You work in situations where drug use is common. ®
- 21. You have people close to you who expect you to make positive changes in your life.
- 25. You have people close to you who help you develop confidence in yourself.
- 31. You have people close to you who respect you and your efforts.

D. Social Desirability Scale (SD)

- 2. You have never deliberately said something that hurt someone's feelings.
- 4. You are sometimes irritated by people who ask favors of you.
- 7. When you do not know something, you do not at all mind admitting it.
- 11. You sometimes try to get even rather than forgive and forget.
- 14. You are always willing to admit it when you make a mistake.
- 19. There have been occasions when you took advantage of someone.
- 22. You can remember "playing sick" to get out of something.
- 23. No matter who you are talking to, you are always a good listener.
- 27. You have felt like rebelling against people in authority even when they were right.
- 32. Occasionally, you gave up doing something because you thought too little of your ability.
- 35. You sometimes feel resentful when you do not get your way.

E. Accuracy

- 29. Please fill in the "Agree" box as your response for this question.

## TCU PSYFORM

### Scales and Item Scoring Guide

Scoring Instructions. Numbers for each item indicate its location in the administration version with response categories 1=Disagree Strongly to 5=Agree Strongly; and reflected scoring designated by ®. Scores for each scale are obtained by summing responses to its set of items (after reversing scores on reflected items by subtracting the item response from “6”), dividing the sum by number of items included (yielding an average) and multiplying by 10 in order to rescale final scores so they range from 10 to 50 (e.g., an average response of 2.6 for a scale becomes a score of “26”).

Note. Special item 27 provides for a response accuracy check and should be marked “Disagree” (2) to indicate the respondent read and understood the question.

### PSYCHOLOGICAL FUNCTIONING SCALES

#### A. Self-Esteem (SE)

- 2. You have much to be proud of.
- 6. You feel like a failure. ®
- 10. You wish you had more respect for yourself. ®
- 19. You feel you are basically no good. ®
- 25. In general, you are satisfied with yourself.
- 29. You feel you are unimportant to others. ®

#### B. Depression (DP)

- 5. You feel interested in life. ®
- 12. You feel sad or depressed.
- 14. You feel extra tired or run down.
- 20. You worry or brood a lot.
- 22. You feel hopeless about the future.
- 32. You feel lonely.

#### C. Anxiety (AX)

- 1. You have trouble sleeping.
- 7. You have trouble concentrating or remembering things.
- 8. You feel afraid of certain things, like elevators, crowds, or going out alone.
- 9. You feel anxious or nervous.
- 15. You have trouble sitting still for long.
- 28. You feel tense or keyed-up.
- 30. You feel tightness or tension in your muscles.

#### D. Decision Making (DM)

- 3. You consider how your actions will affect others.

## 4. You plan ahead.

- 13. You think about probable results of your actions.
- 16. You think about what causes your current problems.
- 18. You think of several different ways to solve a problem.
- 21. You have trouble making decisions. ®
- 23. You make good decisions.
- 26. You make decisions without thinking about consequences. ®
- 33. You analyze problems by looking at all the choices.

## E. Expectancy (EX)

- 11. You are likely to feel the need to use drugs during treatment. ®
- 17. You are likely to drink alcohol in the next few months. ®
- 24. You are likely to relapse in the next few months. ®
- 31. You are likely to have problems in quitting drug use. ®

## F. Accuracy

- 27. Please fill in the “Disagree” box as your response for this question.

## TCU MOTFORM Scales and Item Scoring Guide

Scoring Instructions. Numbers for each item indicate its location in the administration version, in which response categories are 1=Strongly Disagree to 5=Strongly Agree; ® designates items with reflected scoring. Scores for each scale are obtained by summing responses to its set of items (after reversing scores on reflected items by subtracting the item response from “6”), dividing the sum by number of items included (yielding an average) and multiplying by 10 in order to rescale final scores so they range from 10 to 50 (e.g., an average response of 2.6 for a scale becomes a score of “26”).

Note. Special item 36 provides for a response accuracy check and should be marked “Uncertain” (3) to indicate the respondent read and understood the question.

### TREATMENT NEEDS/MOTIVATION SCALES

#### A. Problem Recognition (PR)

- 5. Your drug use is a problem for you.
- 8. Your drug use is more trouble than it’s worth.
- 10. Your drug use is causing problems with the law.
- 11. Your drug use is causing problems in thinking or doing your work.
- 16. Your drug use is causing problems with your family or friends.
- 20. Your drug use is causing problems in finding or keeping a job.
- 24. Your drug use is causing problems with your health.
- 28. Your drug use is making your life become worse and worse.
- 33. Your drug use is going to cause your death if you do not quit soon.

#### B. Desire For Help (DH)

- 1. You need help with your drug use.
- 12. It is urgent that you find help immediately for your drug use.
- 13. You will give up your friends and hangouts to solve your drug problems.
- 22. Your life has gone out of control.
- 26. You are tired of the problems caused by drugs.
- 30. You want to get your life straightened out.

#### C. Treatment Readiness (TR)

- 2. You need to be in treatment now.
- 4. This treatment gives you a chance to solve your drug problems.
- 6. This kind of treatment program is not helpful to you. ®
- 18. This treatment program gives you hope for recovery.
- 21. You want to be in drug treatment.
- 25. You are ready to leave this treatment program. ®
- 27. You are at this treatment program only because it is required. ®
- 35. You are not ready for this kind of treatment program. ®

D. Pressures for Treatment Index\* (PT – not scored as single scale)

- 3. You have family members who want you to be in treatment.
- 9. You are concerned about legal problems.
- 14. You feel a lot of pressure to be in treatment.
- 17. You expect to be sent to jail or prison if you are not in treatment.
- 29. You have serious drug-related health problems.
- 32. Several people close to you have serious drug problems.
- 34. You have legal problems that require you to be in treatment.

\* Formerly labeled External Pressures

E. Treatment Needs (TN) Index

- 7. You need help with your emotional troubles.
- 15. You need individual counseling sessions.
- 19. You need educational or vocational training services.
- 23. You need group counseling sessions.
- 31. You need medical care and services.

F. Accuracy

- 36. Please fill in the “Uncertain” box as your response for this question.

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Scales and Item Scoring Guide

Scoring Instructions. Numbers for each item indicate its location in the administration version, in which response categories are 1=Disagree Strongly to 5=Agree Strongly; ® designates items with reflected scoring. Scores for each scale are obtained by summing responses to its set of items (after reversing scores on reflected items by subtracting the item response from “6”), dividing the sum by number of items included (yielding an average) and multiplying by 10 in order to rescale final scores so they range from 10 to 50 (e.g., an average response of 2.6 for a scale becomes a score of “26”).

TREATMENT ENGAGEMENT PROCESS DOMAINS

A. Treatment Participation (TP)

- 6. You are willing to talk about your feelings during counseling.
- 9. You have made progress with your drug/alcohol problems.
- 11. You have learned to analyze and plan ways to solve your problems.
- 12. You have made progress toward your treatment program goals.
- 13. You always attend the counseling sessions scheduled for you.
- 20. You have stopped or greatly reduced your drug use while in this program.
- 22. You always participate actively in your counseling sessions.
- 23. You have made progress in understanding your feelings and behavior.
- 25. You have improved your relations with other people because of this treatment.
- 28. You have made progress with your emotional or psychological issues.
- 31. You give honest feedback during counseling.
- 36. You are following your counselor’s guidance.

B. Treatment Satisfaction (TS)

- 2. Time schedules for counseling sessions at this program are convenient for you.
- 4. This program expects you to learn responsibility and self-discipline.
- 7. This program is organized and run well.
- 10. You are satisfied with this program.
- 26. The staff here are efficient at doing their job.
- 34. You can get plenty of personal counseling at this program.
- 35. This program location is convenient for you.

C. Counseling Rapport (CR)

- 1. You trust your counselor.
- 3. It’s always easy to follow or understand what your counselor is trying to tell you.
- 5. Your counselor is easy to talk to.
- 8. You are motivated and encouraged by your counselor.
- 14. Your counselor recognizes the progress you make in treatment.
- 15. Your counselor is well organized and prepared for each counseling session.

- 16. Your counselor is sensitive to your situation and problems.
- 17. Your treatment plan has reasonable objectives.
- 18. Your counselor views your problems and situations realistically.
- 21. Your counselor helps you develop confidence in yourself.
- 29. Your counselor respects you and your opinions.
- 32. You can depend on your counselor's understanding.

D. Peer Support (PS)

- 19. Other clients at this program care about you and your problems.
- 24. Other clients at this program are helpful to you.
- 27. You are similar to (or like) other clients of this program.
- 30. You have developed positive trusting friendships while at this program.
- 33. There is a sense of family (or community) in this program.

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APPENDIX B

CREATING MEASURES OF SELF-CONTROL DIMENSIONS

To create the self-control index, questions were selected from the TCU/CEST tool based on their potential to measure an aspect of the overarching concept of self-control. The chosen questions are shown in Table 10. Bolded titles preceded by an Arabic numeral are aspects of self-control, lines preceded by an alphabetic character indicate which TCU/CEST scale the following questions come from, and the lines preceded by Roman numerals are the questions themselves. Note that the symbol “Я” means the question was reverse coded on the TCU/CEST, and numbers in parentheses indicate a potential alternate location for the item.

Following item selection, each question needed to be evaluated on its own for normalcy. Any item with a skewness outside  $\pm 0.196$  (twice the standard error of skewness) was transformed via natural log, inverse, or square root. Items that had a negative initial skewness were reflected prior to transformations. When the transformations were complete, they were then reflected again to maintain the direction of interpretation. The transformation that most improved overall skewness was included in place of the original item. See Table 11 for final item transformation. Bolded numbers designate which transformation was utilized in the factor analysis. After final transformations, each item was plotted against the rest to test for linearity. Items suitable for factor analysis are required to have a linear relationship as opposed to a curvilinear relationship (Tabachnick & Fidell, 2000). Most items showed no significant change in  $r^2$  from the linear value, and thus were kept for the factor analysis.

All items were included and initially explored with an unrotated factor analysis. Missing values were replaced with the mean, as is standard practice (Tabachnick &

Table 11. Initial Scale Placement for Selected CEST Items

<p><b>1. Ability to delay gratification</b></p> <p>a. Criminal Thinking – Entitlement</p> <ol style="list-style-type: none"> <li>It is okay to commit crime in order to pay for the things you need</li> <li>It is okay to commit crime in order to live the life you deserve</li> </ol> <p><b>2. Caution</b></p> <p>a. Social Functioning – Risk Taking (entire scale)</p> <ol style="list-style-type: none"> <li>You only do things that feel safe</li> <li>You avoid anything dangerous</li> <li>You are very careful and cautious Я</li> <li>You like to do things that are strange or exciting</li> <li>You like to take chances</li> <li>You like the “fast” life</li> <li>You like friends who are wild</li> </ol> <p><b>3. Cognitive and verbal as opposed to active and physical</b></p> <p>a. Criminal Thinking – Power Orientation</p> <ol style="list-style-type: none"> <li>When people tell you what to do, you become aggressive (7)</li> <li>You argue with others over fairly trivial matters</li> <li>If someone disrespects you then you have to straighten them out, even if you have to get physical with them to do it</li> <li>The only way to protect yourself is to be ready to fight</li> </ol> <p>b. Social Functioning – Hostility</p> <ol style="list-style-type: none"> <li>You have urges to fight or hurt others</li> <li>Your temper gets you into fights or other trouble (7)</li> </ol> <p><b>4. Long-term planning and foresight</b></p> <p>a. Social Functioning - Social Desirability</p> <ol style="list-style-type: none"> <li>You can remember “playing sick” to get out of something (1)</li> </ol> <p>b. Psychological Functioning – Decision Making (entire scale)</p> <ol style="list-style-type: none"> <li>You consider how your actions will affect others</li> <li>You plan ahead</li> <li>You think about probable results of your actions</li> <li>You think about what causes your current problems</li> <li>You think of several different ways to solve a problem (8)</li> <li>You have trouble making decisions Я</li> <li>You make good decisions</li> <li>You make decisions without thinking about consequences Я</li> <li>You analyze problems by looking at all the choices (8)</li> </ol> <p><b>5. Ability to learn and master manual or academic skills</b></p> <p>No questions appropriate to measure this concept</p>	<p><b>6. Empathy</b></p> <p>a. Criminal Thinking – Justification</p> <ol style="list-style-type: none"> <li>You find yourself blaming the victims of some of your crimes</li> </ol> <p>b. Criminal Thinking – Cold Heartedness</p> <ol style="list-style-type: none"> <li>You get upset when you hear about someone who has lost everything in a natural disaster Я</li> <li>Seeing someone cry makes you sad Я</li> <li>You feel people are important to you (9) Я</li> <li>You worry when a friend is having problems (9) Я</li> </ol> <p>c. Social Functioning – Hostility</p> <ol style="list-style-type: none"> <li>You like others to feel afraid of you</li> </ol> <p>d. Social Functioning – Social Desirability</p> <ol style="list-style-type: none"> <li>You have never deliberately said something that hurt someone’s feelings</li> <li>You are sometimes irritated by people who ask favors of you</li> <li>There have been occasions when you took advantage of someone</li> <li>No matter who you are talking to, you are always a good listener</li> </ol> <p><b>7. Tolerance for frustration</b></p> <p>a. Social Functioning – Hostility</p> <ol style="list-style-type: none"> <li>You have a hot temper (2)</li> <li>You get mad at other people easily</li> </ol> <p>b. Social Functioning – Social Desirability</p> <ol style="list-style-type: none"> <li>You sometimes feel resentful when you do not get your way</li> </ol> <p><b>8. Ability to find alternative methods to deal with stressors</b></p> <p>a. Criminal Thinking – Power Orientation</p> <ol style="list-style-type: none"> <li>You think you have to pay back people who mess with you</li> </ol> <p>b. Social Functioning – Hostility</p> <ol style="list-style-type: none"> <li>You have carried weapons, like knives or guns</li> </ol> <p>c. Social Functioning – Social Desirability</p> <ol style="list-style-type: none"> <li>You sometimes try to get even rather than forgive and forget</li> </ol> <p><b>9. Creates lasting relationships with family and friends</b></p> <p>a. Social Functioning - Social Support (entire scale)</p> <ol style="list-style-type: none"> <li>You have people close to you who motivate and encourage your recovery</li> <li>You have close family members who want to help you stay away from drugs</li> <li>You have good friends who do not use drugs</li> <li>You have people close to you who can always be trusted</li> <li>You have people close to you who understand your situation and problems</li> <li>You work in situations where drug use is common Я</li> <li>You have people close to you who expect you to make positive changes in your life</li> <li>You have people close to you who help you develop confidence in yourself</li> <li>You have people close to you who respect you and your efforts</li> </ol> <p>b. Treatment Motivation – Pressures for Treatment</p> <ol style="list-style-type: none"> <li>You have family members who want you to be in treatment</li> </ol>
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Table 12. Skewness Table of Initial Questions

	Skew					Skew			
	Original	Sqrt	Ln	Inv		Original	Sqrt	Ln	Inv
<b>ADG1</b>	1.277	0.674	<b>0.211</b>	0.293	<b>EMP1</b>	1.033	<b>0.5</b>	-0.011	0.727
<b>ADG2</b>	1.309	0.627	<b>0.101</b>	0.464	<b>EMP2R</b>	.831	<b>0.365</b>	-0.149	1.056
<b>CAU1R</b>	-.404	<b>-0.091</b>	0.324	-1.399	<b>EMP3R</b>	.555	<b>0.171</b>	-0.313	1.453
<b>CAU2R</b>	<b>-.266</b>	0.076	0.501	-1.504	<b>EMP4R</b>	1.404	0.725	<b>0.133</b>	0.576
<b>CAU3R</b>	.450	<b>0.096</b>	-0.357	1.454	<b>EMP5R</b>	1.108	<b>0.54</b>	-0.094	1.203
<b>CAU4</b>	-.569	<b>-0.168</b>	0.295	-1.214	<b>EMP6</b>	1.176	0.559	<b>0.061</b>	0.511
<b>CAU5</b>	-.933	<b>-0.446</b>	-0.121	-1.211	<b>EMP7</b>	.813	<b>0.389</b>	-0.089	0.946
<b>CAU6</b>	-.346	<b>-0.017</b>	0.341	-0.998	<b>EMP8</b>	<b>.039</b>			
<b>CAU7</b>	<b>.050</b>				<b>EMP9</b>	-.732	<b>-0.372</b>	0.1	-1.233
<b>CVAP1</b>	.810	<b>0.379</b>	-0.126	1.096	<b>EMP10</b>	-.869	<b>-0.365</b>	0.114	-0.792
<b>CVAP2</b>	.678	<b>0.264</b>	-0.266	1.197	<b>FTOL1</b>	<b>.286</b>	-0.012	-0.374	1.153
<b>CVAP3</b>	.586	<b>0.2</b>	-0.247	1.115	<b>FTOL2</b>	.588	<b>0.214</b>	-0.257	1.324
<b>CVAP4</b>	.531	<b>0.174</b>	-0.262	1.2	<b>FTOL3</b>	<b>.059</b>			
<b>CVAP5</b>	.856	<b>0.426</b>	-0.01	0.69	<b>ALT1</b>	.795	<b>0.346</b>	-0.181	1.219
<b>CVAP6</b>	.402	<b>0.085</b>	-0.289	1.047	<b>ALT2</b>	-.491	<b>0.213</b>	-0.135	0.88
<b>LTP1</b>	-.869	<b>-0.451</b>	-0.049	1.028	<b>ALT3</b>	<b>.280</b>	-0.042	-0.424	1.228
<b>LTP2</b>	-.908	<b>-0.397</b>	0.144	-1.032	<b>FAM1</b>	-1.613	-0.957	<b>-0.472</b>	-0.014
<b>LTP3</b>	-.961	<b>-0.393</b>	0.196	-1.109	<b>FAM2</b>	-1.757	-1.186	<b>-0.738</b>	0.258
<b>LTP4</b>	-.901	<b>-0.403</b>	0.184	-1.375	<b>FAM3</b>	-1.332	-0.825	<b>-0.373</b>	-0.194
<b>LTP5</b>	-1.310	<b>-0.645</b>	0.014	-0.955	<b>FAM4</b>	-1.259	-0.738	<b>-0.294</b>	-0.248
<b>LTP6</b>	-1.276	<b>-0.621</b>	0.049	-1.049	<b>FAM5R</b>	1.290	0.643	<b>0.089</b>	0.576
<b>LTP7R</b>	-.701	<b>-0.285</b>	0.181	-1.023	<b>FAM6</b>	.331	<b>0.011</b>	-0.362	1.117
<b>LTP8</b>	-.450	<b>-0.042</b>	0.457	-1.613	<b>FAM7</b>	-1.852	-1.111	<b>-0.658</b>	0.286
<b>LTP9R</b>	<b>-.227</b>	0.085	0.457	-1.256	<b>FAM8</b>	-1.160	-0.591	<b>-0.122</b>	-0.428
<b>LTP10</b>	-.838	<b>-0.348</b>	0.194	-1.167	<b>FAM9</b>	-1.435	-0.748	<b>-0.239</b>	-0.278
					<b>FAM10</b>	-.513	<b>-0.168</b>	0.24	-1.052

Note: Questions in this table are named after the aspect of self-control each was assumed to link to. See Table 10 above. In addition, the “R” after some questions indicates that the answers given by offenders were reversed, in keeping with how the TCU/CEST designated reverse-coded questions.

All items were included and initially explored with an unrotated factor analysis.

Missing values were replaced with the mean, as is standard practice (Tabachnick & Fidell, 2000). The result was twelve potential factor groupings, with about four that were relatively well-defined. Seven items were removed from the question set because they were ambiguous and loaded on multiple factors. These questions were EMP 7-10, LTP1,

FAM6, and FAM10. Varimax rotation was attempted on the remaining questions to increase correlations between items within each factor, and to decrease correlations between items *not* loading in each factor (Tabachnick & Fidell, 2000). Two additional ambiguous questions, CAU 1 and CVAP 2, were removed after this rotation. To check for correlations *between* factors, a direct oblimin rotation was performed. All resulting correlations were less than zero, meaning there were no correlations between factors. A final Varimax rotation was performed on the remaining 42 questions, allowing factors to be independent of each other. The final result of confirmatory factor analysis was eight scales with questions that loaded on each at above 0.4. Tables 12-19 are the correlation matrices for each factor.

The result of the factor analysis issued each inmate a regression score for each scale. The scales all have a mean of 0.0 and a standard deviation of 1.0. Three of these had worrisome items. The family and friend scale was bimodal. Transformations were attempted to restore normalcy. Because the initial skewness was negative, the scale first had to be inverted by subtracting each value from one plus the largest value. Square root and natural log transformations were attempted, but the resulting distributions were still bimodal. The decision was made to remove the family and friends scale from this analysis.

The risk-taking scale was the most skewed of all eight. Values over three (3.0) (three standard deviations above the mean) were replaced with the numeral three. This kept the values of outliers while bringing them closer to the mean. Four values were replaced using this method, decreasing skewness by half. The third problem with the

Table 13. Correlation Matrix – Aggression

	<b>AGG1</b>	<b>AGG2</b>	<b>AGG3</b>	<b>AGG4</b>	<b>AGG5</b>	<b>AGG6</b>	<b>AGG7</b>	<b>AGG8</b>	<b>AGG9</b>	<b>AGG10</b>	<b>AGG11</b>
Your temper gets you into fights or other trouble	1.000										
You have a hot temper	0.707	1.000									
You get mad at other people easily	0.616	0.622	1.000								
You have urges to fight or hurt others	0.558	0.457	0.541	1.000							
You sometimes try to get even rather than forgive and forget	0.525	0.484	0.479	0.446	1.000						
If someone disrespects you then you have to straighten them out, even if you have to get physical with them to do it	0.521	0.445	0.433	0.496	0.443	1.000					
When people tell you what to do, you become aggressive	0.435	0.393	0.457	0.427	0.370	0.484	1.000				
You feel you have to pay back people who mess with you	0.420	0.371	0.417	0.410	0.490	0.533	0.474	1.000			
You like others to feel afraid of you	0.390	0.342	0.406	0.509	0.414	0.366	0.317	0.373	1.000		
You have carried weapons like knives or guns	0.320	0.350	0.236	0.301	0.297	0.306	0.180	0.270	0.171	1.000	
You sometimes feel resentful when you do not get your way	0.419	0.345	0.418	0.306	0.310	0.278	0.365	0.304	0.280	0.148	1.000

Table 14. Correlation Matrix – Family and Friend Relationships

	<b>FAMF1</b>	<b>FAMF2</b>	<b>FAMF3</b>	<b>FAMF4</b>	<b>FAMF5</b>	<b>FAMF6</b>	<b>FAMF7</b>	<b>FAMF8</b>
You have people close to you who help you develop confidence in yourself	1.000							
You have people close to you who expect you to make positive changes in your life	0.497	1.000						
You have close family members who want to help you stay away from drugs	0.412	0.506	1.000					
You have people close to you who motivate and encourage your recovery	0.488	0.464	0.560	1.000				
You have people close to you who respect you and your efforts	0.555	0.513	0.350	0.420	1.000			
You have people close to you who understand your situation and problems	-0.514	-0.492	-0.372	-0.426	-0.446	1.000		
You have people close to you who can always be trusted	0.448	0.435	0.358	0.288	0.477	-0.416	1.000	
You have good friends who do not use drugs	0.366	0.396	0.318	0.299	0.332	-0.345	0.395	1.000

Table 15. Correlation Matrix – Criminal Thinking

	<b>CRIM1</b>	<b>CRIM2</b>	<b>CRIM3</b>	<b>CRIM4</b>
Is it ok to commit a crime in order to pay for the things you need	1.000			
It is ok to commit a crime in order to live the life you deserve	0.642	1.000		
The only way to protect yourself is to be ready to fight	0.358	0.378	1.000	
You find yourself blaming the victims of some of your crimes	0.414	0.423	0.329	1.000

Table 16. Correlation Matrix - Foresight

	<b>FORE1</b>	<b>FORE2</b>	<b>FORE3</b>	<b>FORE4</b>	<b>FORE5</b>
You make good decisions	1.000				
You have trouble making decisions <b>R</b>	0.317	1.000			
You make decisions without thinking about consequences <b>R</b>	0.356	0.336	1.000		
You plan ahead	0.339	0.318	0.275	1.000	
You analyze problems by looking at all the choices	0.371	0.221	0.379	0.369	1.000

Table 17. Correlation Matrix – Analytical Thinking

	<b>ANA1</b>	<b>ANA2</b>	<b>ANA3</b>	<b>ANA4</b>
You think about what causes your current problems	1.000			
You think about probable results of your actions	0.387	1.000		
You consider how your actions will affect others	0.310	0.363	1.000	
You think of several ways to solve a problem	0.343	0.318	0.310	1.000

Table 18. Correlation Matrix – Risk-Taking

	<b>RISK1</b>	<b>RISK2</b>	<b>RISK3</b>	<b>RISK4</b>
You like to take chances	1.000			
You like the "fast" life	0.427	1.000		
You like to do things that are strange or exciting	0.412	0.257	1.000	
You like friends who are wild	0.361	0.563	0.281	1.000

Table 19. Correlation Matrix – Empathy

	<b>EMPA1</b>	<b>EMPA2</b>	<b>EMPA3</b>	<b>EMPA4</b>
You get upset when you hear about someone who has lost everything in a natural disaster <b>R</b>	1.000			
You worry when a friend is having problems <b>R</b>	0.315	1.000		
Seeing someone cry makes you sad <b>R</b>	0.316	0.312	1.000	
You feel people are important to you <b>R</b>	0.204	0.294	0.203	1.000

Table 20. Correlation Matrix - Caution

	<b>CAU1</b>	<b>CAU2</b>
You are very careful and cautious <b>R</b>	1.000	
You avoid anything dangerous <b>R</b>	0.452	1.000

scales was the skewness of the empathy scale, but transformation and variable replacement did not significantly fix this problem. The empathy scale was used in its original form, un-transformed and without variable replacement.

The resulting self-control index used in this study had seven scales and explains 43.64% of the total concept of self-control. See Table 2 in Chapter Three for the break out of scale information.

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## VITA

Jana Krepel was born in Saint Paul, Minnesota and grew up in North Saint Paul, Minnesota. She attended Loyola University Chicago as an undergraduate and earned a Bachelor of Science in Forensic Science in 2004. She graduated *cum laude* from the honors program.

In her current capacity as a graduate student at Loyola University Chicago, Jana is actively involved in the Graduate Criminal Justice Organization, a member of Alpha Phi Sigma, and a member of Alpha Sigma Nu. She worked as a graduate assistant under Dr. David Olson, then Chair of the department. Her duties included statistical analyses of the Cook County Jail population and candidate selection for grant-funded programming.

Currently, Jana is a Marketing Performance Analyst at Nielsen. She lives in Chicago, Illinois.