

**THE EFFICACY OF COGNITIVE BEHAVIORAL THERAPY FOR REENTRY:  
AN ANALYSIS OF THE SERIOUS VIOLENT OFFENDER REENTRY  
INITIATIVE DATA**

by  
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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of  
the requirements for the degree of Master of Arts in Criminology

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## **ABSTRACT**

With over one million prisoners released from prison every year and fifty percent of those re-arrested within 3 years, the factors related to successful re-entry have become an important area of inquiry. The current study examined the effectiveness of Cognitive Behavioral Therapy on prisoner reentry, utilizing data from the Serious Violent Offender Reentry Initiative. Specifically, this paper used discrete time survival analysis to examine whether four components of CBT (anger management programs, assistance with life skills, assistance with working on personal relationships, and changing attitudes toward crime) decreased the probability of rearrest up to 15 months post release. Findings indicated the changing of criminal attitudes to be the most successful component of CBT in regards to rearrest. Future research and limitations are discussed.

## Chapter 1

### INTRODUCTION

In 2011 over 1.5 million adults were being held in state and federal prisons (Justice Center, 2011), and every year thousands of those offenders are released back into society. Almost 750,000 were released from state or federal prison in 2009 alone (NIJ, 2011) and an additional 10 million are released annually from jail (White, Saunders, Fisher & Mellow, 2012). Unfortunately, 40% to 60% of those released from prison find themselves rearrested within three years (Bureau of Justice Statistics, 2013; Congressional Research Service, 2011; Justice Center, 2011). This high rate of reincarceration can be attributed to the fact that released prisoners face several challenges trying to successfully reintegrate back into society. Many of those released from prison face discrimination in employment, education and housing (Andrews & Bonta, 1994; Bureau of Justice Assistance, 2007). The process of reentry is very complex and can include many challenging obstacles that prisoners returning home must face, typically with very few resources (Lynch & Sabol, 2001; Zlotnick, Johnson, & Najavits, 2009).

Because of these high rates of prison return, states and the federal government have invested in reentry programs to help prisoners transition back into the community. The goal of reentry programs is to prepare them to successfully make the transition from prison to the community and to live as law-abiding citizens. “Three phases are associated with offender reentry programs: programs that take place during incarceration, which aim to prepare

offenders for their eventual release; programs that take place during offenders' release period, which seek to connect ex-offenders with the various services they may require; and long-term programs that take place as ex-offenders permanently reintegrate into the communities, which attempt to provide offenders with support and supervision" (Congressional Research Service, 2011).

Unfortunately, there is little known about the efficacy of many of these programs, and the research that has been done has revealed that some of the programming has had only modest impacts on reducing recidivism (Mackenzie, 2008). Moreover, there have not been many attempts to determine whether programming works differently for men and women. More women report being under the influence of drugs or alcohol at the time of arrest compared to men, and women are more likely to have a history of interpersonal violence and child abuse (Zlotnick, Najavits, Rohsenow & Johnson, 2003). For this reason, it is a possibility that men and women could respond to treatment differently, and if so, that needs to be taken into account to ensure successful reintegration.

Among the numerous programs offered for reducing recidivism, Cognitive Behavior Therapy (CBT) has shown to hold great promise (Cullen & Gendreau, 2000). The current study will examine the differential effects of Cognitive Behavior Therapy (CBT) for men and women who were recruited as part of a multi-site evaluation.

## Chapter 2

### **PRISONER REENTRY: AN OVERVIEW**

Corrections institutions over the past 200 years have focused on different goals in regards to prisoners and their release into the community. During the 1800s, prisoners served a determinate amount of time in a crowded prison with little emphasis placed on rehabilitation (Seiter & Kadela, 2003). The 1900s saw a transition to indeterminate sentences, with more focus on rehabilitation and parole board experts making decisions about when prisoners would be released. During the past 20 years, we have seen yet another shift back to determinate sentencing in corrections. This change in philosophy has co-occurred with a larger percent of drug-related offenders making up prison populations, and has largely been an effect of the war on drugs initiated in the early 1980s (Mackenzie, 2001).

In order to more effectively manage prisoners across different demographic groups and offense types, prisons have become increasingly specialized, dividing prisoners by security level, medical problems, sex, and work programs (Seiter & Kadela, 2003). Despite the changes that have occurred in the last two centuries, one thing has remained constant: almost every inmate will at some point be released back into society. Prisoners today are facing longer sentences, often without the possibility of parole, which means the world they are returning to can be drastically different than the one they left. This only reinforces the hardships they face in regards to finding employment, reconnecting with family and friends, and ultimately not returning to prison.

Along with the changing structure of prisons, the process of prisoner reentry has also evolved. This evolution may have served to make the transition from prison to the community more difficult for offenders. These changes are the result of several different forces, including the ‘tough on crime’ attitude, reduced funding for prison programs and social services once released into the community, and less (sometimes zero) tolerance for infractions once under community supervision (Seiter & Kadela, 2003).

Prior to the war on drugs, there was more emphasis on preparing inmates for the transition into the community. There was a widespread belief that criminals could be reformed and that every prisoner’s treatment should be individualized (Petersilia, 1999). This medical model, with a focus on rehabilitation, included “educational and vocational programs, substance abuse and other counseling programs, therapeutic communities and other residential programs, and prison industry work programs were important parts of prison operations” (Seiter & Kadela, 2003: 362). The majority of these programs were mandatory and once a parole board made the decision to release a prisoner, efforts were made to ensure they were adequately prepared. The prisoner’s supervision continued once released into the community, and if the parole board felt there were inadequate resources in the community, ex-offenders were sent to halfway houses (Seiter & Kadela, 2003). Parole throughout the first half of the twentieth century, therefore, made perfect sense for three reasons: (1) It was believed to contribute to prisoner reform by encouraging participation in programs aimed at rehabilitation, (2) the prospect of a reduced sentence for

good behavior encouraged better conduct among inmates, and (3) it was a solution to the problem of prison over-crowding (Petersilia, 1999).

The 1980s saw a shift in the medical model to a more punitive focus. The belief surfaced that rehabilitation did not work and reentry started to emphasize punishment, deterrence, and incapacitation to prevent future crimes (Seiter & Kadela, 2003). This transition was in large part due to Martinson's 1974 summary of 231 treatment programs conducted between 1945 and 1967. From his research, Martinson concluded, "With few and isolated exceptions, the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism" (Martinson, 1974: 25). Despite the fact that Martinson's conclusions were greatly flawed, the "nothing works" mantra employed a powerful influence on both popular and professional thinking (Mackenzie, 2001). In addition to Martinson's findings that there was little scientific evidence that rehabilitation worked, research also revealed there was little relationship between in-prison behavior, participation in rehabilitation programs, and recidivism. If that were the case, then why base release dates on in-prison performance? Lastly, indeterminate sentencing allowed a great deal of discretion on part of parole boards. Their decisions were often inconsistent and discriminatory and led to a race and class bias in release decisions (Petersilia, 1999).

As a result, prisoners were no longer viewed as sick, as they were under the medical model, but began to be viewed as rational human beings making a conscious decision to commit crime. It was proposed the rehabilitation model

be replaced with a system of “just deserts” sentencing. Under this notion, sanctions would reflect the harm associated with the misconduct. Everyone committing the same crime would serve a similar determinate sentence, and individual traits such as amenability to treatment and potential for recidivism would be irrelevant in sentencing decisions (Petersilia, 1999). Post release services no longer included halfway houses, but rather consisted of a ‘zero tolerance’ attitude, where minor infractions would result in offenders being sent back to prison (Seiter & Kadela, 2003). As a result, the prison population grew more during this time period than any other since prisons were first established in the U.S. (Blumstein, Cohen & Farrington, 1988). Community supervision shifted in the 1990s from supervision and counseling to risk management and surveillance (Feeley & Simon, 1992). In this new penology “offenders are addressed not as individuals but as aggregate populations. The traditional correctional objectives of rehabilitation and the reduction of offender recidivism gave way to the rational and efficient control strategies for managing (and confining) high-risk criminal populations” (Rhine 1997, 73).

Seiter & Kadela (2003) summarize the problems with the current state of prisoner reentry:

Prisoner reentry is a problem for many reasons. First, the number and makeup of prisoners released has increased and changed considerably during the past two decades. Second, the communities to which offenders return are less stable and less able to provide social services and support to these large number of returning prisoners. Third, there is less availability of prison rehabilitative programs to meet inmate needs. Fourth, the focus on supervision and monitoring rather than casework and support by parole and release officers of prisoners reentering society has confounded the problem of

lack of programs. Last, there are a large number of released prisoners failing in the community and being returned to prison, with more than three fourths of those returned for technical violations rather than the commission of new crimes (Seiter & Kadela, 2003: 380).

Despite these problems, however, analysis of prisoner reentry programs has identified several categories of programs that have been successful, including drug and mental health treatment, job training, and housing assistance (Congressional Research Service, 2011).

## Chapter 3

### WHAT WE KNOW ABOUT REENTRY

Today, there are a wide array of reentry programs that have been implemented across the country, however, the literature has shown that programs focusing on “work training and placement, drug and mental health treatment, and housing assistance have been proven to be effective” (Congressional Research Service, 2011). Seiter and Kadela (2003) found vocational training and work release programs to be successful in reducing recidivism rates and improving job readiness skills. Lack of employment opportunities is arguably one of the biggest challenges prisoners face for successful reintegration back into society, and research has shown contact with the criminal justice system substantially reduces economic opportunities after release (Pager, 2003). This is especially dire considering research has shown that in some prison facilities, less than half of the prisoners have a high school diploma prior to entering prison (Visher, LaVigne & Travis, 2004). In addition to limited employment opportunities, prisoners typically have very unstable living conditions after release, with most living in more than one location the year following their release (Urban Institute, 2012). Up to 20% of prisoners are homeless before incarceration, and those with a history of homelessness are 5 times more likely to find themselves in a shelter after release (Bureau of Justice Assistance, 2007; Justice Center, 2011). Another obstacle the majority of prisoners face upon release is the high incidence of drug abuse, mental illness, and other health related issues. Research has shown an overwhelming majority

of those entering prison reported drug use prior to prison (Bureau of Justice Assistance, 2007; Justice Center, 2011; Visher et al, 2004) with cocaine and heroin topping the list of drugs by type (Visher et al, 2004). While drugs and alcohol caused serious problems for most prisoners prior to prison, less than half have reported receiving some type of drug or alcohol treatment while incarcerated (Bureau of Justice Assistance, 2007; Visher et al, 2004). This is unfortunate considering research has shown graduates of drug rehabilitation treatment programs were less likely to be arrested for a drug offense or have a parole violation (Seiter & Kadela, 2003).

In addition to having a high prevalence of drug abuse in prisons, mental health illnesses among prisoners occur at rates up to 4 times higher than the general population (Bureau of Justice Assistance, 2007; Justice Center, 2011) and physical ailments such as HIV/AIDS, hepatitis C and tuberculosis (TB) run at rates up to 5 times higher than those in the general public (Bureau of Justice Assistance, 2007; Hammett, Roberts, & Kennedy, 2001).

Prisoners have been shown to rely heavily on family upon release and see support from them as an important factor in staying out of prison (Bureau of Justice Assistance, 2007; Visher et al, 2004). This can be problematic, however, considering the majority of prisoners report having at least one family member being convicted of a crime and/or with a substance abuse or alcohol problem (Visher et al, 2004). Attitudes towards reentry and the criminal justice system have also been shown to be related to success after release. Visher and colleagues (2004) showed respondents who were likely to report high levels of

self-esteem and control over their lives had better employment and rearrest outcomes, while those who had a negative attitude towards the criminal justice system had worse rearrest outcomes. These were similar to findings from a study conducted by Mackenzie (2008) who examined “what works” in corrections. Found among those that were successful included cognitive skills: moral reconnection therapy, cognitive skills: reasoning and rehabilitation, and cognitive restructuring. She implied, therefore, effective programs need to target the thinking and attitude of offenders and focus on individual level of change. “I hypothesize that effective programs must cognitively transform the individual or facilitate changes the individual is ready to make. This change is required before the person will be ready to take advantage of opportunities in the environment” (Mackenzie, 2008: 15). In addition to finding “what works”, Mackenzie also noted which programs have not been successful in reducing recidivism. None of the programs focusing on punishment or deterrence, such as boot camps, electronic monitoring, or intensive supervision, were shown to reduce recidivism (Mackenzie, 2008).

As this brief review illustrates, prisoners face a wide array of challenges upon their release into the community. While there are many different reentry programs that have been utilized to increase the likelihood of successful reintegration back into society, cognitive-behavioral therapy is one program that has shown to be very promising (Cullen & Gendreau, 2000).

## Chapter 4

### **COGNITIVE BEHAVIORAL THERAPY**

Cognitive-behavioral therapy is based on the “assumption that cognitive deficits and distortions characteristic of offenders are learned rather than inherent” (Lipsey, Landenberger & Wilson, 2007: 4). In regards to crime, behavioral therapies are suitable to modifying ‘criminogenic needs’—antisocial attitudes, personality orientations, and associations—that cause recidivism (Cullen & Gendreau, 2000). Programs utilizing cognitive-behavioral therapy emphasize individual accountability and employ a set of structured techniques targeted at building cognitive skills and restructuring cognition in areas where offenders’ thinking is biased or distorted (Lipsey et al, 2007). The attitude of the offender and the way they view crime is one thing that the offender has total control over when returning to society. The importance of that is magnified when you see they may have little control over other aspects of their life, including housing, employment, and family. Many offenders have to return to the same situation they faced prior to incarceration. Changing their beliefs and attitudes towards crime arms them with a defense against other aspects of their life, which may or may not be pro-crime, over which they have no control.

Lipsey and colleagues (2007) describe the three main categories that comprise cognitive-behavioral therapy: cognitive skills training, anger management, and supplementary components. The cognitive skills training component involves teaching thinking skills such as interpersonal problem solving, abstract thinking, critical reasoning, causal thinking, goal setting, long-term planning, and perspective taking. New ways of behaving in situations that

prompt maladaptive habits, aggressive, and criminal behavior are often done through role-play or practice in real situations. The anger management component usually focuses on teaching offenders to monitor situations in which their thoughts automatically turn to anger or violence. Strategies are then rehearsed to ensure those ‘trigger’ thoughts are being controlled. A key component of anger management programs is learning “to substitute accurate interpretations for biased ones and to consider non-hostile explanations of others’ behavior” (Lipsey et al, 2007: 5). The supplementary component of cognitive-behavioral therapy encompasses programs that differ in their emphasis. Different components have focused on personal responsibility, developing victim empathy, anger control, building conflict resolution skills, social skills training, moral reasoning exercises, or relapse prevention planning. Of these different components, relapse prevention is increasing in popularity with its aim at developing cognitive risk-management strategies “along with a set of behavioral contracts for avoiding or deescalating the precursors to offending behavior” (Lipsey et al, 2007: 5). Cognitive-behavioral therapy has been successfully applied across multiple settings, including schools, support groups, prisons, and treatment agencies. In addition to being applicable to multiple settings, several different problem behaviors have been particularly amenable to change with CBT: (1) violence and criminality, (2) substance use and abuse, (3) teenage pregnancy and risky sexual behavior, and (4) school failure (National Research Council, 2008).

Cognitive-behavioral therapy (CBT) has been shown to be among the more hopeful of rehabilitative treatments for criminal offenders. Several meta-analyses have identified cognitive-behavioral therapy as a particularly effective intervention for reducing recidivism among adult and juvenile offenders (Landenberger & Lipsey, 2005). For example, Pearson, Lipton, Cleland & Yee (2002) conducted a meta-analysis comparing 69 research studies that covered behavioral and cognitive-behavioral programs. They found that the cognitive-behavioral programs were more effective in reducing recidivism compared to behavioral, with a reduction in recidivism of approximately 30%. Likewise, Wilson, Bouffard & MacKenzie (2005) also found a recidivism reduction of about 30% in a meta-analysis examining 20 studies of group-oriented cognitive behavioral programs. In addition, a study conducted by Aos, Miller & Drake (2006) found Cognitive Behavioral Therapy to have the largest effects on reducing recidivism after a review of all program evaluations conducted over the last 40 years. The review included the following programs: adult drug courts, in-prison therapeutic communities with and without community aftercare, jail diversion, psychotherapy, intensive supervision, adult boot camp, and electronic monitoring (Aos et al, 2006). As was demonstrated by Aos and colleagues, the success of CBT is not a recent phenomenon. This is also shown through research by Izzo and Ross (1990), which revealed these programs to be twice as effective as non-cognitive programs while conducting a meta-analysis of 46 studies published on recidivism over twenty years ago. These studies have incorporated a broad range of offender types, outcome variables and

variations in what can be considered as cognitive-behavioral treatment. While many different variations of cognitive-behavioral therapy exist, they all target “criminal thinking” as the contributing factor to deviant behavior (Beck, 1999; Walters, 1990) and can be adapted to help adult and juvenile offenders.

Past research has shown cognitive-behavioral therapy to be successful when treating offenders with mental health problems, drug problems, and felony offenders (Allen, MacKenzie & Hickman, 2001; Tripodi, Bledsoe, Kim & Bender, 2011; Zlotnick et al, 2009). Little, Robinson & Burnette (1993) found, among felony offenders who received CBT while incarcerated, lower arrest rates and recidivism after a 5 year follow up. Similar results were found after a 5 year follow up of offenders released from jail who were found to have significantly lower arrest rates compared to the control group (Krueger, 1997). Pelissier, Motivans, and Rounds-Bryant (2005) found a significant reduction in arrest for female drug offenders, however, there was no significant difference found in male drug offenders.

There have been mixed findings regarding the use of CBT and juvenile offenders. Bogestad, Kettler, & Hagan (2009) found juveniles who participated in a cognitive behavioral program to have a significant reduction in How I Think (HIT) Questionnaire scores, which signals a reduction in cognitive distortions associated with anti-social behaviors. That indicates positive results considering the literature has shown a link between those improvements and a reduction in future crime (Bogestad et al, 2009). On the other hand, studies

have also reported cognitive behavioral therapy to be not as effective for younger offenders (under age 25) (Gaes, Flanagan, Motiuk & Stewart, 1999).

As stated previously, the current study will examine the differential effects of Cognitive Behavior Therapy (CBT) for men and women who were part of the Serious Violent Offender Reentry Initiative (SVORI). Models predicting rearrest will examine the effects of CBT net of other important variables predicting re-entry success.

## Chapter 5

### **HYPOTHESES**

*Hypothesis 1:* Offenders receiving any of the four components of Cognitive-Behavioral Therapy will have a lower probability of rearrest during each wave.

*Hypothesis 2:* Offenders who receive a greater number of the different components of Cognitive Behavioral Therapy will have a lower probability of rearrest during each wave compared to offenders who receive fewer or no CBT services.

*Hypothesis 3:* Of the four different components of CBT, changing of criminal attitudes will have the largest effect on reducing rearrest.

## Chapter 6

### **METHODOLOGY**

#### *Data*

Data for this project came from the Serious Violent Offender Reentry Initiative (SVORI). Data collection for both SVORI and non-SVORI participants consisted of four waves of in-person, computer-assisted interviews, oral swab drug tests, arrest data obtained from the National Crime Information Center (NCIC) at the Federal Bureau of Investigation (FBI), and administrative records obtained from state correctional and juvenile justice agencies. As part of the impact evaluation, experienced Research Triangle Institute (RTI) field interviews conducted pre-release interviews with offenders approximately 30 days prior to release and a series of follow-up interviews at 3, 9, and 15 months post-release. The interview and drug test data were supplemented with arrest data from the NCIC and with administrative records obtained from state correctional and juvenile justice agencies. These data provided information on criminal history and recidivism occurring by December 31, 2007.

#### *Sample*

In developing criteria for site selection for the SVORI impact evaluation, the principal investigators focused on identifying factors that would provide the best assurance that a program would be evaluable. Based on the criteria, a total of 16 SVORI programs were included in the impact evaluation, comprising of 12 adult programs and 4 juvenile programs located in 14 states. A site-

specific research design was developed for each impact site. In two sites the programs randomly assigned individuals to their SVORI program and in the remaining sites quasi-experimental comparison groups were developed by identifying the criteria that local site staff used to identify individuals eligible for enrollment in their SVORI program (including factors such as age, criminal history, risk level, post-release supervision, transfer to post-release facilities, and county of release) and replicating the selection procedures on a different population.

From these 16 programs, a total of 4,354 cases were fielded for inclusion in SVORI impact evaluation study. A total of 1,963 cases were dropped from the sample, thus, the final sample of evaluation-eligible respondents for the impact evaluation was comprised of 2,391 individuals-- 1,697 adult males, 357 adult females, and 337 juvenile males. Specifically, the final sample included 863 SVORI and 834 non-SVORI adult males, 153 SVORI and 204 non-SVORI adult females, and 152 SVORI and 185 non-SVORI juvenile males. In addition, a total of 35,469 arrest records were obtained on individuals in the final sample from the National Crime Information Center (NCIC) at the Federal Bureau of Investigation (FBI)<sup>1</sup> that included prior arrests and re-arrests for offenders in the adult male, adult female, and juvenile male samples. Considering the different issues that come into play in regards to juvenile reentry, it was decided to drop juveniles from the analysis and include only the adult male and adult female samples.

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<sup>1</sup> For a more detailed discussion of the sampling technique, see Lattimore & Visher (2009) "The Multi-Site Evaluation of SVORI: Summary and Synthesis"

<sup>2</sup> "N" for the independent and control variables reflect the total number of

### *Variables*

**Dependent Variable:** The primary dependent variable of interest measured rearrest following release from prison after 3, 6, 9, 12, and 15 months. Research has shown that the best and most practical measures of recidivism are those based on rearrest (Visher, Lattimore & Linster, 1991; Maltz, 1984). Arrest data was obtained from the National Crime Information Center (NCIC) at the Federal Bureau of Investigation (FBI), as well as from administrative records obtained from state correctional agencies. These data provided information on criminal history and recidivism prior to December 31, 2007. The dependent variable was coded as a dichotomous variable indicating whether an individual was rearrested (coded “1”) or was not rearrested (coded “0”). Descriptive statistics reveal that the probability of rearrest increased over time; while only 16.0% of the male population was rearrested after 3 months, 51.7% had been arrested after 15 months. Similar results were found in the female population, with 13.5% having been rearrested after 3 months and 41.5% rearrested after 15 months.

**Independent Variables<sup>2</sup>:** The primary independent variables are specific to the CBT received by study participants. These independent variables measured four different aspects of CBT: attitudes toward criminal behavior, life skills, anger management, and personal relationships. The attitudes toward criminal behavior variable asked the respondents, “Since you have been incarcerated this

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<sup>2</sup> “N” for the independent and control variables reflect the total number of offenders at risk from each wave.

**Table 1. Sample Characteristics**

Variable	Mean	Std. <u>Dv.</u>	N	Range
<b><i>Dependent Variables</i></b>				
Rearrest 3 Months	.167	.372	1,918	0-1
Rearrest 6 Months	.292	.455	1,918	0-1
Rearrest 9 Months	.406	.491	1,918	0-1
Rearrest 12 Months	.475	.500	1,918	0-1
Rearrest 15 Months	.534	.499	1,918	0-1
<b><i>Independent Variables</i></b>				
Criminal Attitudes	.449	.497	7,701	0-1
Personal Relationships	.228	.420	7,701	0-1
Anger Management	.305	.460	7,699	0-1
Life Skills	.339	.460	7,688	0-1
<b><i>Control Variables</i></b>				
White	.448	.497	7,687	0-1
Female	.184	.387	7,701	0-1
Age	29.47	7.34	7,701	18-73
Education	.626	.484	7,694	0-1
<u>HiRisk</u>	.440	.496	6,895	0-1
SVORI Participant	.505	.500	7,701	0-1
Alcohol Treatment	.447	.497	7,696	0-1
Employment Services	.303	.459	7,696	0-1
Education Services	.486	.500	7,701	0-1

time, have you received training on how to change your attitudes related to criminal behavior?” The life skills variable was measured through the following question, “Since you have been incarcerated this time, have you received assistance with other life skills?” This question included life skills other than money management. The anger management variables asked respondents, “Since you have been incarcerated this time, have you participated in any anger management programs?” Lastly, the personal relationships

variables was measured through the following question, “Since you have been incarcerated this time, have you received assistance with working on personal relationships?” These four independent variables are all coded as dichotomous variables indicating whether individuals received services (coded “1”) or did not receive services (coded “0”). Descriptive statistics revealed that 43.8% (743) of male offenders and 45.1% (161) of female offenders received training on how to change their attitude toward criminal behavior, 31.7% (538) of male offenders and 41.7% (149) of female offenders received assistance with life skills, 30.2% (512) of male offenders and 26.6% (95) of female offenders participated in anger management, and 21.0% (356) of male offenders and 30.0% (107) of female offenders received assistance with working on personal relationships.

Several control variables will also be used when predicting rearrest. Demographic variables include race (coded 1=White 0=Non-white) and gender (coded 1=Female 0=Male). An education control will be included measuring the offenders level of school completed. The variable was recoded to include the following categories: 0=Less than high school diploma; 1=High school diploma and higher education. In addition, offender’s age was included, as well as whether they were a SVORI participant or not (coded 1=Yes 0=No). Other services that have shown to have an effect on reentry will also be controlled. A variable measuring ‘risk’ was controlled using an already created variable in the data set designed to capture a number of potential risk factors for rearrest.<sup>3</sup> HighRisk that was equal to 1 if the individual was high risk (scored 5-7) and

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<sup>3</sup> See Appendix A for a more detailed explanation of how variable was created.

scored as 0 otherwise. The risk variable was created using seven<sup>4</sup> indicator variables that are equivalent to or roughly correspond to the seven items in the Level of Service Inventory Revised: Screening Version (LSI-R:SV).<sup>5</sup> A variable measuring whether individuals received employment services, drug and alcohol treatment, and education services was also included. All three of the service control variables were coded 1=Yes 0=No.

### *Data Analysis Strategy*

While a variety of analytic methods have been used to determine the relationship between theoretically relevant independent variables and an individual's probability of rearrest (Farrington and Tarling, 1985; Gottfredson & Tonry, 1987), this paper will be utilizing a discrete time survival analysis. In a survival model of recidivism, the dependent variable of interest is the time to arrest during a specified risk period, rather than whether or not the individual was rearrested during a fixed time/risk period (Visher et al, 1991). In discrete time survival analysis, there is a set number of survival times when the event can occur. This is due to *interval censoring*, where an event (rearrest) can occur continuously, however, the researcher is only aware of the time interval within which the event occurred (Rabe-Hesketh & Skrondal, 2012). In the current analysis, time to rearrest is measured at 3, 6, 9, 12, and 15 months post-release.

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<sup>4</sup> Originally eight indicator variables were included in creating the 'risk' variable. However, the indicator measuring alcohol and drug use 30 days prior to incarceration was dropped due to the high number of missing cases.

<sup>5</sup> For a discussion of the LSI-R:SV, see <http://www.mhs.com/product.aspx?gr=saf&prod=lsi-rs&id=overview>.

The survival model, therefore, provides the probability that an offender will fail in the time period, given they have not failed prior to  $t$ . Released offenders who are never rearrested are “right censored”, which means the event (rearrest) never occurred for them. They continue to be included in the analysis, however, because they are still at risk of the event occurring.

A survival analysis is more appropriate for this study than a ‘static’ model because static models assume offenders who are rearrested immediately after release are equivalent to those arrested several months post-release (Visher et al, 1991). It is likely, however, that offenders rearrested in the first time interval portray different characteristics compared to those arrested during the last time interval. Survival analysis is helpful in identifying those characteristics that are associated with time to failure (rearrest) and thus allows researchers to investigate whether certain characteristics are associated with early and late failures (Visher et al, 1991), in addition to those characteristics associated with rearrest.

Table 1 presents descriptive information for the variables in this study. The descriptive statistics reveal that 16.7% of the offenders had been rearrested after 3 months, 29.2% after 6 months, 40.6% after 9 months, 47.5% after 12 months, and 53.4% after 15 months. Table 2 presents the discrete time survival analysis that includes the CBT variable as ‘any treatment’ in which the individual could have received any of the four components of CBT. Descriptive statistics indicate 57.14% of the offenders received any of the four components of CBT. Table 3 presents the discrete time survival analysis that includes the

CBT variable as a treatment scale, in which the individual could have received anywhere from 0 to 4 of the CBT services. Descriptive statistics indicate 42.9% of the offenders received no services, 17.0% received one service, 15.8% received two services, 13.9% received three services, and 10.4% received all four CBT services. Table 4 displays the discrete time survival analysis that includes all of the independent variables, control variables, and all four CBT variables. Table 5 reports the results that include each component of CBT individually.

The Wald test of coefficient equality was also conducted to see if there were significant differences in the probability of rearrest between males and females due to CBT. In addition, several interaction terms looking at the relationship between the different components of CBT and sex, race, and age were conducted. Several diagnostic tests were also run. No significant differences were observed between males and females for CBT and none of the interaction terms were significant. As such, these results are not included in the tables that follow. To test if there was any multicollinearity between the independent variables, the model was run as an OLS regression and the variance inflation factor was reported. All of the variables reported low VIF scores, indicating there were no significant problems with multicollinearity. In addition, a delta beta test was conducted to test for influential outliers. Although a small number of outliers appeared, they did not influence the results since similar results were concluded after their removal.

## Chapter 7

### RESULTS

Table 2 presents the results from the discrete time survival analysis that includes the CBT variable as any treatment, indicating individuals could have received any of the four components of CBT. The odds ratio presented indicates the effect CBT had at each wave. A table showing the odds ratio for the separate waves (3, 6, 9, 12, and 15 months) can be found in Appendix B. Results indicate those who received any form of CBT had a lower probability of rearrest at the 15-month follow up compared to those who received no CBT services. However, this variable was not statistically significant. Several other findings emerged when considering the effects of the control variables included in the model. The control variables White, Female, Age, Education, SVORI, and HighRisk were all significantly related to probability of rearrest. White individuals had a decreased probability of rearrest of 22.9% at each wave compared to non-white individuals. Female offenders had a 23.7% decreased probability of rearrest at each wave compared to male offenders. With each year increase in age, the probability of rearrest at each wave decreased 1.1%. Individuals having a high school diploma or equivalent or higher education had a 31.9% decreased probability of rearrest at each wave. Individuals who participated in the SVORI program had a 14.3% decreased probability of rearrest at each wave. Lastly, individuals who were considered high risk had 24% increase in probability of rearrest at each wave. The control variables

**Table 2: Discrete Time Survival Analysis: Any CBT Treatment**

<b>Independent Variables</b>	<b>Odds Ratio (S.E)</b>
Any CBT Treatment	.963 (.083)
<b>Control Variables</b>	
White	.771 (.061)***
Female	.763 (.080)**
Age	.989 (.005)*
Education	.681 (.053)***
HiRisk	1.24 (.098)**
SVORI Participant	.857 (.065)*
Alcohol Treatment	.894 (.074)
Employment Services	1.01 (.092)
Education Services	.910 (.071)
N	6266
LR $\chi^2(2)$ , 15 DoF / Prob> $\chi^2(2)$	107.49/0.000
Pseudo R2	0.0207
Classification Rate:	85.45%

\*\*\*p<.001 \*\*p<.01 \*p<.05 +p<.10

**Table 3: Discrete Time Survival Analysis: Treatment Scale**

<b>Independent Variables</b>	<b>Odds Ratio (S.E)</b>
Treatment Scale	.960 (.031)
<b>Control Variables</b>	
White	.771 (.061)***
Female	.767 (.080)**
Age	.989 (.005)*
Education	.683 (.053)***
HiRisk	1.24 (.098)**
SVORI Participant	.867 (.066)*
Alcohol Treatment	.919 (.077)
Employment Services	1.04 (.096)
Education Services	.919 (.072)
N	6266
LR $\chi^2(2)$ , 15 DoF / Prob> $\chi^2(2)$	108.97/0.000
Pseudo R2	0.021
Classification Rate:	85.45%

\*\*\*p<.001 \*\*p<.01 \*p<.05 +p<.10

**Table 4: Discrete Time Survival Analysis: Full Model**

<b>Independent Variables</b>	<b>Odds Ratio (S.E)</b>
Criminal Attitudes	.842 (.082)*
Personal Relationships	.986 (.103)
Anger Management	.916 (.088)
Life Skills	1.13 (.113)
<b>Control Variables</b>	
White	.762 (.061)***
Female	.755 (.079)**
Age	.988 (.005)*
Education	.679 (.052)***
HiRisk	1.24 (.098)**
SVORI Participant	.855 (.065)*
Alcohol Treatment	.933 (.079)
Employment Services	1.02 (.095)
Education Services	.919 (.072)
N	6266
LR $\chi^2(2)$ , 15 DoF / Prob> $\chi^2(2)$	113.26/0.000
Pseudo R2	0.0218
Classification Rate:	85.45%

\*\*\*p<.001 \*\*p<.01 \*p<.05 +p<.10

looking at other treatment services revealed individuals who participated in alcohol treatment and education services had a lower probability of rearrest, while those who participated in employment services actually had a higher probability of rearrest. None of those three variables reached statistical significance, however.

Table 3 presents the results from the discrete time survival analysis containing all of the independent variables, control variables, and the CBT variable as a treatment scale. Results indicate that individuals receiving more CBT services compared to less had a lower probability of rearrest at each wave. This variable failed to reach statistical significance, however. Similar to the

**Table 5: Discrete Time Survival Analysis: Individual Treatments**

	Life Skills	Anger Management	Personal Relationships	Criminal Attitudes
<b>Independent Variables</b>	<u>Odds Ratio (S.E)</u>	<u>Odds Ratio (S.E)</u>	<u>Odds Ratio (S.E)</u>	<u>Odds Ratio (S.E)</u>
Individual CBT Treatment	1.03 (.092)	.879 (.078)	.953 (.089)	.857 (.072)*
<b>Control Variables</b>				
White	.771 (.061)***	.765 (.061)***	.772 (.061)***	.773 (.061)***
Female	.760 (.080)**	.760 (.080)**	.762 (.080)**	.759 (.080)**
Age	.989 (.005)*	.989 (.005)*	.989 (.005)*	.989 (.005)*
Education	.680 (.053)***	.682 (.052)***	.681 (.053)***	.680 (.053)***
HiRisk	1.24 (.098)**	1.23 (.097)**	1.23 (.097)**	1.24 (.098)**
SVORI Participant	.848 (.065)*	.856 (.064)*	.853 (.064)*	.865 (.065)*
Alcohol Treatment	.881 (.071)	.914 (.075)	.892 (.071)	.929 (.077)
Employment Services	.990 (.091)	1.02 (.090)	1.01 (.092)	1.04 (.095)
Education Services	.901 (.070)	.926 (.073)	.908 (.070)	.916 (.071)
N	6,268	6,274	6,276	6,276
LR chi(2), 15 DoF / Prob>ch(2)	107.34/0.000	110.20/0.000	108.24/0.000	111.34/0.000
Pseudo R2	0.0206	0.0212	0.0208	0.0214
Classification Rate:	85.43%	85.43%	85.42%	85.42%

\*\*\*p<.001 \*\*p<.01 \*p<.05 +p<.10

previous model, white, female, education, SVORI and age all showed a significantly decreased probability of rearrest at each wave, while high-risk individuals had a significantly higher probability of rearrest at each wave. In addition, those who received alcohol treatment and participated in education services had a lower probability of rearrest, while individuals who participated in employment services had a higher probability of rearrest. As with the previous model, these variables failed to reach statistical significance.

Table 4 presents the results from the discrete time survival analysis containing all of the independent variables, control variables, and all four Cognitive Behavioral Therapy variables. Results indicate that individuals who, prior to release, participated in anger management programs, received assistance working on personal relationships, and received training on how to change their attitudes related to criminal behavior all had a decreased probability of offending at each wave, but these effects were not significant. Training on how to change attitudes related to criminal behavior was the only CBT service that revealed a significant decrease in the probability of rearrest (15.8%) compared to those who did not receive that service. In fact, although not significant, individuals who received assistance with life skills prior to incarceration actually had an increased probability of rearrest. Results for the remaining control variables remained the same as those stated above.

Table 5 presents the components of CBT in individual models. These results indicate individuals who participated in anger management programs, those who received assistance working on personal relationships, and individuals who

received training on how to change their criminal attitudes all had a lower probability of rearrest. Individuals who received assistance with life skills, however, revealed a higher probability of rearrest at each wave. Those who received training on changing attitudes towards criminal behavior were the only service to reach statistical significance, indicating a lowered probability of rearrests of 15.4% at each wave. This last model indicates that a change in criminal attitudes significantly decreases the probability of rearrest when not controlling for other CBT services.

Results from the Wald test of coefficient equality indicated there were no significant differences in probability of rearrest between males and females due to CBT. In addition, none of the interaction terms looking at the relationship between the different components of CBT and sex, race, and age were statistically significant.

## Chapter 8

### **DISCUSSION**

Prisoner reentry continues to be a serious problem plaguing many individuals in the United States, not just those released from correctional institutions, but their families, friends and communities as well. With approximately 750,000 offenders released from federal prison each year (NIJ, 2011), and 40% to 60% of those released finding themselves rearrested within three years (Bureau of Justice Statistics, 2013; Congressional Research Service, 2011; Justice Center, 2011), reentry has been and continues to be a much needed topic of research. The high rate of reincarceration is attributed to the fact that released prisoners face many challenges when trying to successfully reintegrate back into society and often face discrimination in employment, education, and housing (Andrews & Bonta, 1994; Bureau of Justice Assistance, 2007; Kellett & Willging, 2011). The reentry process can be very complex, and on top of the challenges these released prisoners face, there are often few resources available to them (Kellett & Willging, 2011; Lynch & Sabol, 2001).

Because of these high rates of prison return, states and the federal government have invested in reentry programs to help prisoner's transition back into the community. The goal of reentry programs is to prepare them to successfully make the transition from prison to the community and to live as law-abiding citizens. "Three phases are associated with offender reentry programs: programs that take place during incarceration, which aim to prepare offenders for their eventual release; programs that take place during offenders'

release period, which seek to connect ex-offenders with the various services they may require; and long-term programs that take place as ex-offenders permanently reintegrate into the communities, which attempt to provide offenders with support and supervision” (Congressional Research Service, 2011).

The current research focused specifically on the effects of Cognitive Behavioral Therapy for reducing rates of recidivism. The components of CBT examined in this study included participating in anger management, receiving services that assist with life skills, receiving assistance with working on personal relationships, and receiving training on how to change attitudes toward criminal behavior. Results indicate that the most beneficial component of CBT is changing attitudes towards criminal behavior. Individuals who received this training had significantly lower probabilities of rearrest at each wave, compared to those who did not receive this service. Individuals who participated in anger management and those who received assistance with working on personal relationships also had a decreased probability of rearrest, however, these two components failed to reach statistical significance net of other controls. Although not significant, receiving assistance with life skills had a detrimental effect on rearrest, showing an increased probability of rearrest at each wave. This is consistent with previous work by Mackenzie (2008) who found life skills programs not effective in reducing recidivism and Lattimore, Barrick, Cowell, Dawes, Steffey, Tueller, & Visser (2012) who found receiving life skills detrimental to reentry.

Past research has shown through several meta-analyses that Cognitive Behavioral Therapy is one of the more successful reentry programs that has been employed in the last couple decades (Aos et al, 2006; Izzo & Ross, 1990; Mackenzie, 2008; Pearson et al, 2002; Wilson et al, 2005). CBT has also shown to be effective for several different types of offenders, including those with drug problems, offenders with mental health issues, and felony offenders (Allen et al, 2001; Tripodi et al, 2011; Zlotnick et al, 2009). With the extensive research indicating the success of CBT, the results of the current study may be somewhat surprising. However, past research has shown Cognitive Behavioral Therapy to be most effective when the services were intensive, lasting 3 to 9 months and occupying 40 to 70 percent of the offender's time while they were in the program (Cullen & Gendreau, 2000). Unfortunately, as is discussed below, one limitation of this study was having no knowledge of what was included in the programs and services that were implemented as part of the SVORI program.

As does all research, this study has certain limitations that need to be addressed and kept in mind when interpreting the results. As mentioned above, a major limitation to this study was the fact that there was no knowledge or information on the nature and implementation of the SVORI programs and the specific services, classes, and programs provided as part of the SVORI. The original evaluation was explicitly not a process evaluation, but efforts were made to gather basic information on what the program directors planned and the study participants believed they received. These latter measures of service receipt are admittedly flawed. They undoubtedly contain error with individuals

misreporting because they may have forgotten that they received specific services, believed that they had received services they did not receive, did not understand that they had in fact received a service, or simply lied. In addition, subjects were randomly assigned to SVORI and non-SVORI conditions in only two of the adult sites. As such, it is not possible to assume the SVORI and non-SVORI participants were equivalent in these non-randomly assigned sites. However, to ameliorate this limitation, careful attention was paid in the design of the original multi-site evaluation to identify comparison populations similar to those targeted for the SVORI initiative. Third, as with most longitudinal studies, there was attrition at the three follow-up waves. Interviews were pursued at each wave regardless of whether previous interviews were completed successfully. This limited the current study to pre-release service receipt only, when past literature has shown it is vital to continue with CBT post-release (Francis & Gendreau, 2000). Fourth, the number of subjects in the adult female sample was small—particularly during examination of post-interview outcomes. In many instances, there were fewer than 200 observations and as few as 100 when looking at conditional outcomes. Lastly, prior drug and alcohol use could not be accounted for in the risk variable due to low response rates.

Although extensive research has been conducted on prisoner reentry in the past, continued research on this complex topic is vital. As shown through this research, receiving reentry services prior to release is not always enough. Future research needs to assess the relationship between continued service receipt after release and probability of rearrest. Moreover, more research is

needed to determine the efficacy of such programming for subsets of the population including gender and race/ethnicity specific analyses.

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## **Appendix A**

### **CREATION OF RISK VARIABLE**

The risk variable was created using eight indicator variables that are equivalent to or roughly correspond to the items in the Level of Service Inventory-Revised: Screening Version (LSI-R: SV). The first item is an indicator of whether the individual has two or more prior convictions. The second item is an indicator of whether the individual was arrested before age 16. The third item in the LSI-R: SV is an indicator of whether the individual is currently employed. Because the respondents in the SVORI evaluation were interviewed while incarcerated, this third indicator was approximated by considering work release jobs and pre-prison employment. Respondents with work release jobs at the time of the interview were treated as employed. Respondents without work release jobs who had been incarcerated more than 1 year were treated as unemployed. For respondents without work release jobs who had been incarcerated less than 1 year, pre-prison employment was used as the indicator of employment status. The fourth item is an indicator of whether the individual has some criminal friends. Respondents who reported that they were currently in a gang or that any of their friends prior to incarceration had been convicted of a crime or in a correctional facility were coded as having criminal friends. The fifth item, an indicator of alcohol and drug use 30 days prior to incarceration, was not included as an indicator due to the high number of missing values. The sixth item is and

indicator of mental or psychological problems. This item is coded as 'yes' if any of the following are true: the respondent did not have a high school degree or GED at the time of the interview, perpetrated violence against someone during the six months prior to incarceration, reported needing a batterer intervention program, or scored below the study sample midpoint on a constructed scale of self efficacy. The seventh item is an indicator of 'non-rewarding' family relationships and is coded as 'yes' if the respondent scored below the sample study midpoint on a constructed scale of family emotional support. The eighth item is an indicator of an orientation or attitudes supportive of crime. It is coded 'yes' if the respondent agreed or strongly agreed with the following three statements about breaking the law: Laws are made to be broken; It's okay to do anything you want as long as it doesn't hurt anyone; To make money, there are no right and wrong ways, only easy and hard ways. The seven dichotomous indicators were summed. Respondents with scores of 5-7 were classified as high risk for these analyses.

## Appendix B

### FULL MODEL AT EACH WAVE

**Table 6: Discrete Time Survival Analysis: Full Model at Each Wave**

	3 Months	6 Months	9 Months	12 Months	15 Months
<b>Independent Variables</b>	Odds Ratio (S.E)				
Criminal Attitudes	.791 (.142)+	.896 (.180)	.911 (.191)	.803 (.215)	.774 (.215)
Anger Management	1.14 (.202)	.826 (.164)	.659 (.139)*	.920 (.236)	1.15 (.310)
Life Skills	.917 (.172)	1.55 (.322)*	1.17 (.256)	1.30 (.386)	.739 (.221)
Personal Relationships	1.16 (.229)	.974 (.210)	.884 (.204)	.963 (.267)	.903 (.277)
<b>Control Variables</b>					
White	.746 (.110)*	.717 (.120)*	.837 (.144)	.783 (.168)	.747 (.170)
Female	.851 (.164)	.632 (.147)*	.796 (.179)	.674 (.195)	.845 (.245)
Age	.996 (.010)	.982 (.011)+	.994 (.012)	.969 (.015)*	.992 (.015)
Education	.649 (.092)**	.702 (.113)**	.624 (.105)**	.834 (.181)	.624 (.143)*
HiRisk	1.01 (.147)	1.52 (.250)**	1.36 (.236)+	1.22 (.266)	1.19 (.275)
SVORI Participant	.867 (.121)	.698 (.111)*	.895 (.149)	.953 (.200)	1.05 (.233)
Alcohol Treatment	.919 (.143)	.800 (.142)	.999 (.183)	.801 (.184)	1.37 (.335)
Employment Services	1.00 (.173)	.953 (.184)	.940 (.194)	1.11 (.280)	1.22 (.326)
Education Services	.741 (.108)*	.879 (.144)	1.24 (.213)	.970 (.206)	.920 (.210)
N	1,705	1,429	1,215	1,018	899
LR chi(2), 15 DoF / Prob>ch(2)	30.81/0.0035	42.63/0.0001	27.59/0.0103	14.98/0.3084	14.25/0.3566
Pseudo R2	0.0205	0.0353	0.0256	0.0204	0.0218

\*\*\*p<.001 \*\*p<.01 \*p<.05 +p<.10